
Innovation management — Tools and methods for intellectual property management — Guidance

Management de l'innovation — Outils et méthodes de management de la propriété intellectuelle — Recommandations





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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 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*.

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

Every organization involved with innovation initiatives addresses intellectual property in one form or another, because intellectual property is inextricably linked with innovation. Intellectual property ("IP") refers to unique, value-adding creations of the human intellect that result from human ingenuity, creativity and inventiveness. IP is a type of property while intellectual property rights ("IPR") are the rights arising from different forms of IP.

IP enables the granting of property-like rights over new knowledge and creative expressions. For example, IP relates to scientific or technological products or processes, software, data, know-how literary and artistic works, designs, symbols and names. There are various types of IPRs that protect different innovation outputs.

IP is becoming increasingly important on a global scale in today's knowledge-based economy. IP is no longer important just for large organizations, it is also important for smaller organizations because it allows all organizations to capture the benefits of innovation. A consideration of third-party IP is also relevant in order to ensure that organizations can leverage the outcome of their innovative efforts. It is important to engage in IP management activities across the organization and amongst organizations. For example, IP can facilitate ideas being co-developed, exchanged and traded.

An organization can leverage IP to achieve its business objectives and to implement innovation initiatives for a range of purposes including:

- strategic positioning,
- finding routes to innovation,
- protecting innovation results,
- attracting and securing investment,
- increasing competitive advantage,
- establishing clear ownership of IP and IPR,
- establishing freedom to operate,
- creating innovation value,
- enabling collaboration.

IP strategy should be an integral part of the wider business and innovation strategies. Organizations should be aware that considering IP only from a defensive perspective can obscure some benefits that IP can achieve which can support additional innovation and business objectives. This is because effective IP management enables an organization to optimize its IP assets to achieve a wide range of organizational objectives. This also allows for maximizing the benefits associated with innovation, while managing uncertainty and minimizing related risks and costs. IP management can enable collaboration with partners, competitors, and customers, which can yield enhanced innovation outcomes. IP management can create collective value through collaborative approaches (e.g. open-innovation, joint-development, ecosystems, and network effects), and be a driver of additional sources of revenue (e.g. cash flows through licensing).

Effective innovation management should include implementing an IP strategy which is aligned with the business strategy. There are several activities associated with an IP strategy (illustrated in the outer circle of [Figure 1](#)) and the implementation of these aspects results in positive outcomes (illustrated in the inner circle of [Figure 1](#)).

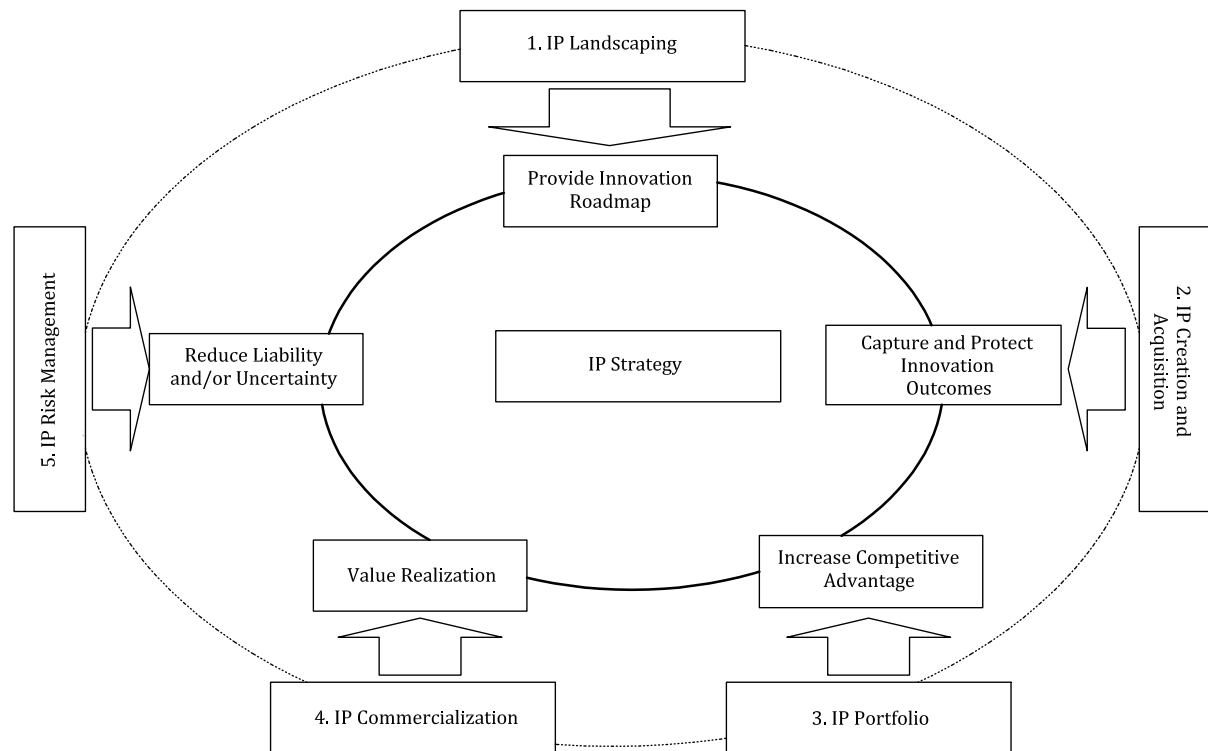


Figure 1 — IP management activities which contribute to innovation management

There is no universally appropriate IP strategy, since an IP strategy should be tailored to the needs of an organization's business and innovation strategies. IP strategy is diverse depending on the context of the organization, such as external and internal issues, including the maturity of the organization's innovation management.

Therefore, the IP strategy should be flexible enough to adapt and change over time. In other words, the depth and breadth of an IP strategy should be adaptable to the changing context of the organization over time.

0.2 Principles

The following principles, derived from the innovation management system provide a foundation for IP management:

a) Realization of value

The management of IP should create value for all relevant stakeholders. This includes long-term and short-term value; explicit and implicit value; financial and non-financial value.

b) Future-focused leaders

At the outset of an innovation initiative, leaders across the organization should inspire and engage employees, and other interested parties, to generate, protect and leverage IP with a view to long-term value creation for the organization.

c) Strategic direction

The organization should align the overall strategic direction for the management of IP with its business and innovation strategies.

d) Culture

The organization should foster and sustain shared values, beliefs, and behaviours across the organization with a view to generating, protecting and leveraging IP for long-term value creation for the organization.

e) Exploiting insights

The organization should access a diverse range of internal and external IP knowledge sources to systematically develop the organization's IP expertise and to support its innovation planning and strategy.

f) Managing uncertainty

The organization should evaluate and manage innovation uncertainty and risks from an IP perspective, with regard to the management of internal IP and awareness of external IP.

g) Adaptability

The organization should adopt relevant systematic IP management processes in a timely manner to address changes in organizational context, and to ensure continued alignment with its desired purpose and core capabilities.

h) Systems approach

The organization should manage IP based on a systems approach (instead of on an ad-hoc basis) with a view to reducing organizational risks and enhancing value creation potential for the organization.

0.3 Structure of the document

The management of IP is necessary for effective innovation management. It provides a means for the organization to obtain and maintain a dynamic core capability and to transform its innovation results into valuable IP assets.

The organization should consider the following:

- An IP management framework, aimed at the implementation of IP management activities ([Clause 4](#));
- An IP strategy as an integral part of the organization's business and innovation strategies ([Clause 5](#));
- IP management activities tailored to the innovation process, especially taking account of the changing context in different innovation stages ([Clause 6](#), linked to ISO 56002:2019, Clause 8);
- IP tools used in support of IP management activities ([Annex A](#) to [Annex F](#)).

[Figure 2](#) presents the structure of IP management with references to the clauses of this document.

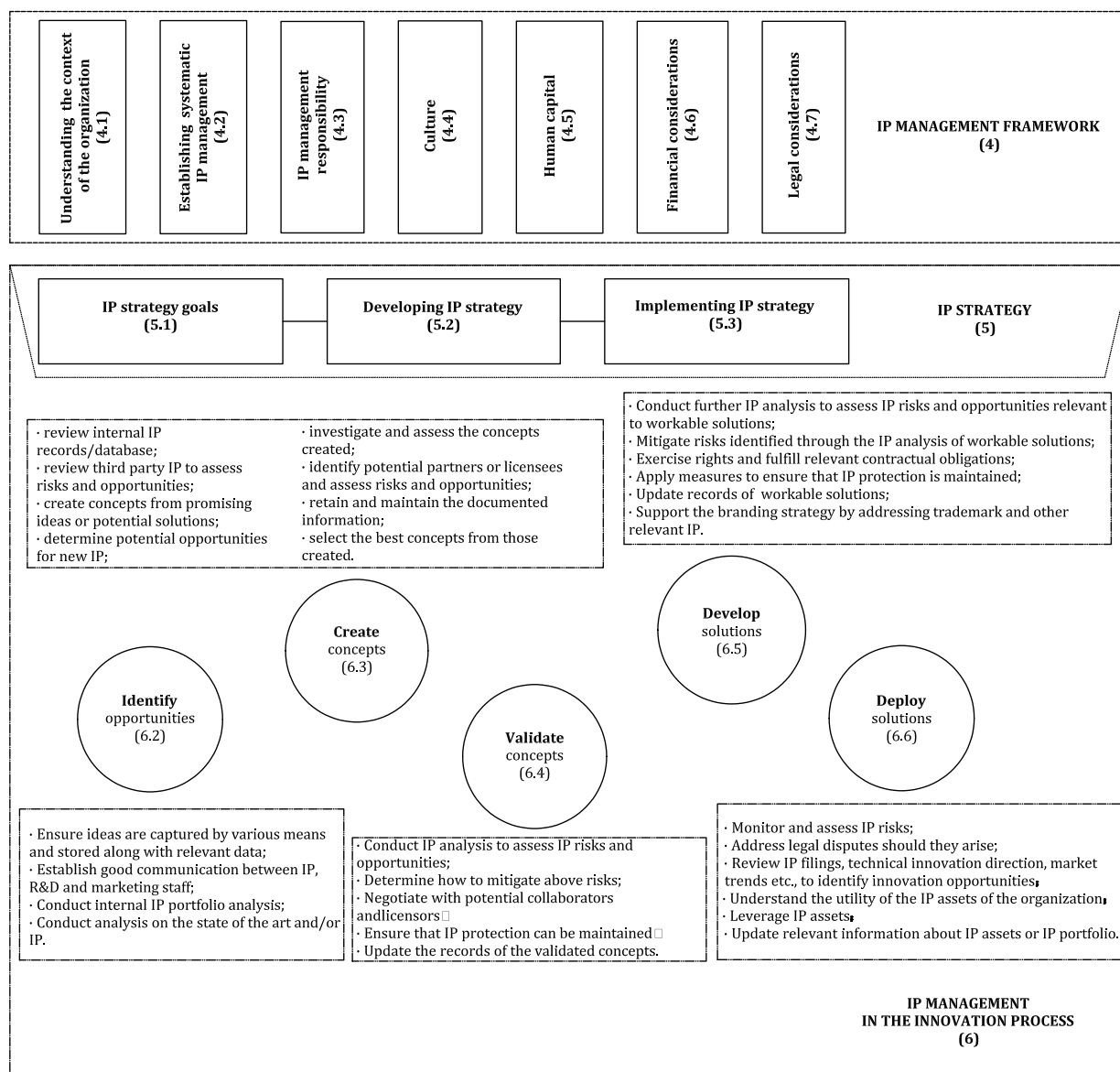


Figure 2 — Structure of IP management with reference to the clauses of this document

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

- ISO 56000:2020 Innovation management system — Fundamentals and vocabulary provides the essential background for the understanding and implementation of this document.
- ISO 56002:2019 Innovation management system — Guidance provides guidance for the development, implementation and maintenance of an innovation management system, to which all subsequent standards of the family, are complementary to.
- ISO 56003:2019 Innovation management — Tools and methods for innovation partnerships - Guidance provides guidance and tools to select external partnerships to enhance innovation success.
- ISO/TR 56004:2019 Innovation management assessment – Guidance provides guidance for organizations to plan, implement and follow-up on an innovation management assessment.

Innovation management — Tools and methods for intellectual property management — Guidance

1 Scope

Efficient management of IP is key to support the process of innovation, is essential for organizations' growth and protection, and is their engine for competitiveness.

This document proposes guidelines for supporting the role of IP within innovation management. It aims to address the following issues concerning IP management at strategic and operational levels:

- Creating an IP strategy to support innovation in an organization;
- Establishing systematic IP management within the innovation processes;
- Applying consistent IP tools and methods in support of efficient IP management.

This document can be used for any type of innovation activities and initiatives.

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: 2020 apply.

ISO and IEC maintain terminological 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 IP management Framework

4.1 Understanding the organization and its context

The organization should determine external and internal issues and considerations that are relevant to its organizational objectives and that affect its ability to achieve its intended IP strategic objectives.

The organization should:

- a) scan and analyze the external environment, considering issues related to the following: a) areas such as market, culture, technology, legal, regulatory and political aspects; b) geographic scope: whether international, national or regional; c) time horizons - short, medium, or long term; d) potential opportunities and threats, such as opportunities through collaborators or threats from competitors;
- b) analyze its internal environment in terms of business and innovation strategies and types of IP assets of the organization, while considering issues related to: a) the business and innovation vision, strategic direction, existing management practices; b) the business and innovation objectives and planning to achieve them; c) existing IP owned by the organization or licensed to or from others; d) process and resource strengths and weaknesses that can impact achievement of intended IP

objectives; e) cultural aspects such as values, ethics beliefs, history, observed behaviours, attitudes, and commitment at various levels of the organization;

- c) identify interested parties (internal and external, current and future), that are relevant to IP management in innovation, and determine their relevant needs, expectations, and applicable requirements.

4.2 Establishing systematic IP management

IP management should take into account the activities, processes and supports that are required, how they interact, and how continuous improvement can be achieved in accordance with this document.

In the context of IP management, the organization should decide whether to make an innovation outcome publicly available without restriction or whether to protect it. If the decision is made to protect the innovation, then the different forms of IP protection (e.g. copyright, trade secrets, trademarks -- see [Annex B](#)) should be considered. IP management should also account for the fact that IPRs can provide a 'positive' rights (rights to use what is protected) and 'negative' rights (rights to exclude third parties from using what is protected) to the owner. This can depend on the type of IPR in question.

The organization should also provide measures to manage both, the potential positive and negative aspects of IP and IPR.

4.3 IP management responsibility

4.3.1 Leadership and commitment

Top management should ensure that the responsibilities and authority for relevant roles are assigned and communicated within the organization.

Top management should demonstrate leadership and commitment with respect to IP management by:

- a) ensuring IP policy and objectives are established;
- b) establishing and implementing an IP strategy which is aligned with (and supportive of) the innovation strategy;
- c) ensuring the established IP policy and objectives are aligned and evolve with the strategic direction of the organization;
- d) ensuring that the integration of IP management activities into the organization's innovation processes;
- e) ensuring the resources and capabilities needed for IP management as needed;
- f) communicating the importance of effective IP management throughout the organization;
- g) ensuring that IP management achieves its intended outcome(s);
- h) directing and supporting persons (e.g. sustained training and education in IP) to contribute to the effectiveness of IP management;
- i) promoting continual improvement of the management of IP.

4.3.2 Organizational roles and responsibilities

IP management responsibilities related to innovation should include:

- a) establishing appropriate activities and related support for managing IP;
- b) defining what innovation outputs should be made publicly available without restriction, or else protected, and if so, when, how (e.g. patent, copyright, design, trademark or trade secret) and where;

- c) establishing and maintaining an inventory of the organization's IP assets to ensure controlled access to it by persons, internally and externally, when necessary for the organization's work;
- d) according to legal considerations (see 4.7), periodically monitoring IP in the public domain that is relevant for the organization, as input to innovation activities and initiatives; as well as to avoid potential infringement or to provide innovation reference and inspiration;
- e) according to legal considerations (see 4.7), managing potential infringements of the organization's IP by other parties;
- f) according to legal considerations (see 4.7), monitoring the development and differences of relevant national legislation and other internationally applicable legal and regulatory requirements to current and future operations and markets;
- g) identifying and reporting IP risks and opportunities to interested parties (e.g. the board of directors, shareholders, other functions of the organization);
- h) realizing value (financial or non-financial, internal and external) to the organization through IP, e.g. reputational, financial, collaborative, and human capital;
- i) conducting other IP management activities, including protecting trade secrets, idea management, or clarifying ownership in relation to external partners, e.g. in collaborative innovation projects;
- j) establishing awareness and providing training, as necessary, within the organization.

IP management responsibilities should be clearly identified, documented and shared with the rest of the organization, in particular within the framework of their interactions with other functions in the organization.

Roles and responsibilities for IP management activities can be assigned: a) as part of existing roles, such as roles related to specific functions or units; or b) as dedicated roles with a focus on general IP management or on specific IP management initiatives and activities. These responsibilities can be assumed by a single person or a team, and can be internal or external to the organization.

The IP management function can either report to the top management team, be included within the top management team, or can be assumed by the top management itself.

4.4 Culture

The organization should promote an organizational culture that supports the effective management of IP.

4.4.1 Awareness

For the effective establishment, implementation, maintenance, and continual improvement of the management of IP, the organization should promote IP awareness throughout the organization by:

- a) Obtaining oversight and approval from the organization's top management of both policy and processes for the strategic management of IP;
- b) designating a member of the senior management team accountable for implementing the organization's policy and processes for the management of IP;
- c) providing employees with an understanding of IP management policies and processes, their purpose and specific expectations related to their role requirements and how they contribute to the effectiveness of IP management in their day-to-day work operations;
- d) ensuring employees across all areas understand the IP specific business processes and methods, and the implications and consequences of not conforming to the organization's requirements for the management of IP.

4.4.2 Work environment

For the effective establishment, implementation, maintenance, and continual improvement of the management of IP, the organization should provide and maintain an enabling work environment by:

- a) encouraging all levels of management to promote and demonstrate their commitment to the management of IP and having regard to the consequences of failing to do so;
- b) providing the support (including infrastructure, resources, assets, training, and tools) necessary for the effective and efficient operation of its processes for the management of IP;
- c) empowering employees to make decisions that ensure proper management of IP in their day-to-day work;
- d) encouraging appropriate participation and feedback by employees in IP management processes;
- e) considering incentives and programs to recognize individual and/or workgroup and team achievements in the management of IP;
- f) establishing human resources processes to address IP considerations for onboarding new employees, and for departing employees (e.g. for trade secrets confidentiality and disclosure of information).

4.5 Human capital

The organization should ensure the availability of competent people to support the effective management of IP.

4.5.1 People

For the effective establishment, implementation, maintenance, and continual improvement of the management of IP, the organization should:

- a) identify, provide and ensure the availability of the necessary people for each activity or stage in the management of IP;
- b) consider the knowledge (both individual and collective), competence, and limitations of people within the organization;
- c) consider multi-disciplinary assistance in addition to IP strategy competence and/or expert opinions that could or should be obtained from external providers;
- d) consider a reporting mechanism for IP governance to the top management, which could include periodic reports as to the adequacy of current resources, in order to meet the organizational innovation needs.

4.5.2 Knowledge and competence

For the effective establishment, implementation, maintenance, and continual improvement of the management of IP, the organization should:

- a) identify what knowledge is necessary and ensure that this knowledge is maintained and made available (e.g. by utilizing published guidance available from various organizations and government entities to gain an understanding of the elements of IP management);
- b) manage the changing requirements for IP management utilizing an assessment of employees' current knowledge and capabilities vs future IP strategic needs; and also determining how to acquire or to provide access to additional knowledge;
- c) determine the necessary IP management competencies of employees related to their day-to-day work.

4.5.3 Education and training

For the effective establishment, implementation, maintenance, and continual improvement of the management of IP, the organization should ensure employee awareness of the processes and expectations of IP management by:

- a) developing a training program designed to raise awareness of IP as well as the organization's IP policy and IP management activities, and deliver the program all employees and ensure it is reaffirmed on a periodic basis;
- b) providing role-specific training to ensure that the necessary IP competencies are available to meet current and expected future needs;
- c) measuring the effectiveness of the available IP training periodically to ensure that the IP management processes are understood, and conformed with, at all levels of the organization.

4.6 Financial considerations

For the effective management of IP, it is important to recognize that there are a variety of costs associated with developing and maintaining an IP portfolio (e.g. costs associated with evaluating, protecting, registering, maintaining and enforcing IPR, as well as organizational resource costs such as staffing and training). IP management should be viewed as long-term investment which can generate financial returns and business opportunities.

Given these considerations, the organization should have available the financial resources necessary for the effective implementation of its IP management activities. Specifically, the organization should:

- a) consider financial opportunities and constraints associated with IP management, including the financial implications of not obtaining and managing IP;
- b) allocate dedicated financial resources for IP management activities e.g. as a percentage of annual turnover or overall budget or designating funds for IP management initiatives by top management;
- c) ascribe a financial value to IP (e.g. for acquisition, sale or investment), when necessary or beneficial given the circumstances. Organizations should be aware of the different valuation methodologies but should recognize that there can be negative and positive implications to ascribing a financial value to IP;
- d) consider the roles of IP in achieving and supporting various financial benefits, such as facilitating access to financing from internal or external sources, and for investment in innovation as well as product development, commercialization and growth;
- e) establish investing principles, e.g. investing in acquiring a patent portfolio, mergers and acquisitions driven by IP;
- f) consider external IP financing incentives and relevant public conditions and/or regulations (e.g. government policy, public sector initiatives with respects to IP, tax incentives and subsidies).

4.7 Legal considerations

The organization should have a general understanding of legal considerations related to IP management. For example, an option to legal protection for an innovation outcome is to publicly disclose it so that a third party cannot subsequently file for IP protection and preclude the organization from commercializing the innovation outcome itself. The organization should also recognize that infringement of third-party IP can be resolved through various means including licensing, collaboration or litigation.

Given these considerations, the organization should:

- a) provide support for legal activities involved in the innovation processes that lead to the deployment of solutions and ensure access to legal resources when needed that are appropriately qualified and competent;
- b) address legal issues (e.g. authorship, inventorship, ownership, IP infringement and contractual issues).
- c) develop a process for keeping and maintaining relevant IP and innovation documentation (e.g. records) addressing the following aspects: monitoring deadlines and periodic review of the portfolio to ensure the type and scope of protection remains fit for purpose or to adjust as required;
- d) consider the implications of the available lifetime of IP protection for the innovation on the organization's IP and broader innovation strategy. This includes considering the available IP protection from the beginning of the innovation processes where the IP is generated, to the expiration of the IP's available protection (e.g. approximately 20 years for patents, the lifetime of a trademark if maintained, or potentially in perpetuity for properly protected trade secrets);
- e) be aware that different forms of IP have specific requirements for protection (e.g. patents need to be filed in every country where protection is desired and trade secret protection necessitates that reasonable measures are taken to protect them) and that each form of IP provides different rights;
- f) address third party IP according to the organization's established risk-based approach (e.g. license, design around third-party IP, opt to ignore) to balance the potential opportunities, risks and consequences of actions taken;
- g) be aware of the risks and opportunities related to countries having different legal framework practices and standards. For example, there can be different legal implications for monitoring and assessing third-party IP in different jurisdictions.

5 IP Strategy

The organization should have an IP strategy which should be integrated as a key element of its innovation strategy. Furthermore, the organization's IP strategy should align with and support its business strategy. [Figure 3](#) illustrates the relationship between an organization's business strategy, its innovation strategy and the IP strategy.

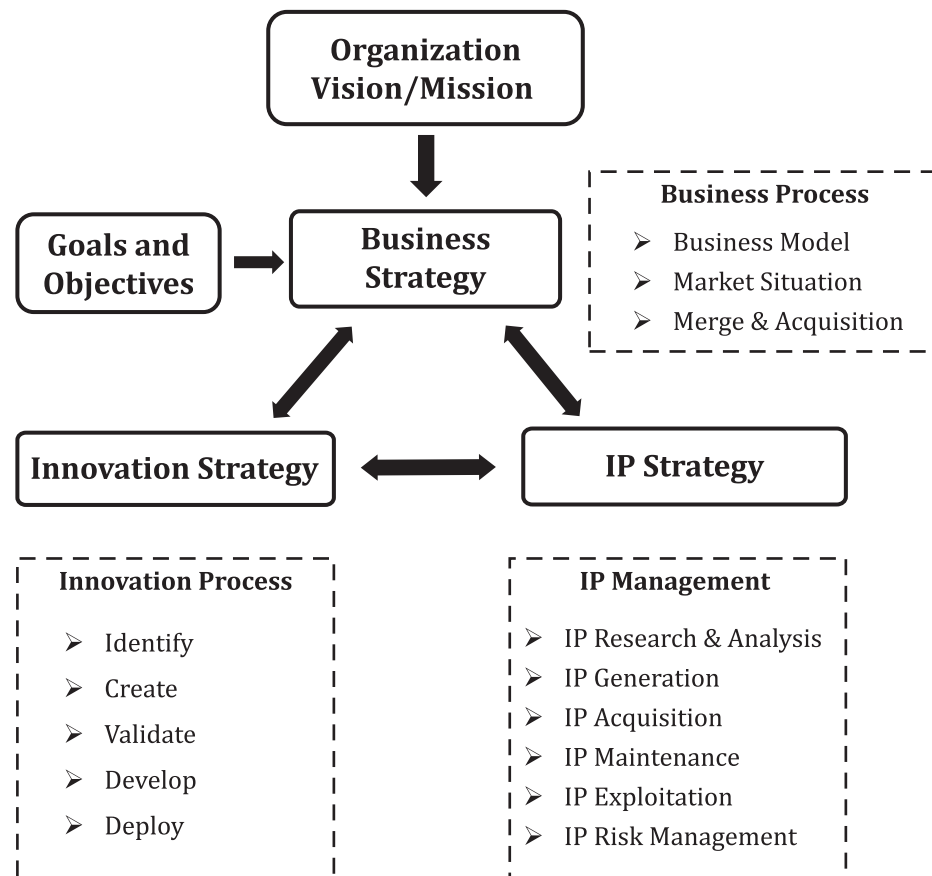


Figure 3 — The relationship between organization's business strategy, innovation strategy and IP strategy

The organization can have a general innovation strategy or specific individual strategies focusing on different objectives (e.g. focusing on products / services, or on different organizational levels / business needs, or on differing innovation strategies such as open or closed innovation [See ISO 56000]).

5.1 IP strategy goals

Similar to the approach taken in the creation of general or specific innovation strategies, an organization's IP strategy can vary, depending on both the organization's innovation strategy and its business strategy relating to its goals for new products, services, processes, models, methods, etc.

The purpose of building an IP strategy is to integrate IP management with the business and innovation strategies, which will:

- ensure proper allocation of resources throughout the innovation processes;
- determine the IP strategy objectives and associated policies that will enable the organization to realize its organizational and innovation objectives. This strategy process will ensure effective management of innovation, and improve innovation success rate, outputs, and/or organizational performance;
- minimize IP risk associated with innovation activities and initiatives, and ensure the organization maintains ownership or access of innovation outputs and/or results;
- optimize IP assets, and maximize innovation effectiveness, outputs, and/or results (e.g. seen through monetization, commercialization, technology transfer, innovation partnerships, supply chain management, or optimal organizational position with respect to the IP landscape);

- strengthen organizational competitiveness by leveraging IP.

5.2 Developing IP strategy

It is important to develop an IP strategy that reflects the use of IP as a tool to advance the organization's objectives, and therefore the IP strategy should support the achievement of the organization's wider innovation and business strategies.

Figure 4 illustrates the steps for developing IP strategy.

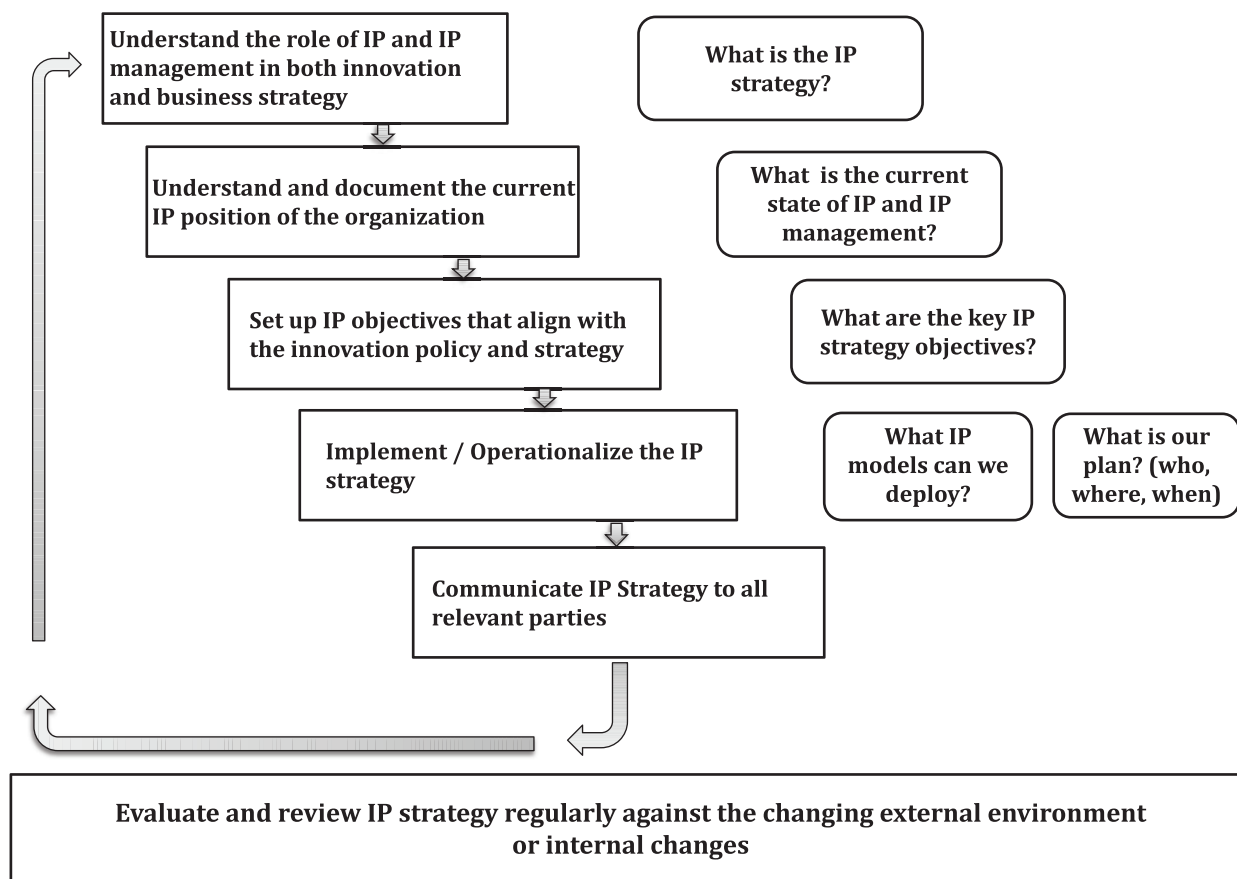


Figure 4 — Steps for developing IP strategy

Developing IP strategy involves the followings steps:

- Understand the role of IP and IP management in both innovation and business strategy.
 - Consider the organization's objectives and what will be needed to achieve them.
 - Consider how well aligned the organization's IP strategy vision/mission is with the organization's current and future IP direction.
 - Consider how the IP strategy will be reflected in the organization's business and innovation strategies.
 - Consider how IP is used to help the organization achieve and support its business goals.
 - Consider any IP related barriers for organization to achieve its mission.
 - Consider any organizational barriers that exist in developing an IP strategy.

- b) Understand and document the current IP position of the organization.
 - Consider the relevancy of the organization's IP assets to the market, competitors and/or other relevant third parties, including impact and fulfilment of internal business and innovation strategic objectives.
 - Consider any information relating to third party IP (e.g. obtained via competitive intelligence analysis) and the organization's own IP (e.g. obtained via an IP audit), and if the organization has access to in order to support the achievement of its IP goals.
 - Consider how both the organization's own IP (via information from an IP audit) and third-party IP (sourced from competitive intelligence) impact the achievements of the organization's IP goals.
 - Assess the current state of the organization's IP management with the following conditions, including:
 - maturity of the IP management compared to: a) culture/capability/experience, b) innovation performance;
 - comparison to peers in the industry including competitors.
- c) Set up IP objectives that align with the innovation policy and organization roadmap.
 - Set up IP objectives to meet organizational IP needs (e.g. develop or acquire IP).
 - Consider when, what and where to exploit/ leverage IP, including what third parties can do regarding relevant IP, and how to address this concern.
 - Identify what IP to capture and manage, including IP resulting from the organization's innovation and/or third-party IP.
 - Consider if any relevant IP can be leveraged in multiple ways, such as divesting, licensing-out, or lapse for maintenance cost savings.
- d) Implement/operationalize the IP strategy.
 - Consider various types of IP and associated IPR that can be relevant to the innovation activities of the organization.
 - Consider any IP management processes required, and the appropriate processes relative to the innovation activities and initiatives.
 - Consider the resources, capabilities and timeframes.
 - Consider any possible IP commercialization (e.g. spin-off, licensing, franchise or assertion).
- e) Communicate IP strategy to all relevant parties.

The steps outlined above can be applied to an organization as a whole, or a sub-group within an organization, or even at a project level.

5.3 Implementing IP strategy

The organization should periodically evaluate and review its IP strategy against the changing external environment or internal changes due to the evolution of organizational strategy.

The organization should evaluate the IP strategy by considering the following:

- examine the organization's IP related strengths, weaknesses, opportunities, and threats in the context of the organization;
- discover and review the key IP strategic objectives of the organization;

- understand how the IP strategy links to strategic direction of the organization;
- define who is responsible for what in the implementation of the IP strategy;
- define how business impact will be measured;
- define the time frame;
- understand any overarching IP policy considerations of the organization.

The organization should communicate the IP strategy to all interested parties, if necessary, in order to achieve effective implementation. The organization should also develop tools and allocate resources necessary to ensure that the IP strategy and IP management processes are implemented appropriately.

For further details on implementation and adaptation of the IP strategy see [Clause 4](#) and [Clause 6](#).

6 IP management in the innovation process

6.1 General

Innovation is non-linear and iterative, and comprises five interacting innovation processes (see 8.3, ISO 56002:2019): (1) identify opportunities, (2) create concepts, (3) validate concepts, (4) develop solutions, and (5) deploy solutions, as defined in the innovation management system (See [Figure 2](#)). The organization should configure the operations of IP management to suit its corresponding innovation processes. IP management requirements span the entire range of innovation processes but should be tailored to the specific conditions pertaining to each of the innovation processes. Embedded IP management activities are essential to: (a) make innovation processes more efficient, (b) to facilitate the accumulation of, or access to, valuable intangible assets, and (c) to provide clear guidance for innovators.

To ensure alignment with the established IP management approach, the IP management activities should be guided by the established IP strategy, while constantly employing IP management tools and methods (e.g. IP landscaping or navigation). It should be executed by the organization utilizing collaboration between various skillsets, e.g. internal and/or external IP professionals, R&D engineers, and product managers.

The IP management activities involve several tasks that can be undertaken by various individuals in the organization (e.g. internal and/or external IP professionals, R&D engineers, and product managers), and these tasks generally follow most IP assets throughout their lifecycle.

The tasks include, but are not limited to, the following in the IP asset lifecycle as follows:

- generating and acquiring IP;
- ensuring generated IP is owned or available to the organization;
- identifying and documenting the existence of the organization's IP;
- sorting and retrieving IP;
- exploiting and embedding IP in the business;
- generating opportunities and mitigating risks related to IP;
- managing IP assets (e.g. abandonment, licensing, sale).

These tasks can be seen as IP management activities that apply to each of the five innovation processes (identify, create, validate, develop, and deploy). However, the contexts and objectives of the activities should vary across the innovation processes.

To execute IP management throughout the different innovation processes, the organization should consider that:

- innovation often results in various IP assets that can be protected. For example, patents can apply to new products or processes, copyright for literary and artistic works or software, industrial designs for an aesthetic aspect of an article, trademarks for branding a product or service, or trade secrets for protecting a unique confidential formula.
- forms or types of IP that can emerge from innovation initiatives can generate exploitation opportunities that exist for at least the lifetime of the form of IP and/or IPR (e.g., the lifetime of a trademark if maintained, or potentially in perpetuity for properly protected trade secrets).
- identifying, protecting and leveraging IP can result in financial, reputational, and collaborative and/or network benefits. A failure to recognize and respond to these options can limit the realization of these benefits. Furthermore, it can place the organization at risk if the organization is unable to leverage its own innovation outputs/results or is only able to do so at incremental cost. Additionally, ignoring third party IP can result in risk in the form of financial liability and/or compromise the ongoing viability of the organization.
- engagement with relevant people involved in the processes is necessary. To optimally capture and leverage IP generated through the innovation processes, it is important for companies to adopt certain practices aimed at engaging people to identify and protect the IP (e.g., by adopting appropriate documentation, confidentiality and registration practices, as applicable). It is also necessary to employ appropriate practices to disseminate information to interested parties to enable them to leverage the IP and further the organization's general strategic objectives.
- having an awareness that the "deploy solution" process can persist for the lifetime of the specific IP term. It should be continually monitored to ensure the protection, commercialization, and/or exploitation is continually optimized for the market over the entire lifetime. In practice this will require an organization to continually iterate across the five interacting processes during the lifetime of the IPR, in order to ensure that the IP is optimized (e.g., by creation of additional IP and/or abandonment or sale of unnecessary IPR's for cost savings).

Execution of IP management activities in [Clause 6](#) require the use of various IP based tools and methods (see [Annex B](#)). For many organizations, these IP tools and methods related to the IP management activities can be used at multiple and often-overlapping points across the five innovation processes.

An organization should consider the relevant tools and methods in [Annex A](#) to [Annex F](#) that apply within their innovation activities and initiatives.

6.2 IP management in the "identify opportunities" process

6.2.1 Why

To define and prioritize potential opportunities for innovation by identifying the state of the art (e.g. through prior art research or IP landscaping).

6.2.2 Input

To identify and define opportunities for innovation, the organization should consider the following inputs:

- innovation initiatives;
- technical trends;
- the prior art via publicly available IP databases;
- previous relevant documented information (e.g. innovation records);
- IP of the organization, and of other relevant interested parties (including competitors);

- technical capabilities of the organization, its competitors and other interested parties;
- market analysis and benchmarking;
- national, regional and international growth;
- other information that can aid the organization to determine whether or not to apply for IP protection to capture and secure the opportunity represented by the innovation initiatives.

6.2.3 How

In the process of identifying and defining opportunities, the organization should:

- ensure ideas are captured by various means and stored along with relevant data (e.g. conception date, external disclosure date). This can provide proof in case of a later challenge or dispute;
- establish good communication between IP, R&D and marketing staff, to ensure a shared understanding of what the organization's most valuable technology is, and to align its R&D plan, existing inventions and marketing approach;
- conduct internal IP portfolio analysis by reviewing and maintaining an updated database with the goal of defining the appropriate scope of protection;
- conduct analysis on the state of the art and/or IP (e.g. possibly through tools and methods like IP search, IP navigation or IP landscaping) for the purposes of:
 - 1) detecting innovation opportunities that are not yet covered or protected by the IPRs of others;
 - 2) identifying potential competitors and their activities, with a focus on their IP position and/or direction;
 - 3) identifying potential collaboration opportunities and partners, including technology transfer opportunities and entering innovation partnerships, as appropriate (see ISO 56003:2019);
 - 4) spotting trends in technology or in the market at an early stage.
- in circumstances involving external collaboration, funding or other contribution, ensure that IP generated during the innovation process is accessible by the organization for its intended purpose(s).

6.2.4 Output

These activities can result in the following outputs:

- understanding the state of the art and existing IPR related to innovation initiatives;
- identified and prioritized potential opportunities or opportunity areas for innovation;
- identified relevant IP or IP gaps for exploring market opportunities.

6.3 IP management in the "create concepts" process

6.3.1 Why

To provide insights from an IP perspective to support: 1) generation of potential concept(s) to address identified opportunities; 2) selection of potential concepts based on IP criteria to inform decision makers.

6.3.2 Input

To create potential concepts for innovation, the organization should consider the following inputs:

- understanding the state of the art and existing IPR related to innovation initiatives;

- identified and prioritized potential opportunities or opportunity areas for innovation;
- identified relevant IP or IP gaps relevant to market opportunities;
- other information (e.g. organizational policies and strategy for IP related to the intended markets) that can aid the organization to determine whether the concepts should be protected and the scope of such protection.

6.3.3 How

The organization should:

- review internal IP records/database to access the existing IP relevant to concept creation;
- review third party IP to assess related risks and opportunities;
- create concepts from promising ideas or potential solutions;
- determine potential opportunities for new IP;
- investigate and assess the concepts created;
- identify potential partners or licensees and assess related risks and opportunities;
- retain and maintain the documented information (e.g. records of the concepts generated including inventor's information and their inventions and contributions, proof of earliest dates of the inventions);
- select the best concepts from those created, having regard to the earlier steps;
- ensure the best concepts support the IP strategy.

6.3.4 Output

These activities can result in the following outputs which can form an IP perspective to inform relevant interested parties:

- updated records of innovation activities, results and data;
- consideration of the most viable concept(s) from an IP perspective;
- understanding of the organization's own IP which is relevant to the created concepts;
- assessment of the IP risks and opportunities which are relevant to created concepts;
- assessment of which potential concepts should be protected and which should be made publicly available;
- assessment of whether or not to pursue IP and if so which forms to pursue;
- defined and prioritized scope for IP creation and protection.

6.4 IP management in the "validate concepts" process

6.4.1 Why

To further investigate and assess IP risks and opportunities as a basis for validating the created concepts and, where appropriate, seek IP protection for the validated concepts.

6.4.2 Input

To support the validated concepts, the organization should consider the following inputs:

- the record of existing innovation activities, results and data;
- all concepts created;
- understanding of the organization's own IP which is relevant to created concepts;
- assessment of the IP risks and opportunities related to created concepts;
- assessment of whether or not to pursue IPR, and if so, which forms to pursue;
- defined and prioritized scope for IP creation and protection.

6.4.3 How

The organization should:

- conduct IP analysis to assess IP risks and opportunities relevant to validated concepts;
- determine how to mitigate risks identified through the IP analysis (e.g. license in, secure additional protection, design around or abort the project);
- negotiate with potential collaborators and licensors to access IP, other innovation resources, and capabilities to reduce the uncertainty of validated concepts;
- implement appropriate measures to ensure that IP protection can be maintained (e.g. confidentiality and trade secret protection measures like Non-Disclosure Agreements, see [Annex A](#));
- update the records of the validated concepts;
- ensure there is alignment between validated concepts and the IP strategy.

6.4.4 Output

These activities should result in the following outputs:

- updated records of innovation activities, results and data;
- validated concepts with an acceptable level of risk from an IP perspective;
- understanding the potential for obtaining IPR related to validated concepts;
- necessary documented information, including IP and IPR documentation;
- appropriate measures aimed at addressing specific risks / liabilities, e.g. intentional (defensive) publication to block others from obtaining IP protection in areas of interest;
- report(s) on potential licensing-in and licensing-out opportunities.

6.5 IP management in the "develop solutions" process

6.5.1 Why

To optimize IP related opportunities and mitigate IP risks for workable solutions by developing and executing an IP plan to further develop IP assets and to promote innovation.

6.5.2 Input

To support developing concepts into workable solutions, the organization should consider the following inputs:

- inventory of all IP owned by the organization;
- legal frameworks regarding commercialization of workable solutions in the intended markets;
- workable solutions from third parties;
- updated records of innovation activities, results and data;
- IP risks relevant to validated concepts;
- assessments of potential licensing-in and licensing-out opportunities;
- ensure that the proposed solution and IP strategy are aligned.

6.5.3 How

The organization should:

- conduct further IP analysis to assess IP risks and opportunities relevant to workable solutions;
- mitigate risks identified through the IP analysis of workable solutions;
- exercise rights and fulfil relevant contractual obligations;
- apply measures to ensure that IP protections are maintained;
- update records of workable solutions;
- support the branding strategy, if applicable, by addressing trademarks and other relevant IP.

6.5.4 Output

These activities should result in the following outputs:

- viable workable solutions from an IP perspective;
- IP plan including updated IP portfolio, resource deployment, defensive publication, branding etc.;
- agreements that have been outputs which address IPRs (e.g. with suppliers, sub-contractors, partners).

6.6 IP management in the "deploy solutions" process

Be aware that certain forms or types of IP can emerge from innovation initiatives and can generate commercialization opportunities that persist for at least the lifetime of the IPR (i.e., approximately 20 years for patents, the lifetime of a trademark if properly maintained, or potentially in perpetuity for properly protected trade secrets).

As such, this phase can persist for the lifetime of the specific IPs term, and should be continually monitored to ensure the opportunities for protection, commercialization, and/or exploitation are continually optimized for the market over this lifetime.

In practice this will require an organization to continually iterate across the five interacting processes during the lifetime of the IP to ensure the IP is optimized (e.g., by creation of additional IP and/or the abandonment or sale of unnecessary IPR's for cost savings).

6.6.1 Why

To support efficient deployment of the workable solutions through IP management activities focussed on maximizing value and minimizing risk.

6.6.2 Input

To deploy IP, the organization should consider the following inputs:

- the workable solutions;
- the IP plan including updated IP portfolio, logistical arrangements, defensive publication, branding etc.;
- feedback from contractual partners;
- commercial strategy for innovation deployment.

6.6.3 How

The organization should:

- monitor and assess IP risks with a view to mitigating risks throughout the lifecycle of the innovation initiative;
- engage appropriate resources to address legal disputes should they arise;
- review IP filings, technical innovation direction, market trends, technical standards, competitive solutions to identify innovation opportunities, e.g. possibly through tools like IP navigation or IP landscaping;
- understand the utility of the IP assets of the organization, such as: ease of IPR enforcement; closeness to the organization's product, competitor's product, duration of protection, scope of the protection; and countries where the IPR has been obtained;
- leverage IP assets: e.g. by initiating licensing-in and licensing-out negotiations to realize IP value; enforcing IPRs if there are infringements; collaboration with third parties to utilize IP; obtaining financial investment; leveraging business cooperation; exploring opportunities for merger and acquisition;
- update relevant information about the organization's IP assets or IP portfolio, and prune the portfolio as appropriate;
- ensure the deployed IP aligns with and supports the IP strategy.

6.6.4 Output

These activities can result in the following outputs:

- optimized inventory of IP assets;
- minimized risks relating to the deployed solutions;
- realized value from IP, including both financial and non-financial;
- realized new opportunities for future innovation initiatives.

Annex A (informative)

Tools and methods for invention record and disclosure

This annex relates to [Clause 6](#) on IP management in the innovation process.

This annex details tools and methods for recording and disclosing ideas, concepts and/or workable solutions arising from innovation processes.

A.1 IP management related with employees

Ensuring ownership of innovation outputs is critical because such ownership is a prerequisite for other rights, such as the right to register IP and the right to exploit the IP. In some instances, IPRs are held by [inventors](#) until those rights are specifically assigned by a written assignment agreement, even if the employee created the invention within the scope of employment. It's important to establish ownership of innovation outputs at the outset.

Managing employee created IP risks is also critical. For example, employees can create IP infringement risk for their organization if they utilize a former employer's trade secrets, patented technology or other proprietary information. They could also reveal an organization's trade secrets during employment or after leaving the organization. These potential IP risks also should be avoided by conducting effective IP management activities (See [annex E](#)).

In order to address these issues, organizations should establish processes to improve their employees' IP awareness, clarify and document the ownership of innovation outputs, and ensure that employees comply with confidentiality obligations.

[Table A.1](#) can be used as guidance to conduct IP management activities related to employees. These activities will typically require a degree of collaboration between IP people and human resource personnel.

Table A.1 — Guide for IP management activities related with employees

For a new employee:

- Conduct an IP background check, including:
 - verifying all substantive employment during a period of at least five years (or other number of years depending on requirements of the position) immediately preceding the employee's application;
 - finding out whether the new employee has signed a confidentiality, non-compete and/or non-solicitation agreement with his/her former employer;
- Requiring a new employee to confirm the following:
 - that he/she will not use or disclose any trade secrets or other proprietary information of any former employer or third party without their written authorization while in their current employment;
 - disclose any IPR-related lawsuits that he or she may have been involved in;
 - that in the event that the employee retains any IP ownership, that he/she will grant the employer a license to use and control the IP and/or lists all IP that he/she owns and intends to not license to the employer;
 - Ask a new employee to sign a Confidentiality and IP Ownership Agreement;
- Assess the necessity of signing a non-compete and/or non-solicitation agreement.

Table A.1 (continued)

<p>For an employee during employment:</p> <ul style="list-style-type: none"> — Request employees to record innovation information and their contributions during the innovation processes; — Request employees to internally disclose innovation outputs according to organizational processes; — Confirm their authorship and inventorship; — Reward employees who are involved in the innovation process, if applicable; — Remind them about the importance of confidentiality and of their obligations in respect of confidential information.
<p>For a departing employee:</p> <ul style="list-style-type: none"> — Ask a departing employee to return or delete anything confidential that he/she has in their possession or control upon the termination of employment, and confirm the employee will not use or disclose the trade secret; <p>Especially for a departing key employee:</p> <ul style="list-style-type: none"> — Confirm that the departing employee has signed all necessary IP assignments; — Obtain information about the departing employee's new employer (which could help determine the potential risk of misuse of the employer's confidential information); — Assess the need to take appropriate measures against the departing employee based on any signed non-compete and/or non-solicitation agreements; — Remind the employee of their ongoing obligations related to confidential information and IP; require the departing employee to sign a Departing IP Agreement (which would confirm the obligations that they had agreed to upon hire) if necessary; — Set aside and secure all work computers, hard drives, and removable storage media used by the departing employee until these memory storage devices can be copied and examined for any evidence of misuse of confidential information; — Identify any improper activity by the departing employee, such as removing or deleting files, forwarding or downloading documents in the days or months before departure, etc.; — Copy the departing employee's entire email mailbox for his/her last 60 to 90 days of employment with the employer from the email backup medium or server and preserve for possible examination for evidence of misuse.

A.2 Tools for invention records

Keeping a record of innovation activities can be used as evidence to clarify inventorship and ownership, to verify an organization's intellectual assets, or to defend against actions for the infringement of third party IPRs etc.

The organization should establish the discipline and routine of regularly recording the results of innovation activities. The logbook and records need to be properly bound and should be kept permanently secure and confidential for future use.

It is a preferred practice in all research and engineering endeavours, to document all innovation activities. This logging of information can be done in a laboratory notebook, work journal, through design mock-ups, storyboards, or in an electronic archive in case of information technology development.

[Table A.2](#) is an example for what can be included in an innovation record.

Table A.2 — Example of record

Basic information	Name, phone number, e-mail address, date, address, number(s)
Title	Title of the project or experiment
Introduction	Brief introduction of the purpose
Procedure	Brief outline of the steps to be followed
Observations	Record observations and numeric results
Results/Conclusions	Conclusion based on the results

A.3 Tools for internal disclosure of invention

The organization should require inventors to internally disclose their inventions or other innovation outputs when a particular activity or development is considered worth developing or protecting; these disclosures can be used when the organization engages external advisers and patent attorneys for IP issues, during due diligence and/or as part of process for registering IP.

The regular disclosure of inventions needs to be a priority for organizations. The invention disclosure form is a common tool for supporting this procedure. [Table A.3](#) is an example for creating an invention disclosure form which can help the patent attorney evaluate the patentability of the invention and draft a patent application.

Table A.3 — Example of invention disclosure form

Title	Title of the invention
Field	Field of the invention
Inventorship and ownership	<ul style="list-style-type: none"> -Full name, address and nationality of the individual inventor(s) and/or creator(s), -Name and address of the inventor's and/or creator's employer or assignee organization, -Declaration signed by the inventor(s) and/or creator(s) claiming originality and authorship of the invention,
Prior art	<ul style="list-style-type: none"> -Summary of the prior art known to the inventor(s) at the time of creation, -Related patents, IPRs or applications,
Disclosure of invention	<ul style="list-style-type: none"> -Purpose of the invention, -Detailed description of the invention, e.g. physical structure, method, process, drawings, components or formulation, -Operation, function and use of the invention, -Alternatives for the invention, such as any alternative methods, materials, or apparatus that are relevant for the invention, -Advantages of the invention over the prior art and common general knowledge; - Potential application and relevance of the invention.

To assess the potential value of the innovation, it is important that the disclosure includes information about the relevance of the value, such as possible applications for invention in relation to the organization's activities, domains and, competitive context, and as well possible advantages that might be derived from the invention.

A.4 Disclose confidential information to third parties

The organization should only disclose confidential information to third parties after signing Non-Disclosure or Confidentiality Agreements with the potential recipient(s).

The following checklist can be used as a guideline or checklist for developing the key terms that should be included in a Non-Disclosure or Confidentiality Agreement.

Table A.4 — Checklist for signing an NDA or Confidentiality Agreement

Subject	Task	Check <input checked="" type="checkbox"/>	Comment
Contracting Parties	A mutual or one-way NDA? If one-way, who is the disclosing party		
	Who are the contracting parties (e.g. with or without their respective affiliates)		
Purpose	Purpose of the NDA (e.g. a general one or project specific)		
Confidential Information	Scope of confidential information and the exceptions		
	Forms and carriers of the confidential information		
	Method to confirm the confidential nature of the information if it is not tangible or in writing		
Usage of Confidential Information	Permitted and restricted uses of the confidential information		
	Personnel who are permitted to have access to the confidential information		
	Other obligations if any, such as standard of care, restriction for making copies, etc.		
	Provision for disclosure required by law		
Term	Term of the NDA		
	Confidentiality period		
Right and Obligation upon Termination	Treatment of the confidential information in the event of termination or expiration of the NDA		
	Any continuing license or use rights		
	Whether any warranties apply in respect of the information which is disclosed		
	What remedies are available in the event of a breach		
Related Regulation	Process to be followed where disclosure is required by law		
	Whether or not export control regulations need to be addressed		
Miscellaneous	Miscellaneous: governing law, dispute resolution, notice, entire agreement and amendments, no assignment, severability, no conflicting contracts, no waiver of any future rights, authority to sign, counterparts, etc.		

Annex B (informative)

Tools and methods for IP generation, acquisition and maintenance

This annex relates to [Clause 6](#) on IP management in the Innovation process.

This annex introduces the common types of IPR and details tools and methods for ensuring the appropriate skill set and resources are available within an organization to develop and execute on an IP strategy, how to establish an IP filing strategy and how to assess and audit an organization's IP assets.

B.1 Common types of IPR

There are different ways to protect IP and the form of IPR which is relevant depends on the innovation outcome, as described in [Table B.1](#).

Table B.1 — Common types of IPR

Types of IPR	Subject of protection	Registration required	Term	Remarks
Patent	Inventions	Yes	Up to 20 years, maintenance fee to be paid	- Provides the right to exclude. - Enforceable only in jurisdictions where granted/validated.
Utility model (Available in some countries)	Inventions	Yes	Up to 10 years, maintenance fee to be paid	- Provides the right to exclude. - Enforceable only in jurisdictions where registered/granted.
Trademark	Identifier used to distinguish goods/services	Yes	Unlimited (if appropriately used), renewal fee to be paid	- Provides the right to exclude. - Enforceable only in jurisdictions where registered/granted.
Design	Aesthetic design	Yes	Up to 25 years, maintenance fee to be paid	- Provides the right to exclude. - Enforceable only in jurisdictions where registered/granted.
Copyright	Creative artistic works/ Software source code	No	Country specific term (typically 50/70 years after the death of the last living author)	- Proof of the creation date, authorship and originality needed.
Trade secret	Commercial information /know-how where value lies in its secrecy	No	Potentially unlimited (if secrecy maintained)	- Proof and date of the trade secret. - Protection by national law.

B.2 Skill sets for IP management

Effective IP management requires that the appropriate organizational skill sets are engaged in creating an IP portfolio and for developing and executing on an IP strategy. In order to determine which skill sets are necessary it is important to consider which activities will be engaged in and why. Table B.2

below provides an overview of the objectives and activities which define the skills that are required by an organization in the establishment and execution of an effective holistic IP strategy.

B.2 — Overview of the objectives, activities and required skill set

Objective	Activity	Required Skill Set
Define the characteristics of the business	Decide whether the organization wants to be a <i>market</i> innovator, an early adopter or follower	- Ability to understand implications of organizational strategy (for example, if innovator then should seek out IP protection but if entering into an established market then licensing options can be explored).
Define the markets that the organization intends to conduct business in	What markets (geographic, product and/or service) will the organization be conducting business	- Knowledge of different markets which are relevant for the organization. - An understanding of the legal landscape for IP protection and enforcement in the relevant jurisdictions.
Identify potential IP for each innovation stage	During the innovation phase determine what can be protected by IP and what form of IP protection (if any) is the most appropriate	- Knowledge of different forms of IP and costs and benefits associated with each. - Ability to engage in a cost/benefit analysis as to what form of IP protection (if any) should be explored.
Implement approved IP protection approach	Execute on IP protection strategy which has been approved	- Ability to engage in or oversee filing of IPRs as necessary (e.g. patents, trademarks, industrial designs). - Ability to implement protective measures if trade secret protection has been identified as the preferred approach.
Maintain IP inventory and supporting documentation	Maintain an inventory of IP and keep track of IP registration expiry and renewal dates	- Documentation and organization skills.
Oversight over contractual arrangements that relate to IP	Record and track IP transfers (including employee assignment), licenses, sales, acquisitions or any transaction affecting IP	- Documentation and organizational skills. - Ability to understand legal implications of contractual arrangements.
IP Audit	Identify organizational IP assets	- Ability to engage with different parts of the organization to elicit information about what can be or is protected by IP. - Ability to identify different forms of IP. - Ability to engage in the process described in B.4 .
IP Valuation	Value IP assets	- Ability to understand potential value of different forms of IP.

B.3 Considerations when engaging external IP professionals

It is important to ensure that the right IP professionals are engaged by an organization. The following is an overview of the relevant considerations for engaging an IP professional:

- the organization's needs (what specific IP advice is required);
- identification of suitable potential professionals based on industry qualification, expertise and referrals;
- due diligence based on references, success of former cases and potential conflicts of interests (based on a consideration of whether they represent someone that is adverse in interest to the organization);

- conclusions based on initial meetings where costs, potential conflicts and an approach to the issues is discussed (sensitive details should not be disclosed in the initial meeting);
- selection of appropriate IP professionals based on the outcome of due diligence, findings from the initial meeting and reference checks (cost should not be the sole driver in selecting IP professionals).

The outcome is a fair retainer agreement that at a minimum addresses confidentiality, the scope of work, the skill of the IP professionals to be engaged on the matter, the estimated costs, fee payment arrangements and how potential conflicts of interests could be addressed.

B.4 IP filing strategy

In order to benefit from certain IPRs, it is necessary to file for protection. Filing for protection and maintaining these rights in different parts of the world requires organizational investment (resources, costs, etc.) so, it is necessary to consider when and where these protections should be sought. Some relevant considerations for filing strategies for two common types of IPR (patent and trademark) are as follows.

Patents:

1. Consider the business market – decide whether to file for a patent based on short-term and long-term goals, where the organization's competitors operate, and the commercial and industrial trends.
2. Consider the strategic and commercial value of the patent claims which are granted – e.g. if the claims are narrow then the organization may not want to maintain the patent or may want to pursue limited territorial coverage for the patent.
3. Consider the territories where patent protection should be sought – based on: how much revenue is earned in each territory, how much licensing revenue can be earned in each territory (depending on where competitors operate), the patent system of the markets being explored (in terms of subject matter eligibility, the quality of patent examination, the ease with which patents can be enforced and remedies that are available for infringement).

Trademarks:

Filing and maintenance costs for trademarks tend to be lower compared to patents, so different considerations apply for a trademark filing strategy. The following are some of the relevant considerations for where to file for trademark protection:

1. Consider the business market – decide whether to file for a trademark based on short-term and long-term goals, where the organization's competitors operate, and the commercial and industrial trends.
2. Consider filing where there can be licensing opportunities (e.g. if there is demand for the organization's innovation in territories that the organization do not want to operate in then it could license its trademarks to a third party who can market its own innovation under the organization's mark) or franchising opportunities.
3. Consider a pro-active international trademark filing strategy to reduce risks of unauthorized sales, counterfeiting and trademark or domain squatting.

B.5 IP audit

An IP audit supports the development and maintenance of an IP portfolio. It entails reviewing the IP assets which are owned or used by a business. An IP audit is necessary.

The following are recommended steps for an IP audit:

1. Create an audit plan which includes determining:
 - the purpose of the audit (e.g. acquisition related);

- the scope of the audit;
 - the departments of the organization to be covered;
 - the people who will be responsible for conducting the audit;
 - a timetable for audit related activities;
 - the budget;
 - the form of audit report that will be produced.
2. Create a detailed checklist assigning specific roles and responsibilities.
 3. Auditing IP assets owned by the organization which includes:
 - cataloguing and describing all relevant IP assets;
 - determining ownership of the IP assets (e.g. joint ownership or confirming that all rights have been registered and assigned to the organization, verifying chain of ownership);
 - determining if IPRs are valid, their remaining term or whether any rights have lapsed;
 - determining whether adequate measures are in place to protect the assets (e.g. sufficient precautions in place to protect trade secrets);
 - determining if there are any restrictions or encumbrances on use;
 - any challenges to the validity of the IP assets;
 - relevance of the IP assets to the business.
 4. Identify, review and describe any agreements that may have any impact on the organization's IP (e.g. employment agreements, licensing agreements, collaboration agreements, grant agreements).

An IP audit can serve to identify IP assets that are no longer of value (so they can be abandoned or transferred to third parties), identify which IP assets should be prioritized, and/or to identify whether additional IP assets need to be acquired. IP audits can be conducted on a periodic basis to ensure that IP strategy remains aligned with the business and innovation strategies of the organization.

Annex C (informative)

Tools and methods for IP search

This annex relates to [Clause 6](#) on IP management in the Innovation process.

This annex provides relevant information for conducting an IP search. An IP search can only retrieve published IP. The following are the overlying considerations in conducting an IP search:

- Purpose of the search to be done;
- Available search competence;
- Selection of the appropriate IP search resource.

C.1 Purpose of the search to be done

IP databases, search engines and software for searching published IP play an important role in IP strategy planning and in IP management. With the help of these tools, it is possible to:

- Identify key trends in specific technical fields and pave the road for future policy planning and R&D decisions;
- Gain competitive intelligence for business and innovation decisions;
- Avoid duplication of R&D efforts;
- Assess pre-existing IPR to determine registrability (e.g. prior art in the case of patent, conflicting trademark or design);
- Determine the patentability of an organization's inventions;
- Avoid infringement of third party IPR;
- Evaluate the value of an organization's IP;
- Support business decisions including decisions related to licensing, partnerships, mergers & acquisitions, etc.

C.2 Available search competences

The purpose and the potential legal and financial consequences arising from the search results should determine the type and level of expertise which is required to conduct the search. Consider using either internal or external resources, based on expertise, available time, and budget.

The criteria set out in [Annex B](#) related to engaging the right IP professional can also be relevant in this context.

Key questions to be asked in identifying appropriate resources:

- Are the search results mission-critical (informational only or are they the basis for a decision with significant legal or financial implications)? The more mission-critical the information, the greater the necessity to have the most qualified resources.
- How experienced is the IP professional in terms of searching, analysing, interpreting and delivering the results in an efficient way?

C.3 IP search resources

IP information is available to the public through several databases and search engines. Although at present no database has complete coverage of all published information, certain databases are more comprehensive than others and therefore can be sufficient in certain circumstances. For a more mission-critical search where more complete results are vital, it can be necessary to consult multiple databases in order to find all relevant information.

IP information is available through both free and fee-based resources. Sources maintained by government entities are often free of cost. Some examples include:

- Patentscope- World Intellectual Property Organization (WIPO, www.wipo.int/patentscope)
- Espacenet -European Patent Office(EPO, <https://worldwide.espacenet.com/>)
- eSearch -European Intellectual Property Office (EUIPO, euipo.europa.eu/eSearch)
- U.S. Patent and Trademark Office (USPTO, www.uspto.gov)
- National Intellectual Property Administration, PRC (CNIPA, www.cnipa.gov.cn)
- J-PlatPat - Japan Patent Office (JPO, <https://www.j-platpat.inpit.go.jp/>)

Depending on organization's needs, a database or search engine that is useful for one type of search might be less applicable to handle another. When selecting the right IP search and analysis tool, it would be best to compare the available data sources against the objectives.

Key questions to be asked:

- Is the interest in the IP information for a specific country or region or worldwide?
- What are the types of IP documents that need searched?
- Is the interest in technical, legal or business-related information? For example, in determining the validity of existing IPRs, legal status databases are the most important information sources to use; while for technical information like a prior art or novelty search, databases containing bibliographic and full-text data will be the tool of choice.
- How sophisticated should the search strategy be to deliver the desired results?
- Does the search engine and service have the applicable search fields, and data coverage? For example, the greater the number of indexed search fields (e.g. classifications, citations, full text and different languages), and search functionality, the greater the information which can be derived from the data.
- Are the search results presented in a way that is suitable to provide accurate input for the analysis needed for the organization?
- What are the resources (e.g. budget, staff)?

Annex D (informative)

Tools and methods for IPR evaluation

This annex relates to [Clause 6](#) on IP management in the innovation process.

This annex details tools and methods for IPR evaluation.

D.1 Understanding IPR evaluation

An IP evaluation can provide both qualitative and quantitative information that is useful for an organization for leveraging the organization's IP assets for strategic advantage (e.g. deciding whether to grant licenses, whether to enforce or transfer or abandon an IPR).

D.2 Factors that influence IPR value

The evaluation of IP should include a valuation of present or future direct or indirect benefits which can be derived for the organization from the various forms of IP. Legal status and market conditions (as further described in [Table D.1](#)) are relevant for the valuation for all forms of IP. The specific approach to valuing IPR is unique for the various forms of IP.

Most organizations, however, focus on trademark and patent valuation. Trademark valuation is typically done in conjunction with brand valuation (which can be done in accordance with ISO 10668 Brand valuation — Requirements for monetary brand valuation).

Patent valuation is typically premised on legal status, market conditions and technical factors as described below:

Table D.1 — Factors for IPR valuation

Legal factors	<ul style="list-style-type: none"> — Legal status — Validity — Registrability — Covered products — Scope of protection and the ability to circumvent the IPR — (Ability to act) freedom-to-operate — Enforceability — Right of disposal, ownership — Relevant standards — Approval restrictions
Economic factors	<ul style="list-style-type: none"> — Market potential of the invention — Availability of complementary goods — Business model for marketing — Interdependencies

Table D.1 (continued)

Technical factors	<ul style="list-style-type: none"> — Technical feasibility — Production-related feasibility (scalability) — Technology life cycle — Technical substitution
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D.3 Choose IPR evaluation tools or methods

While there are three principal methods for valuing IP (as described below) there is a degree of overlap in the various factors which are typically considered as part of the valuation exercise. Before embarking on a valuation exercise it is important to take into account the following considerations:

- Market considerations – is there a market, where is the market and what is the size of the market for either the IPR or the innovation which is covered by the IPR.
- Anticipated cash flow – what revenue is expected to be generated from the IPR or the innovation which is covered by the IPR. In considering this factor it is important to think about the form of IPR and whether it is associated with other forms of IPR. For example, in the case of patents whether they are standards essential patents or patents that form part of a patent pool. Alternatively, whether there is an association between different forms of IP (for example whether the patent license is bundled with a trademark license).
- Cost – how much did it cost to generate the IP?
- Avoided Cost – what costs could be avoided by virtue of acquiring the IP portfolio?

Taking into account the foregoing considerations, the following are the three most common evaluation methods:

Cash-Flow-related method - refers to the value of an IPR or IPRs portfolio in terms of future-payoff. For example, anticipated future revenues can be discounted to obtain a present value.

Market-related method - is where the value of the IPR is based on an analysis of the market conditions – provided there is a market with comparable IPR.

Cost-related method - is where the costs involved in IPR acquisition, prosecution and maintenance are summed up to provide the value of the IPR.

The three evaluation methods can often be compared or combined.

The value of an IPR portfolio typically differs from the sum of the single values of individual IPRs in the portfolio.

Annex E (informative)

Tools and methods for IP risk management

This annex relates to [Clause 6](#) on IP management in the innovation process.

This annex details tools and methods for managing innovation related IP risks and outcomes and conducting a freedom to operate analysis.

E.1 Origin of IP risks in innovation

Every phase of innovation carries different IP risks. In the beginning, the focus should be on mapping the risks and assessing whether the project is worth pursuing in light of the risks. In the later stage of innovation, the focus is likely going to be on mitigation of risks and monitoring the organization's rights.

Risks can be both internal (within the organization) as well as external. They can be deliberate threats, or they can be unintentional.

- Internal IP risks arise where the organization:
 - Lacks an understanding of IP management and risk assessment;
 - Lacks adequate processes and systems for securely sharing relevant information;
 - Lacks insight and understanding of own IP;
 - Fail to prevent negligent or disloyal employees;
 - Lacks relevant competence and skill;
 - Lack appropriate resources, skills and/or engagement by management related to IP management.
- External IP risks arise where the organization:
 - Has not conducted a freedom to operate analysis or ignores others' IPRs;
 - Has IP which is being infringed or products or services which are being copied;
 - Unaware or ignore differences in local laws and regulations and address potential changes;
 - Does not find competent and skilled resources;
 - Is at risk of IP theft, cyber-attacks, IP assertion entities (e.g. patent trolls) etc.

E.2 General IP risk identification

IP can create risks for a business and can impact the organization's activities and revenues.

When assessing IP risks, the organization should consider: what are the IP risks to the organization, where do they originate from, what is needed to protect the organization's IP, and how to avoid infringing third party IP.

In undertaking IP risk analysis, there are three main steps:

- 1) IP risks should be identified and described with regards to the scope of analysis and the relevant phase of innovation;

- 2) Possible outcomes should be identified and analysed;
- 3) The risks should be evaluated in terms of probability and the extent of potential damage.

Figure E.2 provides some insight to what or where the possible IP values and corresponding IP risks might be found.

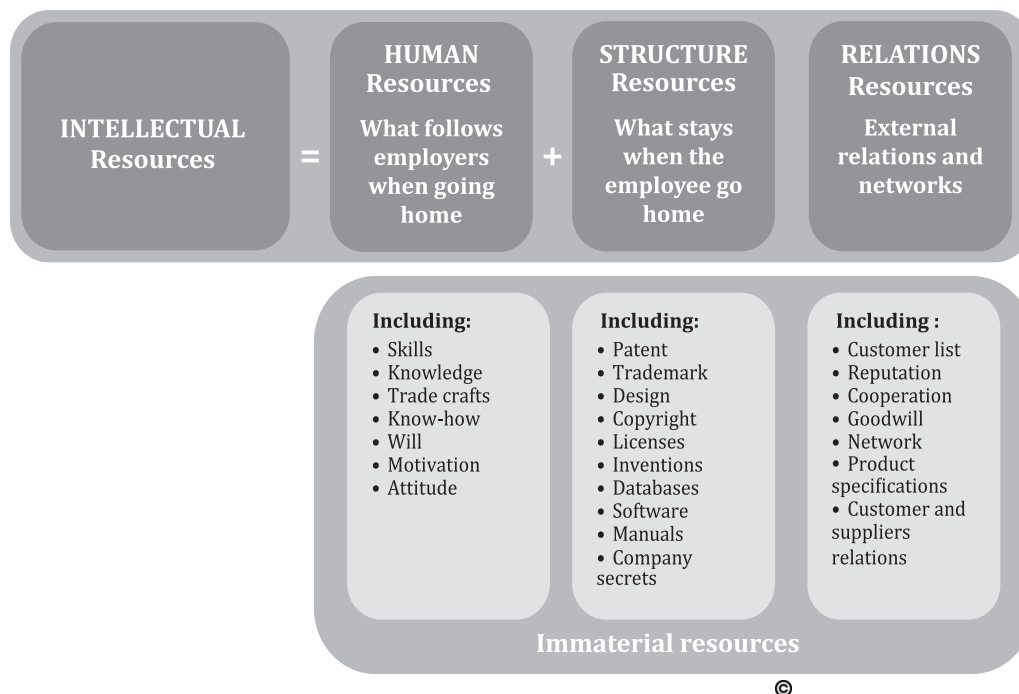


Figure E.2 — Intellectual resources and possible IP values and corresponding IP risks

E.3 An example method for IP risk identifying

Freedom to Operate (FTO) analysis is a method to identify infringement risk to or from third parties, and to enable deployment of the innovation and related IP (if applicable) in any ways relevant (e.g. product commercialization, licensing).

Steps in a Freedom to Operate (FTO) analysis

1. Gather information about the innovation inside the organization through a disclosure form. It is crucial to understand the scope of the technology, the nature and aim of the innovations, and the specific market, among other factors. Ensure ownership of the invention's IP right is clear, as hidden ownership can exist to create ownership challenges at a later stage.
2. Define a strategy to search for related solutions or IPR the innovation can infringe on with regards to territorial jurisdiction, define relevant keywords and/or patent classes to assist in finding any relevant rights others might have.
3. Assemble the information into a document for analysis, review the findings, and assess the information from the perspective of identifying barriers and other aspects which can be future problems.
4. Perform with the appropriate legal oversight, the legal FTO assessment, considering the business risk and business solutions related to FTO. Consider the profile of the IP owner and the associated level of risks (e.g. some companies are known to be aggressive), the IPR status, potential expiration, and other IPR information that will impact the risk analysis.

5. Assemble up the potential IP problems and its potential solutions, including partnership, invalidation, licensing, design around. Based on the information, in combination with resources available, a decision regarding the innovation and associated IP can be made (deploy, stop, delay or alternate plan).

An absolute guarantee of freedom to operate will never be obtained but minimizing the risks can save an organization significant resource.

E.4 Tools and methods for IP risk mitigation

Regardless of the phases, it is crucial to decision-making to identify, monitor and prioritize the risks given the fact that organizations have limited time and resources.

The following can be used to mitigate IP risk:

- Acquire IP;
- Licensing IP (e.g. in-licensing, cross-licensing);
- Obtaining indemnities;
- Designing around;
- Invalidation or revoking of the IP;
- Participation in patent pools or defensive patent programs;
- Induce technical or other business cooperation with external organizations;
- Obtain IP insurance.

Handling IP risk mitigation is a multi-disciplinary mixture of advisor competences with skills depending on the nature of the innovation. Incorrect advice regarding IP could ultimately result in lost opportunities or a launched project having liability. It is important to map what is needed in the project and pair this information with the advisor's competence and experience.

Annex F (informative)

Tools and methods for IP exploitation

This annex relates to [Clause 6](#) on IP management in the innovation process.

This annex details tools and methods for IP exploitation, especially for IP licensing.

F.1 Understanding of IP exploitation

The following are typical ways that an organization can use their IP to create new commercial opportunities.

Direct exploitation through exploiting the innovation outcomes directly by distributing products and services implementing the protected IP (e.g. marketing of a product implementing a patented technology, publication of works, marketing of a brand).

Licensing through granting permission for activities related to the IP which would otherwise be within the licensor's exclusive IPR. In return, the licensor can receive a royalty or a license to the other party's IPR or some other form of consideration.

Collaboration entails the exploitation of IP for mutual gain through various arrangements (e.g. supply, distribution, franchising or manufacturing).

Spin-off entails the formation of an independent company which can be based upon IP. Such an arrangement allows the organization to avoid distraction and disruption to its core business and the risks associated with entry into new markets. The IP associated with the product or technology can be a combination of patents, design rights, trademarks and know-how.

Assignment of IP can take place through disposition, for example sale or auction. This is often done when there is redundant IP, for example, when the business has changed direction in terms of its strategic focus and no longer requires the protection that IP affords.

Investment relying on IP assets to attract financing or to increase the valuation of the company.

The organization should decide how to exploit IP to achieve its strategic and innovation objectives.

F.2 IP Licensing considerations

A licensee should decide whether to be strategic about pre-emptively licensing the IP before it is exploited or whether the license to be secured to address a potential infringement claim. In a licensing arrangement there is no transfer of ownership and any form of IP can be licensed.

[Table F.2](#) lists the reasons to consider licensing IP (-inbound and outbound). **Licensee/Licensor:** A license is a contract whereby one party ('the licensor') enables another party ('the licensee') to use the IP.

Table F.2 — Reasons to consider licensing

License out (For the licensor)	<ul style="list-style-type: none"> — Can the organization exploit the IPR alone? Does the organization have the resources to do so? — Can the innovation form the basis of an independent product? — Does the organization need other IPRs to exploit (cross-licensing) the innovation? — Is a third party using the organization's y IPR without consent? — Does the organization have evidence of use (EOU)? — Can the organization generate revenue by licensing the IP? — Will licensing result in a negative impact on the current business? — Can the organization maintain the technology advantage after license? — Can the organization cross-license the necessary IP?
License-in (For the licensee)	<ul style="list-style-type: none"> — Does the organization need to acquire IPR to develop an innovation? — Does the organization infringe third party IPR and can it acquire the rights to use it to exploit the innovation? — Does the organization have the option to develop an alternative technology (e.g. workaround)? — Is there a risk that the licensor would exert too much control over future activities? — What options exist if the licensor refuses or terminates the license in the future?

[Table F.3](#) can be used as a guide for drafting a licensing agreement. It is not an exhaustive checklist but is merely for guidance.

Table F.3 — Guide for drafting a licensing agreement

What is being licensed?	<ul style="list-style-type: none"> — What innovation outcome is being licensed? — Whether the licensor has the right to license the IP (e.g. do ownership/licensing rights exist (without encumbrance), is it valid?
Grant of rights	<ul style="list-style-type: none"> — Should the license be exclusive, non-exclusive, or have other limitations? — What territory(ies) should be licensed (e.g. should there be any territorial limitations)? — What is the field-of-use which should be licensed (e.g. should the license be limited to one industry / sector, or should it extend to multiple fields, or be open for all fields of use)? — What is the scope (e.g. are there sublicense rights, is there a right to modify, and who has the rights to future developments)?
Financial aspects	<p>A license could be royalty-free but typically involves a payment or some other non-monetary consideration such as a cross-license.</p> <p>The primary considerations are:</p> <ul style="list-style-type: none"> — Terms of payment: upfront, down payment, on-going royalties, equity, or combination of these. — Payment model: flat fee, percentage of sales (gross or net), or based on number of products sold. — Control terms: reporting, audit, management fees.
Rights and duties attached to the license	<p>A licensing agreement can include obligations for both parties, e.g.:</p> <ul style="list-style-type: none"> — for the licensee: performance standards, quotas, diligence clauses to commercialize before a date, quality control, right to inspect/monitor/approve product and/or marketing material. — for the licensor: technical assistance, training, technical support, duties to preserve, enforce, or defend IP. — A franchise license grants not only the IPR (including know-how) but also the procedures, the use of its business model, the brand – and clarifies the obligations of the licensor and the licensee.
General Terms	<ul style="list-style-type: none"> — Term (commencement date and end date). — Termination rights: circumstances for termination and ability to renew and terms for renewal obligations upon termination, or licensor's reversionary rights in the technology. — Warranties from the licensor: absence of known restriction or infringement? — Litigation: conditions such as costs or responsibilities for enforcement against infringers, or open prosecution and maintenance. — Assignment clause: acquisition or transfer. — Jurisdiction: enforcement of licence agreement.

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- [2] ISO 10668:2010, *Brand valuation — Requirements for monetary brand valuation*
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