

**Co-operation between the
International Organisation for Standardisation (ISO)
and the
Organisation for Economic Co-operation and Development (OECD)
on the
Definition of Innovation
for
Innovation Management and Statistical Measurement**

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Abstract

This paper presents changes made in the ongoing work on an international standard for innovation management by the ISO and on the definition of innovation for statistical measurement purposes by the OECD. These changes ensure that the two definitions of innovation are related and not in conflict with one another. This is an example of international organisations collaborating to ensure a coherent outcome.

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1. Introduction

International standards provide guidance for many economic activities such as the production of products, organisation of businesses, means of transporting goods, and environmental objectives. This paper examines the development of two international standards and how they connect. It shows how the two standards are influencing one another. Both standards, the ISO standard for innovation management and the OECD/Eurostat standard for the statistical measurement of innovation, are works in progress. As a result, there may be changes in what is recorded here as they both move to completion.

The ISO Technical Committee 279 was created in 2013 to develop an ISO standard for innovation management. In 2015 the OECD Working Party of National Experts on Science and Technology Indicators (NESTI) started the revision of the third edition of the Oslo Manual (OECD/Eurostat 2005) which provides guidelines for the statistical measurement of innovation and the interpretation of the data. Both organisations have been in contact from the start of their work. There was an ISO/TC 279 presentation to an OECD working group on the revision of the Oslo Manual in December 2015. The discussion led to a working paper (Karlsson et al. 2016) that summarised the approaches to defining innovation in the TC 279 documents and in the Oslo Manual.

Following this, the authors were invited to examine common characteristics in work on the definition of innovation by TC 279 as part of developing a standard for innovation management and NESTI's work on revising the Oslo Manual and introducing a general definition of innovation applicable in all economic sectors defined in the System of National Accounts 2008 Manual (EC et al. 2009). The general definition was important to this process as the management of innovation can take place in any economic sector and, to make the comparison with the work on the revision of the Oslo Manual, there had to be a definition of innovation with the same scope. In previous editions of the Oslo Manual innovation was defined for the business sector only while acknowledging that innovation could occur in any sector of the economy (OECD/Eurostat 2005: para 27 and 28).

Bringing the definitions together required some flexibility on both sides but the process was managed. Some of the issues were the dealing with 'value' in the ISO definition and the importance of standards as innovation activities in the Oslo Manual text. These were resolved.

In what follows, there is brief discussion of the proposed changes or additions to the ISO terminology, terms and definitions and the Oslo Manual draft text. This is based on the discussion paper that the authors developed while engaging both organisations. The discussion paper is in the Annex³. The original version was submitted to the TC 279 on March 12, 2018 and also the Oslo Manual Steering Group (OMSG) at about the same time.

2. Linking definitions and related issues

The linking of the definitions was successful, taking into account the different objectives of the Oslo Manual and the ISO. One of the issues was language. The Oslo Manual draws upon the

³ The section numbering in the Annex, and the content, were those used in March 2018 and differ, in some cases, from what is used in this paper. Current Oslo Manual paragraph references have been added in footnotes. In addition, on October 15, 2018, the ISO TC 279 changed the name of the standard for innovation management from ISO 50500 to ISO 56000. As the Oslo Manual was to be released on October 22, 2018, it was impossible to change the two explicit references to the standard in the Manual. They occur in the Glossary and in Chapter 1, paragraph 21 of the Oslo Manual.

System of National Accounts 2008 Manual (EC et al. 2009) and uses its language which is an international statistical standard. In the SNA language, a ‘product’ is a good or service. In the language used by ISO, a product is separate from a service. While this was a difference, it was not a major issue and each organisation used its own language.

Another issue was ‘value’. In the definition of innovation for the purpose of statistical measurement a product or process has to differ significantly from previous products or processes of the unit and products have to be made available to potential users and processes have to be brought into use by the unit. Nothing is said in the definition about ‘value’. Of course, ‘value’, however defined, is expected to be the intention of the unit but what is measurable is the making of a product available to potential users or the bringing into use of a process.

The value issue was resolved by Note 2 to entry for the ISO definition of value: Value can be e.g. created, realised, acquired, redistributed, shared, lost, or destroyed. This covered what could be expected as a result of innovation in the Oslo Manual and does not restrict the definition. Note 2 to entry is at variance with the basic definition, ‘financial or non-financial resources *or advantages*. The resolution of this was left to the ISO. The current ISO definition is the following.

4.2.8

value

financial or non-financial resources or advantages

EXAMPLES: revenues, savings, productivity, sustainability, satisfaction, empowerment, *engagement* (4.4.3), trust.

Note 1 to entry: Value is relative to, and determined by the perception of, the *organization* (4.2.2) and *interested parties* (4.2.4).

Note 2 to entry: Value can be e.g. created, realized, acquired, redistributed, shared, lost, or destroyed.

Note 3 to entry: The value of an *entity* (4.2.5) is generally determined in terms of the amount of other entities for which it can be exchanged, considering gains in relation to costs.

Note 4 to entry: The word “value” sometimes refers to a (numerical) unit of data, e.g. the output from *measurement* (4.8.2) and “values” sometimes refers to principles or standards of behaviour, e.g. included in the concept of *culture* (4.4.1). When “value” is used in these senses, it should always be used with some form of qualifier, e.g. “numerical value” or the meaning should be obvious from the context.

As a result of discussion, a proposal was made for an addition to the ISO definition of innovation which is found in Section 2.4 of the Annex. This completed the bridge between the two definitions. With the Note to entry 4, it is possible to go from the ISO definition of innovation to the Oslo Manual definition and back. This was a major outcome. The current ISO definition is the following.

4.1.1

innovation

new or changed *entity* (4.2.5), realizing or redistributing *value* (4.2.8)

Note 1 to entry: Novelty and value are relative to, and determined by the perception of, the *organization* (4.2.2) and *interested parties* (4.2.4).

Note 2 to entry: An innovation can be a *product* (4.2.6), *service* (4.2.7), *process* (4.1.5), model, method etc.

Note 3 to entry: Innovation is an outcome. The word “innovation” sometimes refers to *activities* (4.1.4) or *processes* (4.1.5) resulting in, or aiming for, innovation. When “innovation” is used in this sense, it should always be used with some form of qualifier, e.g. “innovation activities”.

Note 4 to entry: For the purpose of statistical measurement, refer to the Oslo Manual (OECD/Eurostat 2018):

- ‘New or changed entity’ corresponds to ‘a new or improved product or process (or combination thereof) that differs significantly from the unit’s previous products or processes’.

- ‘Realising or redistributing value’ corresponds to ‘and that has been made available to potential users (product) or brought into use by the unit (process)’.

[SOURCE: ISO 9000:2015, 3.6.15, modified by using the term “entity” instead of “object” and by adding notes]

Innovation management appears in the Oslo Manual as well as in the ISO standard and text from the ISO was added to the Oslo Manual. This is found in Section 3.2 of the Annex

Another issue was the importance of standards as innovation activities. This was resolved by adding text to the draft Oslo Manual found in Section 3.3 of the Annex.

3. Summary

To set the stage for the connection of the Oslo Manual fourth edition to the ISO standard for innovation management, text was added to Chapter 1, paragraph 21. Innovation management was part of the original text of the Oslo Manual, but additional ISO text was added to Chapter 4, Section 4.2.8, paragraph 297 to provide the ISO perspective.

Standards, as innovation activities, are present in Chapter 7, paragraph 570. To underline the importance of standards as an innovation activity, additional material was added to Chapter 8, Table 8.1, to cover contributing to the development of standards and the adoption of standards and accreditation as innovation activities.

ISO agreed to add text, Note 4 to entry, to the definition of innovation to complete the bridging process.

Acknowledgements

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References

EC, IMF, OECD, UN and the World Bank (2009), *System of National Accounts, 2008*, New York: United Nations.

Karlsson, Magnus, Svein Olav Nås, Magnus Hakvåg, Fred Gault (2016), Comparison of the definition in the Oslo Manual and the definition used by the International Organisation for Standardisation (ISO), *OECD Oslo Manual Revision Papers*, Paris: OECD. <https://oe.cd/oeclisodefs>

OECD/Eurostat (2005), *Oslo Manual, Guidelines for Collecting and Interpreting Innovation Data*, Paris: OECD Publishing.

OECD/Eurostat (2018), *Oslo Manual 2018, Guidelines for Collecting, Reporting and Using Data on Innovation*, Paris: OECD Publishing.

Annex: The definition of innovation, and related concepts, from the ISO and the OECD perspective, a discussion paper

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Abstract

This is a discussion paper supporting a review of the definition of innovation in the ISO standard on innovation management⁴ and the definition of innovation for statistical measurement purposes in the fourth edition of the Oslo Manual. The objective is to agree on text that demonstrates that the definitions are compatible. The discussion includes how the approaches to innovation management, and related innovation activities, are addressed in the Oslo Manual and in the ISO standard.

1. Introduction

The International Organisation for Standardisation (ISO) is developing a standard for innovation management and the Organisation for Economic Co-operation and Development (OECD), jointly with Eurostat, is revising the Oslo Manual which defines innovation for the purpose of statistical measurement. This paper reviews the definitions from both organisations and how they are related. The objective is to arrive at a consensus on what can be done to align the definitions. In addition, there is discussion of how the Oslo Manual text on innovation management can link to that of the ISO, and to a common understanding of innovation activities, including standards as an innovation activity related to innovation management. Chapter 1 of the draft Oslo Manual includes the following paragraph (OECD/Eurostat 2018: CH 1, para. 21)

In parallel with work to produce the fourth edition of the Oslo Manual, the OECD established a relationship with the International Organisation for Standardisation's (ISO) technical committee on Innovation Management, responsible for developing standards for the innovation management ISO 50500 series. The exchange between the two expert groups of the OECD and ISO covered different perspectives on the definitions of innovation and innovation management, with the OECD requiring definitions suitable for innovation measurement and the ISO requiring definitions for standardization. The discussions led to an alignment of the definitions, taking into account the different objectives of the Oslo Manual and of the ISO standards.

This prepares the reader for what occurs in the following chapters in the Oslo Manual that relate to the work of the ISO.

2. Relating the ISO and the OECD definitions of innovation

The ISO definition of innovation, for innovation management, is provided, along with the definitions of words used in the definition. (ISO 50500 Series). The Oslo Manual definition of innovation for statistical measurement follows and then the definitions are compared. The section concludes with a proposal for adding text to the ISO definition.

2.1. ISO definitions related to innovation

⁴ See Footnote 3. ISO 50500 was the working title of the standard and that is what appears in this Annex. As of October 15, 2018, the title became ISO 56000.

The paragraph numbers in the current ISO 50500 text are given at the start of each definition⁵. The ‘Note n to entry’ below each definition provides an explanation or a qualification and forms part of the definition.

4.1.1

innovation

new or changed entity (4.2.1), realizing or redistributing *value* (4.2.6)

Note 1 to entry: Novelty and value are relative to, and determined by the perception of, the organization (4.2.2) and interested parties (4.2.4).

Note 2 to entry: An innovation can be a product, service, process, model, method etc.

Note 3 to entry: Innovation is an outcome. The word “innovation” sometimes refers to *activities* (4.1.4) or *processes* (4.1.5) resulting in, or aiming for, innovation. When “innovation” is used in this sense, it should always be used with some form of qualifier, e.g. “innovation activities”.

4.2.4

interested party

person or organization (4.2.2) that can affect, be affected by, or perceive itself to be affected by a decision or activity (4.1.4)

Note 1 to entry: This constitutes one of the common terms and core definitions for ISO management system standards given in Annex SL of the Consolidated ISO Supplement to the ISO/IEC Directives, Part 1.

Part of understanding the context of the organization is to identify its interested parties. Organizations attract, capture, and retain the support of the relevant interested parties they depend upon for their success.

4.2.5

entity

anything perceivable or conceivable

EXAMPLES: product, service, process, model (e.g. an organizational, business, or operational model), method (e.g. a marketing or management method), or a combination thereof.

Note 1 to entry: Entities can be material (e.g. an engine), immaterial (e.g. a project plan) or imagined (e.g. the future state of the organization).

4.2.6

value

financial or non-financial resources or advantages

EXAMPLES: revenues, savings, productivity, sustainability, satisfaction, empowerment, *engagement* (4.4.3), trust.

Note 1 to entry: Value is relative to, and determined by the perception of, the *organization* (4.2.2) and *interested parties* (4.2.4).

Note 2 to entry: Value can be e.g. created, realized, acquired, redistributed, shared, lost, or destroyed.

Note 3 to entry: The value of an *entity* (4.2.5) is generally determined in terms of the amount of other entities for which it can be exchanged, considering gains in relation to costs.

Note 4 to entry: The word “value” sometimes refers to a (numerical) unit of data, e.g. the output from *measurement* (4.8.2) and “values” sometimes refers to principles or standards of behaviour, e.g. included in the concept of *culture* (3.0.0). When “value” is used in these senses, it should always be used with some form of qualifier, e.g. “numerical value” or the meaning should be obvious from the context.

2.2. The OECD definition

⁵ The ISO 50500 is a work in progress. The paragraph numbers are correct at the time of writing. While there may be changes to the ISO text the content cited in this paper is expected to remain unchanged.

In the Oslo Manual (OECD/Eurostat 2018, Chapter 1, para. 25 and Chapter 2, para. 162) the general definition of innovation for measurement purposes in all economic sectors is the following⁶.

An innovation is a new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process).

The 'unit' in the definition refers to the 'institutional unit' defined in the System of National Accounts (SNA). The SNA is an international standard for statistical purposes and the most recent SNA Manual 2008 (EC et al. 2009) defines the terms used in the Oslo Manual other than those related directly to innovation. 'Product' in the SNA is a good or a service. An institutional unit has legal responsibility for its actions and consequently can own assets, incur liabilities and engage in a full range of economic transactions.

The Oslo Manual definition of innovation imposes no restrictions on innovation. The product need only be made available to potential users or the process brought into use in the institutional unit. The innovation can create or destroy value for any stakeholders. The net effect and its distribution and timing are empirical questions.

The creation or destruction of value, even if the intention of the management of the institutional unit is to realise or redistribute value, is addressed by the ISO in Note 2 to entry which qualifies the definition of 'value'. It states that 'Value can be e.g. created, realised, acquired, redistributed, shared, lost or destroyed' Note 2 is at variance with the words 'or advantages' in the definition of value, a matter which the ISO is expected to resolve.

2.3. Comparing the definitions

In the Oslo Manual (OECD/Eurostat 2018), the ISO 'new or changed entity' corresponds to 'a new or improved product, process (or combination thereof) that differs significantly from previous products and processes'. The ISO, 'realising or redistributing value' corresponds to 'and which has been made available to potential users (product) or brought into use in the institutional unit (process)'. The proposal for adding a Note 4 to entry, which follows in the next section, accepts the other Notes to entry which qualify the ISO definition of innovation. Specifically, Note to entry 1, as it makes clear that novelty and value are relative to, and determined by the perception of the organisation and interested parties. All innovation starts with an intention of novelty and value creation, but once the innovation is in place the novelty or the value may not be realised. That is a measurement rather than a management question.

2.4. A proposal for contributing to the ISO definition of innovation

The proposal is to add to the Notes to entry that qualify the ISO definition of innovation the following text in italics.

Note 4 to entry: For the purpose of statistical measurement, refer to the Oslo Manual (OECD/Eurostat 2018).

- *'New or changed entity' corresponds to 'a new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes'.*
- *'Realising or redistributing value' corresponds to 'and that has been made available to potential users (product) or brought into use by the unit(process).'*

⁶ This the final general definition of innovation which is used in the rest of the text. There are minor changes from what was in the original discussion paper.

3. Innovation Management

The relevant ISO definitions are given in Section 3.1 which follows. In Section 3.2, proposed text from ISO is proposed for Chapter 4, Section 4.2.8, Innovation Management, paragraph 33.

A second issue is standards, both their development and their adoption, and their place as innovation activities related to innovation management. This is addressed in Section 3.2.

3.1. ISO definitions related to innovation management and innovation activities

4.1.2

management

coordinated activities to direct and control an organization (4.2.2)

Note 1 to entry: Management can include establishing policies (4.3.3) and objectives (4.3.5), and strategies (4.3.7) and processes (4.1.5) to achieve these objectives.

Note 2 to entry: Control can include defining roles, appointing authority, assigning tasks, establishing incentives and rewards, and empowering and engaging (4.4.3) people.

Note 3 to entry: The word “management” sometimes refers to people, i.e. a person or group of people with authority and responsibility for the conduct and control of an organization. When “management” is used in this sense, it should always be used with some form of qualifier, e.g. “top management”.

4.1.2.1

innovation management

management (4.1.2) with regard to innovation (4.1.1)

Note 1 to entry: Innovation management can include establishing an innovation vision (4.3.1), innovation policy (4.3.4) and innovation objectives (4.3.5), and innovation strategies (4.3.7), innovation processes (4.1.5.1), structures, roles and responsibilities and innovation support, to achieve those objectives through innovation planning, innovation operations, performance (4.7.1) evaluation (4.8.3), improvement (4.1.8) and other activities (4.1.4).

4.1.4.1

innovation activity

activity (4.1.4) with regard to innovation (4.1.1)

Note 1 to entry: Innovation activities can be planned or unplanned.

Note 2 to entry: Innovation activities are aiming for, and can result in, innovation.

Not all innovation activities are resulting in innovation.

3.2. Oslo Manual draft text on innovation and proposed additions

A proposal is made for adding text from the ISO standard on innovation management to the Oslo Manual Chapter 4, Section 4.2.8, paragraph 33⁷. The additions are in *italics*.

4.2.8 Innovation management

33. Innovation management includes all systematic activities to plan, govern and control internal and external resources for innovation. *In the ISO standard on innovation management reference is made to ‘establishing an innovation vision, innovation policy, innovation objectives, innovation strategies, innovation processes, structures, roles and responsibilities, innovation support to achieve objectives through innovation planning, innovation operations, performance, evaluation improvement and other activities (ISO 50500).* Information on innovation management is relevant to

⁷ In the final version of the Oslo Manual this is paragraph 297.

research on the efficiency of expenditures on innovation activities to generate sales or other outcomes of innovations (see Chapter 5 for further details).

3.3. Standards and innovation activities

Standards, as innovation activities, can be part of innovation management, although standards may also have implications for other innovation activities, such as training needed to achieve accreditation. Standards can be de facto, arising from practices of dominant firms, or de jure, resulting from legally binding agreements.

Chapter 7, of the draft Oslo Manual, paragraph 46⁸, describes the role of standards as innovation activities as follows.

Surveys can evaluate the role of standards in a firm's markets and for its innovation activities through questions on the importance to the firm of the following actions in response to standards:

Accreditation for important industry or market standards (a priority list of standards can be provided to firms active in specific industries)⁹.

Ability to demonstrate that product or business process innovations meet relevant industry or market standards.

Active engagement in the formulation of relevant industry standards.

Ownership of - or access to - intellectual property rights that are essential¹⁰ for the use of industry standards.

This makes clear that both accreditation and engagement in the formulation of standards can be an innovation activity. However, as with most innovation activities, such as acquiring machinery and equipment or training, standards may or may not be related to innovation. Consider standards for health and safety in the workplace. Identifying the innovation activity is an empirical matter.

While Chapter 7 of the Oslo Manual is clear on standards being innovation activities, it is proposed that there be an addition to Chapter 8, Table 8.1 as follows

Under the heading: Markets for the firm's products add

Contributing to the development of standards

Under the heading: Business organisation add

Adoption of standards and accreditation

4. Summary

In this note, the common elements of the definition of innovation to guide work on innovation management for the ISO and the definition of innovation in the Oslo Manual for the statistical measurement of the activity of innovation have been identified.

Proposals are made for adding material to the ISO document and the Oslo Manual to provide cross references for potential users. It is noted that Chapter 7 of the Oslo Manual establishes standards as innovation activities and there is a suggestion for adding standards to Table 8.1 in Chapter 8.

⁸ In the final version of the Oslo Manual this is paragraph 570.

⁹ There are different survey examples, such as the Mannheim Innovation Panel.

¹⁰ IPRs are essential when it is not possible for an unlicensed third party to comply with a standard without infringing an IPR.

References

EC, IMF, OECD, UN and the World Bank (2009), *System of National Accounts, 2008*, New York: United Nations.

ISO 505000 Series (currently a work in progress)

OECD/Eurostat (2018), *Oslo Manual 2018, Guidelines for Collecting, Reporting and Using Data on Innovation*, Paris: OECD Publishing. (This was a work in progress during the discussion between OECD and ISO)