
**Innovation management — Illustrative
examples of ISO 56000**

Management de l'innovation — Exemples illustratifs de l'ISO 56000

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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 document 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).

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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*.

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.

Introduction

0.1 General

The main purpose of this document is to provide easy to understand descriptions of a limited selection of the key terms and definitions found in ISO 56000. This document offers simple, fictional examples, which are intended to illustrate the general concepts which underpin ISO 56000.

This document is designed to be of benefit to parties who are interested in managing innovation, but who are not yet fully familiar with the working definitions and concepts presented in the ISO 56000 family of standards related to innovation management. It is not intended to serve as a reference on how to manage innovation, rather it is a guide for the understanding, communication, dissemination, and adoption of innovation management standards.

0.2 Relationships with other innovation management standards

The following are documents developed by ISO/TC 279 in the ISO 56000 family of standards:

- ISO 56000 provides vocabulary, fundamental concepts and principles of innovation management and its systematic implementation;
- ISO 56002 provides guidance for organizations to establish, implement, maintain and continually improve an innovation management system;
- ISO 56003 provides guidance for organizations working together to innovate;
- ISO/TR 56004 provides guidance for organizations to plan, implement and follow-up on an innovation management assessment;
- ISO 56005 supports the role of intellectual property (IP) within innovation management;
- ISO 56006 provides guidelines for supporting strategic intelligence within innovation management.

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Innovation management — Illustrative examples of ISO 56000

1 Scope

This document provides descriptions, context, and examples for selected concepts of innovation management defined in ISO 56000, chosen to provide understanding of the most essential concepts in innovation management.

This document does not explain “how to” innovate or manage innovation, but it enables understanding of the language and concepts used in communication related to innovation and innovation management. Descriptions, examples, and infographics are used throughout this document, both to illustrate concepts and to differentiate between concepts. The examples have been chosen from a variety of industries and sectors with a focus on different types of innovations and are non-exhaustive.

The document is intended to be used by:

- a) organizations implementing an innovation management system, or performing innovation management assessments;
- b) organizations that need to improve their ability to effectively manage innovation activities;
- c) users, customers, and other interested parties (internal and external) seeking to ground and improve communication through a common understanding of the vocabulary used in innovation management;
- d) providers of training in, assessment of, or consultancy for, innovation management and innovation management systems;
- e) developers of innovation management and related standards.

This document uses examples to make concepts more comprehensible and is intended to be used as:

- An introduction: Interested parties can be onboarded to the documents published as part of the ISO 56000 family of standards, bridging the gaps between alternative views, beliefs, and conceptions of innovation and the science and practice of innovation management.
- A guideline: This document presents key technical definitions and concepts in a descriptive format suited to broad and non-technical audiences and can be used to provide basic understanding to organizations, academia, media, and other interested parties as the agreed upon standards become available to the world.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 56000:2020, *Innovation management — Fundamentals and vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 56000 apply.

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

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

4 Descriptions of vocabulary and illustrative examples

4.1 General

This document expands on the following selected vocabulary defined in ISO 56000 with the intent of providing descriptions that combine the notes to entry with the definitions, context, and examples:

- innovation;
- innovation activity;
- innovation process;
- innovation management;
- innovation management system.

Further descriptions and examples for each of the above can be found in the next subclauses, and in [Annex A](#), including examples of product, process, and service innovations.

The examples and use cases included in this document are fictitious and are intended to give the reader context for the vocabulary and the attributes used to determine the significance of an innovation. The illustrative examples, in the form of case studies, have been chosen in such a manner as to show the varying degrees of the three attributes used to determine the significance of an innovation (value, change/newness, impact) with the understanding that the degrees are relative to and determined by the organization and other interested parties. The examples are not intended to be exhaustive.

4.2 Brief description of terms

- An "innovation" is a new or changed product, process, or service that creates value. It is not an activity that creates the outcome; it is the outcome itself.
- An "innovation activity" is an activity that generally contributes to innovation.
- An "innovation process" is a combination or sequence of activities that aims to deliver an innovation.
- "innovation management" is the structuring and carrying out of innovation processes and business processes designed to lead to innovation.
 - "innovation initiative" see example in [A.2.4.3](#) Case Study 1
 - "innovation portfolio" see example in [A.5.4.4](#) Case Study 4
- An "innovation management system" is the way an organization has organized policies, strategies, processes and various other interacting elements and interrelated elements to accomplish its innovation objectives, including delivering innovation, with greater predictability, and aiming for the realization of value.

4.3 Innovation

4.3.1 Description of innovation

Whether changed or new, an innovation is an outcome that adds value through its adoption, implementation, commercialization, and/or use. An innovation can be a product, service, process, model, method, or any other outcome, but must create value in order to be considered an innovation.

The significance of an innovation is often determined by the intersection of some combination or permutation of the degrees of value, change/newness, and impact:

— Degree of value

The degree of value can be either financial or non-financial, or both, and can affect individuals, groups, organizations, or societies.

EXAMPLE A process for creating and/or delivering more value-producing advertising, marketing, and/or logistics channels can be considered an innovation. The introduction of that type of innovation can result in loss of value for another organization.

— Degree of change/newness

The degree of change/newness is generally considered to exist on a continuum ranging from incremental to radical/breakthrough. The degree of change/newness can be also explicitly expressed as the degree of shift from the current method of achieving an outcome to the new method.

EXAMPLE Innovations that an organization might create can range from an additional point of configuration for a current solution (incremental change), to having the option for a fully customizable solution, to the offering of an entirely new solution (radical/breakthrough change) for improving customers'/users' experiences.

— Degree of impact

The degree of impact is the effect an innovation can have on any or all interested parties. It may be expressed as the outcomes of the shift generated by an innovation. Impact can be (e.g. direct/indirect, short/long term, positive/negative, local/global).

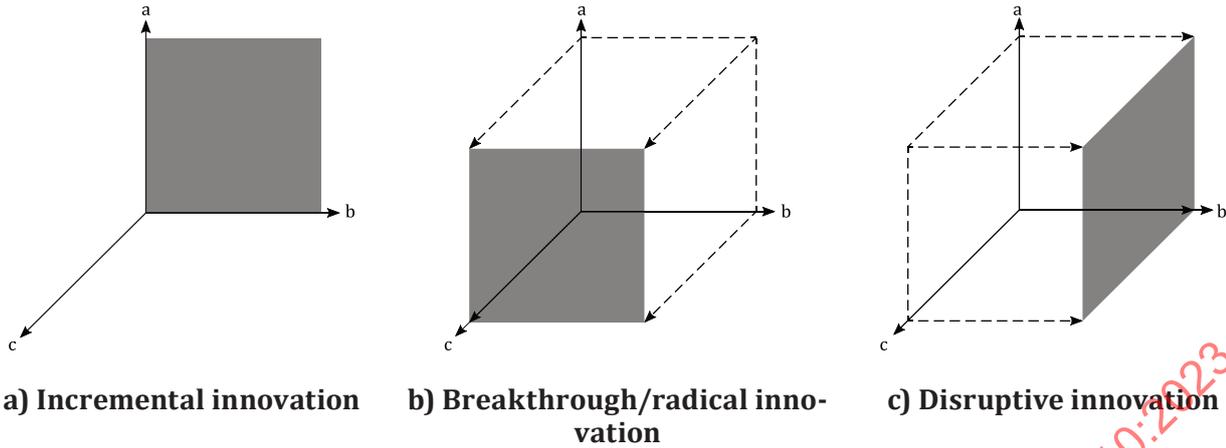
EXAMPLE When large organizations close or expand due to a disruptive innovation gaining significant market share (i.e. a simpler offering that has been adopted by a significant number of users), economic development agencies can calculate the ripple effect(s) on the jobs lost or created, but can struggle to calculate the full, long-term, complex, or more indirect impacts on society or the environment.

4.3.2 Forms of innovation

Three commonly referred to forms of innovation as defined in ISO 56000 are incremental, radical/breakthrough, and disruptive, described below and illustrated in [Figure 1](#).

"Incremental innovation" and "radical/breakthrough innovation" relate to the degree of change introduced by the innovation as compared to prior art. As illustrated in the previous examples, incremental and radical/breakthrough innovation form two ends of a continuum, with incremental representing the least amount of change or newness and radical/breakthrough representing the most amount of change or newness.

"Disruptive innovation" relates to the impact of the innovation. Innovations that address less demanding needs by pursuing cost efficiency through more banal offerings become disruptive when they are adopted by a significant number of users as a replacement for a previously established offering.



Key
 a Degree of value.
 b Degree of impact.
 c Degree of change/newness.

NOTE The values attributed in these examples are arbitrary and for illustration purposes only. The forms of innovations are represented by planes in grey colour.

Figure 1 — Forms of innovation

4.4 Description of innovation activities

Innovation activities are activities which aim to generate or develop innovations. They can be highly diverse - ranging from isolated or unpremeditated events, such as accidental discoveries - to being part of structured and planned processes, such as research and development activities. Innovation activities can be combined or reiterated and can, but do not always, result in successful innovations.

Examples of innovation activities can include, but are not limited to, research and development (R&D), needs assessments, ideation or creativity sessions, simulation and prototyping, testing, documentation, monitoring, evaluation, and commercialization.

4.5 Description of innovation processes

An innovation process consists of any sequence of activities that aims to create innovations and thus realizing value, however not all innovation processes will result in innovations. Innovation processes are often designed to manage uncertainty, and as such are generally flexible, non-linear, iterative, and characterized by experimentation, learning, and tolerance of failure. Examples of innovation processes include, but are not limited to, identifying opportunities, generating concepts, and identifying and developing solutions.

In an innovation process:

- the order of the activities can be important,
- the activities need not be sequential, for example, they can be parallel, and
- the relation and interaction between the different activities in the process can be important.

4.6 Description of innovation management

Innovation management involves defining, planning, integrating, and executing the innovation activities and/or processes necessary to achieve innovation(s), which includes reducing risks, managing uncertainty, and removing barriers for innovation initiatives and innovators (e.g. developing policies

and opening access and managing the trade-offs between optimizing performance and exploring new opportunities).

Innovation management also includes elements of leadership, such as establishing an innovation vision and strategy, and wider organizational elements such as fostering a culture supportive of innovation through social interaction and cooperation among all participants, which can help create an enabling environment for innovation.

In addition, innovation management helps to ensure the alignment of innovation activities with the strategic direction of either the organization or society, or both, which includes ensuring that innovation activities are based on an understanding of explicit, implicit, latent or nascent needs and expectations.

4.7 Description of innovation management system

An innovation management system is the combination of strategies, policies, objectives, and processes that affect an organization's ability to accomplish its innovation objectives. It can include the organization's context, innovation culture, leadership, support, operations, planning, performance evaluations, and improvement mechanisms. An innovation management system typically has other peer systems, such as a production system, supply chain system, and human resources system.

An innovation management system is the structure of an organization to achieve its innovation ambitions and addresses the presence of related uncertainty, while aiming for the realization of value.

4.8 Distinguishing innovation from other related concepts

The following concepts, from ISO 56000, are often related to innovation, but are sometimes used incorrectly, interchangeably with the term innovation:

"Creativity" and innovation are related, but they are distinct concepts. Creativity denotes an ability and it is generally considered to be the act of conceiving or imagining something original. Creativity can lead to an innovation, but not always (see ISO 56000:2020, 4.2.3.3).

"Invention" is simply something new that was created, and which does not need to create value to be considered an invention. An innovation, on the other hand, must create value, so not all inventions become innovations. Only when an invention is adopted and implemented in a way that creates value can it also be called an innovation. An invention can be protected by intellectual property rights (see ISO 56000:2020, 4.2.3.2).

"Intellectual property" (IP) is an intangible asset. IP can be, among other things, the inventions, trademarks, trade secrets or know-how created in innovation activities (see ISO 56000:2020 3.5.2).

"Intellectual property rights" (IPR) are legal rights that apply to IP under statute or common law. Non-exhaustive examples of IP rights include patents and utility models, trademarks, industrial designs, database rights, performance rights and copyright. Not all IP is protected by IPR (see ISO 56000:2020, 3.5.3).

"Research and development" (R&D) usually refers to a set of activities that can be part of an innovation process. It is also often used to describe the function or an organization that performs those activities. R&D activities are conducted with the intent of creating new knowledge and inventions. When successfully implemented or adopted in the market, these creations can become innovations. Regardless of the outcome, the activities would still be considered R&D activities (see ISO 56000:2020, 4.2.3.4 and 4.2.3.5).

Annex A (informative)

Case studies

A.1 General

The graphic illustrations of the three dimensions of innovations included in the following case studies are intended to aid in the understanding of the relationships between the three independent dimensions by which innovations can be categorized (see [Figures A.1, A.2, A.6, and A.7](#)).

A.2 Case Study 1 (Product): Pineapple Tech Corporation

A.2.1 Organizational challenge

Pineapple Tech Corporation suffered from technology management issues, particularly when it came to peripheral devices. Every device and computer seemed to require a different way of connecting to each other. Worse, the number of different types of ports was growing.

A.2.2 Solution delivered – Innovation

The organization introduced a universal port for connectable devices that enabled plug and play capabilities for associated port requirements.

A.2.3 Significance of innovation

A.2.3.1 Degree of value

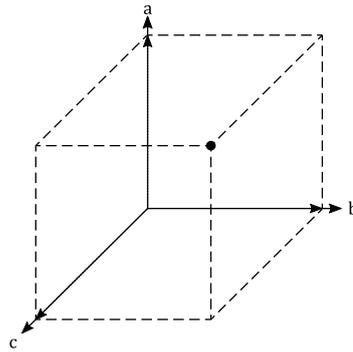
The widespread adoption of their solution created value that can be measured by the reduction (or, in some cases, elimination) of human and technology costs. For example, innovation made maintenance, replacements, and troubleshooting easier and less costly, therefore the hypothetical degree of value would be high.

A.2.3.2 Degree of change/newness

It was a radical/breakthrough because it created something brand new, making it the highest level of degree of change/newness.

A.2.3.3 Degree of impact

The adoption of this solution disrupted the computer industry, both in the design of the computers and the design of the peripheral devices, therefore the hypothetical degree of impact in this example would be high.

**Key**

- a Degree of value.
- b Degree of impact.
- c Degree of change/newness.

Figure A.1 — Significance of innovation for Pineapple Tech Corporation

A.2.4 Pineapple Tech examples

A.2.4.1 Innovation activities

One of their innovation activities was to identify needs through a user study investigating user preference related to the location of the universal port on PCs and other devices. Another activity was ideation, where the team brainstormed solutions, and desired outcomes. They also created specifications for a proof of concept, and an associated lexicon.

A.2.4.2 Innovation processes

Pineapple Tech Corporation implemented a concept creation innovation process consisting of three interacting innovation activities: ideation, user studies and creation of proof of concept.

A.2.4.3 Innovation management

Roles and responsibilities were established by creating a structured research and development team to improve the available memory of the devices and by internally recruiting a project manager for their innovation initiatives (see ISO 56000).

The project manager undertook additional innovation management efforts that included setting budgets and setting a step-by-step plan for meeting objectives.

Incremental improvements to the universally connectable device were patented to get legal protection of the investment made into research and development thus preventing competitors unfairly profiting by copying the technology.

A.2.4.4 Innovation management system

Pineapple Tech Corporation achieved its goal of developing a universally connectable port through a combination of research and development, prototyping and performance evaluations, and successful marketing processes.

While planning their innovation process, they also changed the structure of the teams working on innovation, allowing all their employees to submit design concepts and sharing data and the results of the prototyping more broadly to foster creativity and promulgate ideas. They call the revised structure they established their Innovation Management System.

A.3 Case Study 2 (Process): Pickle Express

A.3.1 Organizational challenge

Pickle Express made the best pickle burgers in town, but their success was hindered by long order fulfilment times and inconsistent quality.

A.3.2 Solution delivered – Innovation

The organization used industrial engineering and manufacturing methodologies to invent a new tool and to create a fast-food system that quickly responded to customer orders without waste or inconsistency.

A.3.3 Significance of innovation

A.3.3.1 Degree of value

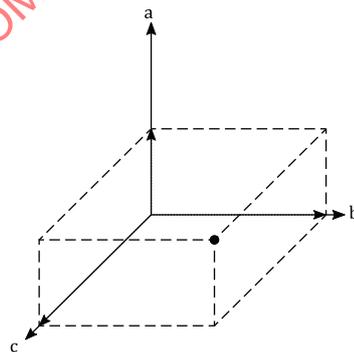
Pickle Express grew exponentially as a franchise model and was hailed as an industry leader in quality fast food. Furthermore, the widespread adoption of their solution enabled fast-food restaurants to become some of the most lucrative organizations, expanding offerings while maintaining low budget food. Therefore, in this example, the relative degree of value would be moderately high.

A.3.3.2 Degree of change/ newness

The degree change/newness of this innovation would fall between incremental and radical/breakthrough, because it had never been done before in that industry, but was not an entirely new concept.

A.3.3.3 Degree of impact

The adoption of this solution created a whole new industry, employing millions of people across the world. Additionally, the ability to consume food changed dramatically by making food fast, easy, and cheap. Cuisines are still adopting this model. Therefore, in this example, the relative degree of impact would be moderately high.



Key

- a Degree of value.
- b Degree of impact.
- c Degree of change/newness.

Figure A.2 — Significance of innovation for Pickle Express

A.3.4 Pickle Express examples

A.3.4.1 Innovation activities

One of their innovation activities was to identify needs through using the techniques of a SWOT, affinity diagram, and brainstorming. Another activity was to design the potential solution of a pickle slicing machine to ensure a consistent thickness using computer simulation. They then tested the potential solution. As part of the activity of implementing the solution, they created documentation of the steps of pickle slicing and the burger building process. See [Figure A.3](#).

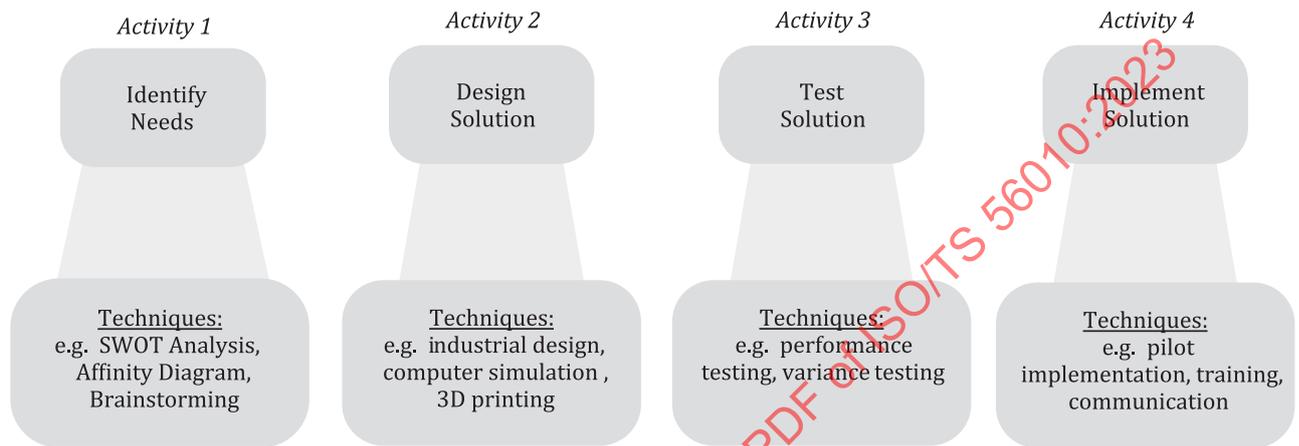


Figure A.3 — Pickle Express innovation activities

A.3.4.2 Innovation processes

The Pickle Express team selected four innovation activities to put together as their first version of an innovation process: define needs, design potential solutions, test solutions, and implement solutions. See [Figure A.4](#).

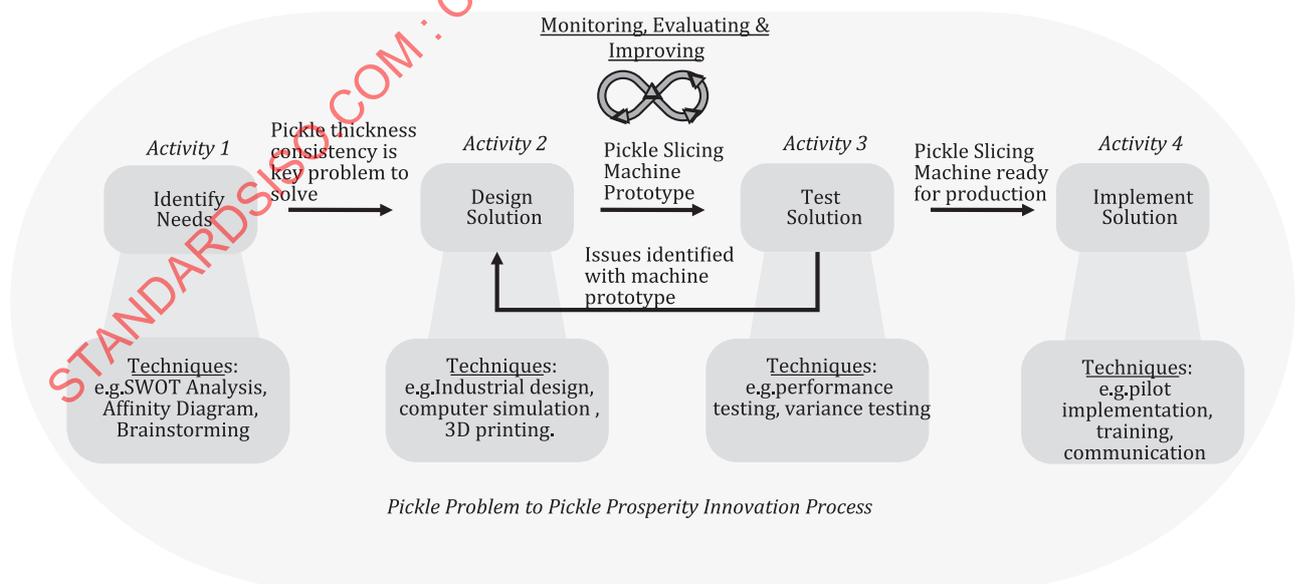


Figure A.4 — Pickle Express innovation processes

A.3.4.3 Innovation management

The project manager at Pickle Express set up policies and established a new quality review process to gather data on preparation time and food quality, which was also used to reward teams who participated effectively with the innovative slicing and building processes.

A.3.4.4 Innovation management system

Pickle Express achieved its goals by defining processes and assigning responsibilities that enabled successful prototyping, testing, and market access, thus creating an innovation management system. The management of Pickle Express realized that they could replicate these or similar types of innovation processes in the future as part of their published innovation management system to improve other areas of their business operations. See [Figure A.5](#).

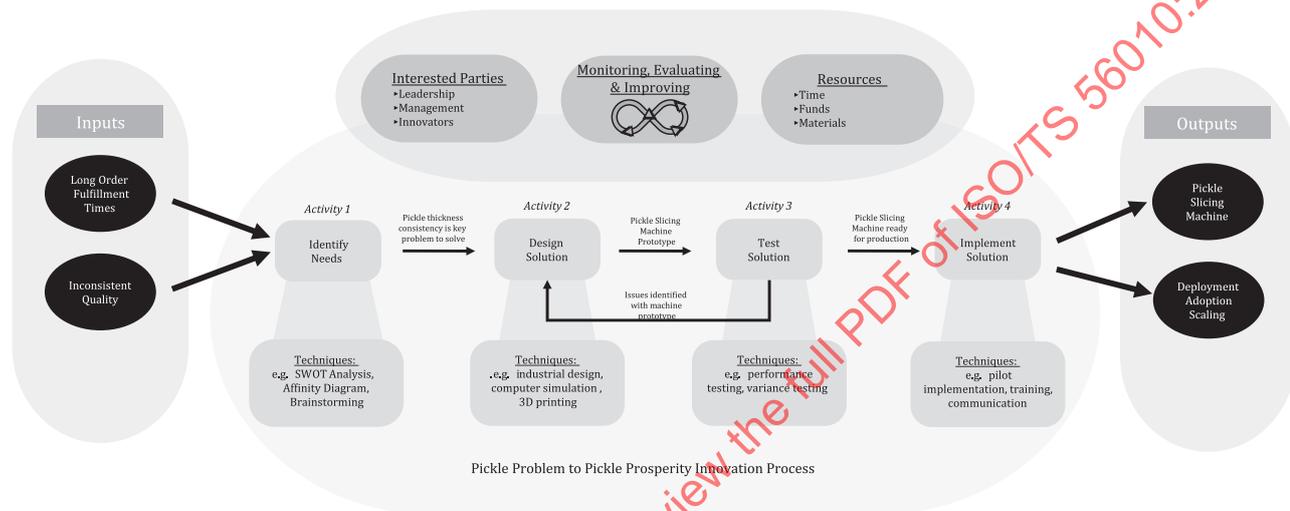


Figure A.5 — Pickle Express innovation management system

A.4 Case Study 3 (Service): Prickly Pear Software Company

A.4.1 Organizational challenge

Prickly Pear made software applications and wanted to expand the pool of clientele to include customers that found their products to be cost prohibitive to own. They also faced challenges with their current customers, as they had difficulty ensuring wide-scale updates of their software.

A.4.2 Solution delivered – Innovation

Prickly Pear Software Co. began providing their software as a service, rather than as a product that was purchased one time (and often via the intermediary of distributors). This eliminated the intermediaries by licensing the software, which was centrally hosted (e.g. cloud) on a subscription basis. This also helped to ensure that the most up-to-date software was used by customers.

A.4.3 Significance of innovation

A.4.3.1 Degree of value

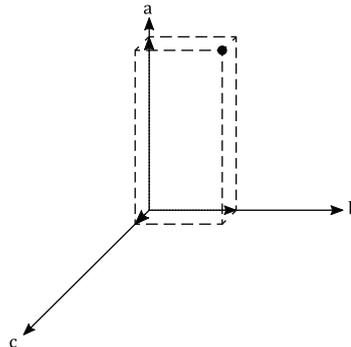
Largely a licensing business model change, revenues for firms increased due to the change from a one-time sale to an ongoing, recurring revenue source, as well as due to the elimination of the intermediary. Overall, information technology costs could be more right-sized because they could be based on actual usage. Debugging and updating were enhanced as well as speed from development through delivery/adoption/use. Therefore, the hypothetical degree of value in this example would be moderately high.

A.4.3.2 Degree of change/newness

This was an incremental change because, outside of the software updating process, the user experience was minimally affected.

A.4.3.3 Degree of impact

The degree of impact in this example can be evaluated as moderately high because it shifted the concept from owning software to paying per use, and therefore smaller organizations could afford the software, making them more competitive in the market, and creating more jobs.



Key

- a Degree of value.
- b Degree of impact.
- c Degree of change/newness.

Figure A.6 — Significance of innovation for Prickly Pear

A.4.4 Prickly Pear examples

A.4.4.1 Innovation activities

One of their innovation activities was internal needs clarification resulting in an organizational assessment. Another activity was an ideation exercise where they leveraged the team's creativity to brainstorm possible solutions. Their first ideas were concentrated on reducing cost, but the solutions they identified were not sufficient to lower pricing to a level acceptable to customers. They also carried out market research to identify the needs users faced.

A.4.4.2 Innovation processes

When the Prickly Pear team decided upon direct one-time licensing, they embarked on a process of designing a new interface to make license purchases simple and quick. They set up a tentative innovation process to design their solution consisting of the following innovation activities: internal needs clarification, ideation, and market research. Then innovation activities were repeated for iterative improvement of the potential innovation before market introduction.

A.4.4.3 Innovation management

Since Prickly Pear's leadership implemented a software-as-a-service (SAAS) model, part of their innovation management was to employ methods and processes to ensure the monitoring of customer usage of features in order to identify opportunities for adding additional value. This led to increased revenue, through the development and provision of innovations in the form of enhanced or new features.