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Innovation management

Part 4: Intellectual property management

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National foreword

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

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Foreword

This document (CEN/TS 16555-4:2014) has been prepared by Technical Committee CEN/TC 389 “Innovation Management”, the secretariat of which is held by AENOR.

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

— *Part 1: Innovation Management System*;

— *Part 2: Strategic intelligence management*;

— *Part 3: Innovation thinking*;

— *Part 4: Intellectual property management*;

— *Part 5: Collaboration management*;

— *Part 6: Creativity management*;

— *Part 7: Innovation management assessment.*

Part 7 is in preparation.

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Introduction

This Technical Specification CEN/TS 16555-4 is linked to CEN/TS 16555-1:2013 (especially to CEN/TS 16555-1:2013, 11.4).

The effective management of intellectual property, developed as a lever and a tool to support the process of innovation, is a necessary prerequisite for organizations' development, growth and protection of their competitiveness. Intellectual property management thus supports, gives rise to and enhances outcomes of the innovation process.

Intellectual property management includes observation and analysis of third parties' intellectual property, for instance, for the purpose of achieving freedom to operate for an organization's products.

In order to adequately address intellectual property management, the organization should consider the following:

— intellectual property strategy, as an integral part of the organization's business strategy;

— intellectual property strategy, as an integral part of innovation management strategy;

— the safeguarding of the potential intellectual property throughout the entire organization;

— methods used to manage and use intellectual property as a support of business strategy, for example traceability, protection);

— applicable legislation in the territories or regions under consideration;

— costs of obtaining and maintaining intellectual property and possible enforcement costs which could ensue;

— differences in the contribution of various public authorities to acquiring IP rights and promoting practices throughout the world;

— methods of protecting ‘know-how’, where appropriate.

In this Technical Specification, the terms intellectual property and intellectual property rights are precisely defined, and are given a broad and general definition in Clause 3.

1 Scope

This Technical Specification provides guidance to assist an organization to identify, capture, and safeguard intellectual property, in order to:

— provide organizations with an overview of the fundamental principles of intellectual property management, in the context of the innovation process;

— promote best practices in intellectual property matters that result in efficiently acquiring intellectual property, while increasing the organizations' ability to effectively address intellectual property owned by third parties.

This Technical Specification is applicable to all types of organization, including the public sector. Special consideration has been given to the needs of SMEs.

2 Normative references

Not applicable.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
background
pre-existing IP that a party brings to a collaborative joint venture

3.2
foreground
intellectual property and/or intellectual property rights that are collectively generated by the one or more of parties within a collaborative joint venture

3.3
freedom to operate
state wherein a product or service is not exposed to IP other than own IPR or licensed-in IPR

3.4
intellectual property (IP)
part of intellectual assets owned by a person or organization as a result of creations of the mind or the intellect

Note 1 to entry: Intellectual property can be either registered (i.e. statutory) or unregistered (i.e. non statutory or owned by default without any specific registration action).

3.5
intellectual property rights (IPR)
legally protected intellectual property which can be registered and unregistered

3.6
side ground
IP that may be generated by a party during the period of the collaborative joint venture, but specifically excluded from the scope of the joint venture

4 Concept and purpose of intellectual property management

IP management involves identifying, tracing along time, deciding on publishing and potentially safeguarding IP on an individual IP level. IP to be managed includes technical inventions, trademarks, software, know-how, etc.

Core aspects of IP management are:

— identifying and managing IP created within the organization;

— identifying IP held by other organizations;

— managing the organization's IP rights portfolio through the discovery, acquisition, maintenance, trading and relinquishing of IP rights (see 6.4);

— identifying, mitigating and managing risks emerging from other organizations' IP rights and determining level of freedom to operate for innovation created by the innovation process. An innovation created by the innovation process may achieve a high level of freedom to operate or may, by hedging against risks from other organizations, create legal risks for them;

— supporting the innovation process and safeguarding results emerging from it.

The organization should begin the IP management process by identifying and tracing IP, then making management decisions as to how to deal with such identified IP. These decisions depend of the type of IP.

IP management should take appropriate measures to secure confidentiality with respect to otherwise unprotected IP such as know-how, invention disclosure, trade secret, or yet unfiled patent applications.

Intellectual property can be protected by a variety of legal rights. Some IP rights come into existence automatically (e.g. copyright), some need to be registered (e.g. patents), and for some registration is an option which can provide additional benefits (e.g. trademarks). In some cases there are strict criteria and dates which should be adhered to. This applies particularly to patents (for technical inventions), where premature public disclosure, or failing to meet deadline dates can invalidate the protection. Since IP rights can vary between jurisdictions, it is important to check the rules in the countries where protection is required.

In all cases, it is important to be able to provide evidence of creation, in case challenged. In practice this means that evidence, legally acceptable in a court of law, should be kept to prove date of creation, contributors and their relative contributions.

For technical inventions:

— keeping IP proprietary by means of confidentiality or by means of legal protection;

— making IP public to ensure the IP remains publicly available and cannot be protected by others;

— documentation and register maintenance of use of IP;

NOTE See Annex A.

— registering of or licensing-in of other organizations' IP rights to achieve freedom to operate;

— licensing-out the organization's IP;

— challenging other organizations' IP rights to achieve freedom to operate.

For trademarks:

— acquisition of trademarks;

— observing use of organization's trademarks;

— observing other organizations' trademark activities;

— challenging other organizations' trademark IP rights if they conflict.

For copyrights including software:

— documentation of creation and use of copyright-protectable creations such as printed publications, software, etc.

For designs:

— application of design rights and patents;

— observing other organizations' design protection activities;

— acquisition of or licensing-in other organizations' design rights and patents to achieve freedom to operate;

— invalidating other organizations' design rights and patents to achieve freedom to operate.

The organization should refer to 6.2 and Figure 1 below for criteria to be applied in IP decision making.

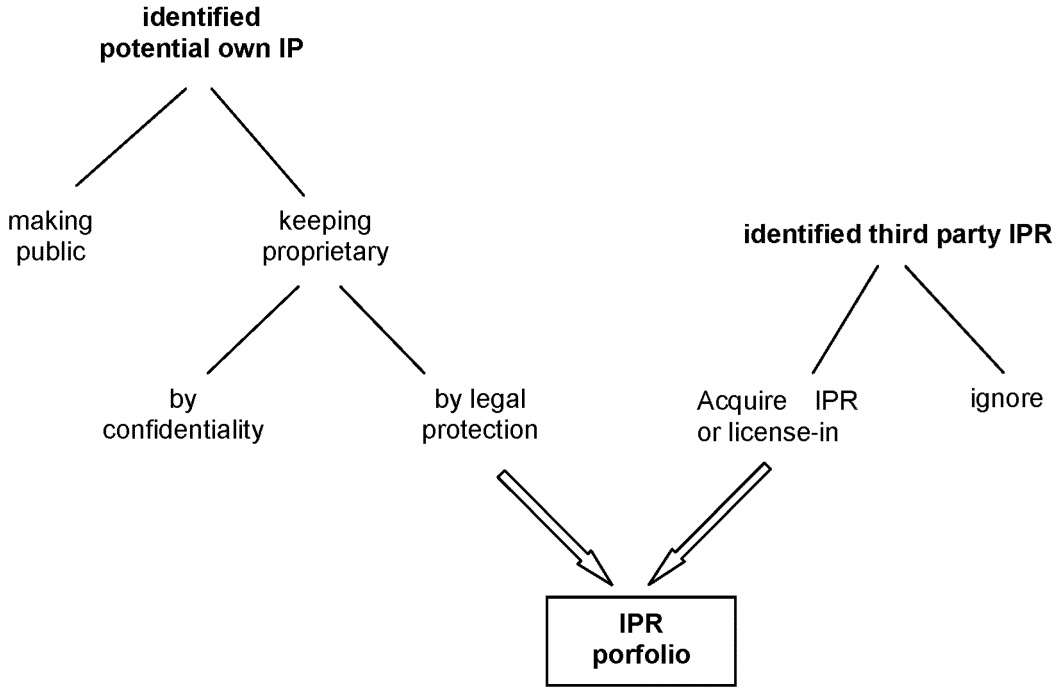

Figure 1 — IP decision tree

The IP rights portfolio management should be customized to suit the particular product field, the level of collaborative activity and the protection required in each territory (see 6.4).

The IP management process should continuously monitor and be administratively interlinked with the innovation process (see Figure 2).

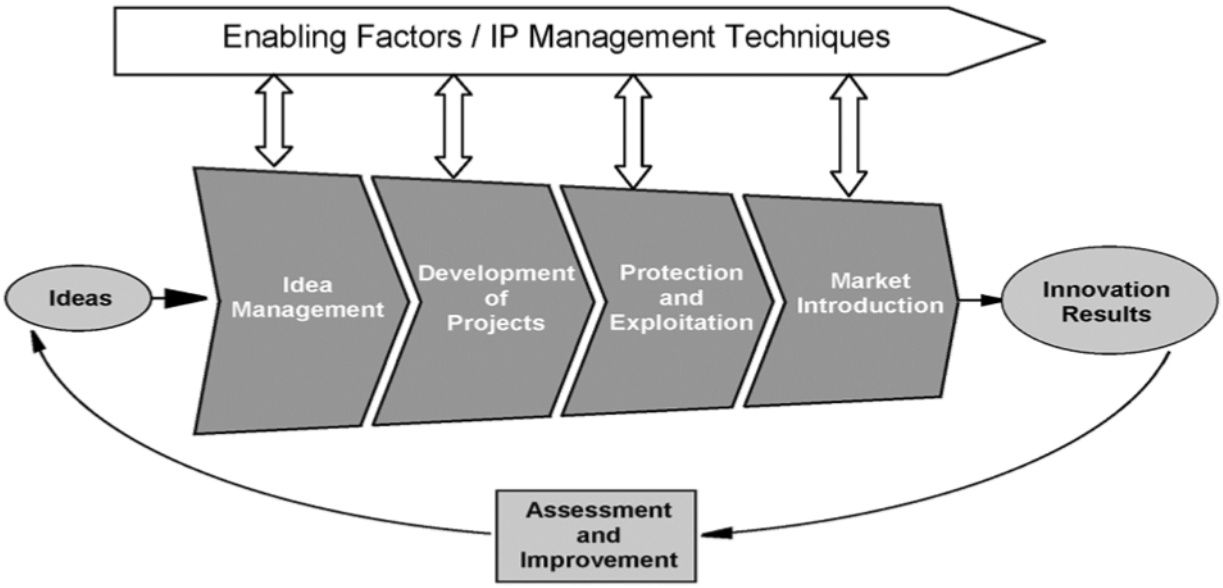

Figure 2 — Interaction of IP in the innovation process

The purpose of IP management is to support the innovation strategy (see CEN/TS 16555-1) and to safeguard results emerging from it.

IP management is the management of an organization's IP assets to support organization's innovation and growth. This also involves the management of any legal rights associated with the IP, which includes obtaining the legal protection and enforcing it as appropriate.

An innovation created by the innovation process may either provide a positive outcome with freedom to operate or a negative outcome where infringement is likely on IP which is the property of another organization. Even the IP relative to this innovation may protect against risks from such other organizations by creating legal risks for them in return.

5 The intellectual property strategy

5.1 The role of top management

The organization should have an intellectual property strategy. The organization should include IP as a consistent component of its innovation management strategy and likewise of the organization's business strategy.

In developing an IP strategy, the following should be considered:

— intellectual property as a guarantee of the organization's exclusive use of its own innovations (“freedom to operate”);

— intellectual property as a competitive advantage or as a response to exogenous constraints of a market, or market segment;

— intellectual property as an element of the organization's asset base for attracting investors;

— intellectual property as a decision support tool for structuring partnerships and research programmes for research bodies, whenever transfer of technology (and if appropriate of intellectual property assets) to industry is contemplated;

— intellectual property as a contributor to market value (through increase of the assets base).

Top management should define and ensure that the overall organization strategy, including the innovation management strategy, is applied to:

— areas for strategic development: core business technologies, timelines and milestones in terms of strategy deployment, etc.;

— research and development business model and policy: internal development, joint development, acquisition, outsourcing, sale, licensing (in, i.e. subscription to licenses from third parties, or out, i.e. granting licenses from own IP to third parties), etc.;

— participation in standardization and regulation bodies;

NOTE 1 See Annex D and Annex E for more details.

— management of operating risks relating to the IP of third parties (risks of infringement of known third party IP, of opposition by previously unknown third party IP, restrictions on freedom to operate, etc.);

— appoint an IP management structure responsible for implementation of the intellectual property strategy, for management of the portfolio of associated IP rights, and for development of the organization's IP assets (detection, creation, protection, monetization, etc.);

— definition of missions and tasks for the IP management structure, in accordance with the organization's policy, consistent with related resources and budgets, and consistent with the recognized strategic value of intellectual property within the innovation management strategy;

— identification of the framework of responsibilities and empowerment, the definition of functional and hierarchical lines of reporting, for the IP management structure;

— structure and manage collaborative innovation projects with regards to their IP creations and IPR assignment components, thus IP management contribute to the success of the collaborative management (see CEN/TS 16555-5 for information).

NOTE 2 It is the IP management structure's responsibility to propose an efficient intellectual property strategy in line with the organization's strategy and with its explicit objectives for value creation.

Top management should establish and approve:

— a strategy for the IP management that supports the innovation management strategy;

— an organizational structure and process that secures the integration of the IP management structure into the deployment of the organization's strategy;

— a set of competences and resources (e.g. human, infrastructure, tools and methods) securing the availability of all the skills required to execute the process and implement the IP strategy.

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

These responsibilities can be assumed by a single person or a team; the IP management may report to the top management, be part of the top management team, or even assumed by the top management itself. As an IP strategy cannot be outsourced, its deployment can be partially delegated to an outside consultant (patent attorney or IP counsel, for example).

5.2 Interactions with various functions

The IP management should interact with relevant functions within the organization, as a contributor to the success of their own missions depending on the size of the organization. For example:

— executive committee;

— operational management;

— risk and quality management (in particular legal and technology related risks impacting on the freedom to operate);

— licensing (if this function is separate from the others): proposal and preparation of licensing programmes, interactions with IP counsels, development of the portfolios of licensable IP assets, negotiations, etc.;

— R&D: innovations, technical analyses, competitive analyses, counterfeit detection, technology scouting (monitoring of third-party technologies of interest for the business's development), technical and legal analyses including freedom-to-operate analyses;

— legal: contractual aspects (confidentiality, purchase, sale, partnership and licensing contracts, etc.), processing of anti-counterfeiting litigation, assignment of intellectual property ownership in collaborative R&D programmes, in employment of interns or temporary collaborators for innovative projects, etc.;

— marketing: business plan (margins, market shares, etc.), information on markets, growth factors and macro trends, counterfeiting detection, choice of brands, development of products and services offerings, etc.;

— finance-accounting-tax management: budget, license fees paid or received, accounting for and reporting of intellectual property assets, (example: compliance with US IFRS rules concerning valuation of intangible assets);

— purchasing: subcontracting of all or part of developments, validation of freedom to operate on purchased components, technologies or tools;

— strategy: role of IP assets in mergers and acquisitions, diversification or divestitures (withdrawals from strategic segments, assets portfolios rationalization, etc.).

5.3 Competences and skills requirements

The IP management should have access to the following competencies:

— specialized skills, internal and/or external, for management of intellectual property in all of its aspects (detection, creation, protection, monetization);

— resources for raising awareness and for training, which addresses all personnel whose duties and responsibilities likely expose them to the issues of intellectual property: freedom of operation, protection of knowledge and IP, value creation, monetization of intangible assets.

Top management should explicitly exert “make vs buy” choices in terms of mastering internally the resources and skills necessary for efficient deployment of the IP strategy, or outsourcing these resources. Top management should periodically revisit these choices as well as the positioning of the IP management within the organization, since resources and management structure required for efficient implementation of the IP strategy can evolve.

The corresponding framework could be a yearly IP specific hiring and training plan, jointly designed by top management and the human resources function, explicitly meant to meet the requirements and key success factors of the selected intellectual property strategy.

5.4 Budget and cost control

The organization should execute rolling forecasts and allocate an appropriate budget for the IP management structure, in compliance with the investment policy and consistent with the financial requirements of the efficient management of the IP rights portfolio.

The organization should record and monitor expenditures directly and indirectly linked to the IP management structure and its activities, through financial tools such as dedicated cost accounting. This monitoring should be run on a periodic basis, detailed by type of expenditure (salaries, official fees, filing and maintenance costs, taxes, litigation costs, royalties revenues, etc.) as well as by technology or innovation and by type of IP asset (patent, brand, design or model, domain, database, know-how).

EXAMPLE

— For patents, monitoring may concern each title per country of filing, and should differentiate the costs of filing and granting of titles from the yearly maintenance costs (annuities), since the latter may be used as adjustment variables in budgetary arbitrations;

— for licenses taken out by the organization, monitoring may concern licenses for patents, brands, designs and domain names and identify the specific corresponding profit and loss accounts.

The organization should consider divestiture from specific IP rights in specific circumstances such as budget constraints, technology strategy or geographic arbitrages (withdrawal from markets or countries), mergers and acquisitions, etc. The organization should establish a process to select the IP rights to be reserved or retained in such circumstances as against those to be abandoned or sold, using as guidelines the requirements of its corporate, technology and marketing strategies. This realignment process between the global budget and the organization's strategy should not be only part of expenditure control measures but should be also a positive tool to ensure an adequate return of investment on IP rights investments.

The IP management structure should anticipate extraordinary costs linked to opposable third party IP rights and restrictions on freedom to operate. In the event of confirmed exposure to such opposable third-party rights, the IP management should recommend the constitution of financial provisions for the implementation of suitable corrective action plans, including litigations. Wherever applicable, such financial provisions should cover any estimate of future compensations that might be paid as a result of litigations, licensing-in, or any other corrective action prompted by the opposable third party IP rights.

5.5 Communication

The organization should communicate its IP strategy both internally and externally:

a) Internal communication should address:

   1) visibility and legitimacy of the IP management structure responsible for implementing the IP strategy and in particular managing the portfolio of IP rights;

   2) visibility, legibility and consistency of the IP strategy and in particular the management of the portfolio of IP rights.

   The goal is to clearly position the IP strategy as a consistent component of the organization's corporate and technology strategies and to secure its empowerment in its interactions with other functions.

b) External communication should address:

   1) information on the technologies and services likely to be made available to third parties;

   2) display of the IP rights' protection policy and the strength of the organization's commitment to defend its freedom to operate or create value from its innovation potential;

3) solicit interest from third parties for participation in joint development projects, capital investments and other innovation initiatives secured by the existing IP assets and their portfolio of IP rights.

The goals are multiple:

— deter counterfeiting through the assertion of retaliatory measures;

— promote the organization as a valuable asset for investors and innovation partners alike;

— proactively look for opportunities to monetize the IP rights of the organization.

Internal and external communications should include both regular and event-based messages, particularly when the IP and the portfolio of IP rights undergo significant changes (recognition of employees' inventions when patents are granted, joint R&D agreements, granting of IP rights in relevant countries, etc.).

6 Implementation of the IP strategy

6.1 Traceability

The organization should develop the tools and resources to ensure the traceability of its inventions' activities, including records of individual inventor’s contributions and proof of the earliest dates of invention or other IP creation and their later development.

In the fields of scientific and industrial R&D, it is recommended that the organization establish documented procedures (see Annex B), supported by any other means to provide evidence of the generation of IP. In the field of software, it is recommended to use software configuration management and software filing.

The organization should:

— maintain on-going, two-way communication with its innovators and inventors;

— communicate decisions and their justification to innovators and inventors, in order to ensure clarity, traceability, transparency and continuous development progress;

— recognize and reward the positive impact and contribution to the economic development of the organization by innovators;

— formalize the identification of inventions by establishing disclosure procedures and maintaining records; (see Annex B);

— consistently check all its activities for the generation of IP and the need for its protection.

NOTE See Annex A.

6.2 IP decision making

The IP management should make explicit decisions on the IP identified and the actions to:

— determine the nature and category of the IP identified or disclosed;

— identify how the IP aligns with furthering the organization’s strategy;

— identify the potential value and risks related to the IP;

— identify relevant prior art and common general knowledge;

— identify whether the IP infringes or is compromised by third party IP rights;

— undertake due diligence and determine the best course of action;

— protect by formal filing and registration;

— protect by confidentiality and/or secrecy;

— publish to prevent third parties from acquiring corresponding IP rights;

— identify IP that has no value or relevance to the organization;

— identify IP that may have value to a third party and could be sold or licensed.

The organization should seek and take advice from internal and external legal professionals, notably in terms of registering inventions, designs and trademarks and in meeting the IP rights of employees and remaining in compliance with national laws.

The organization should ensure early protection of their potential innovations and intellectual property by maintaining confidentiality and other secure measures, prior to determining the best course of action for the protection and exploitation of particular IP.

The IP management should be involved in the drafting of all contracts and agreements that involve IP issues, and in particular those with staff, consultants, subcontractors, suppliers and customers.

Partnership research projects, consortia and open innovation are increasingly common, where it is recommended for the organization’s IP management, to establish and negotiate its intellectual property position with the other parties, before the innovation process starts.

NOTE For more details on management of collaboration, see CEN/TS 16555–5.

6.3 Strategic intelligence and risk management

The IP management should contribute to the strategic intelligence of an organization. This is achieved by:

— establishing regular watch over new IP rights or requests for IP rights published in pre-identified areas;

— carrying out analyses of the competitive landscape using patent databases, scientific publications or other databases, on a given theme, in order to identify players or to identify areas of opportunity for innovation;

— comparing the organization's own portfolio to that of a third party's portfolio in transactional, cooperative, outsourcing trade-off contexts or relating to other strategic choices.

The IP management should identify possible threats which should be dealt with as part of an organization's risk management system; identification of risks and management of identified risks should consider:

— detecting new patents potentially overlapping the activity of the organization and by opposing them where the law permits this or by triggering any appropriate corrective action (licensing, change of technological direction, etc.);

— recommending to general management, further to critical threat analysis, explain or develop the appropriate responses to any claims vetted from third parties that is in line with the organization's risk management guidelines;

— implementing a survey reporting process on infringement by third parties.

To deepen the implementation of strategic intelligence management, it is recommended to follow the guidelines described in CEN/TS 16555–2.

6.4 IPR portfolio development, management and exploitation

6.4.1 Structuring IPR portfolio

a) Global level:

The organization should decide on how to treat IP on a global level and what is the possible structure for IP management.

1) management of one or more centralized structures – holding companies, value enhancement units, intellectual property service companies, etc. – or decentralized structures within the branches or departments;

2) internal management, partly outsourced management, etc.

The choice of the structure contributes to attaining the predefined objectives (cost management, patent quality, compliance with lead times, financial and fiscal optimization, etc.).

b) Unit level:

The organization should define a process related to each innovation or new technology in order to assess:

1) the usefulness of investing in creating its own IP rights or acquiring a license for third party rights;

2) opportunity to grant licenses or transfer IP rights, or any other method of value enhancement;

3) combining both approaches in entering cross-licensing agreement.

6.4.2 Analysis of the potential IPR

a) Analysis of quality of innovation

The organization should consider for each innovation:

1) the type of products and services that would be marketed resulting from the innovation;

2) the strengths and weaknesses of the innovation in terms of technological, economic, commercial and strategic advantages, and scope for the protection of IP rights;

3) opportunities (licensing, contributions/admissions to norms and standards, etc.) and threats (freedom to exploit, market maturity etc.).

b) Analysis of legal options

On the basis of the above analysis, the organization should analyse the IP right(s) for optimal value enhancement. A matrix can then possibly be created per innovation category (e.g. innovations grouped per product line) which would recommend appropriate protection in accordance with the following points:

1) nature of the IP rights;

2) protection period;

3) geographic coverage.

c) Analysis of financial consequences

The organization should document the following points:

1) cost estimates and schedule;

2) nature of costs, estimation methods;

3) subsequent changes and necessary adaptations to development, manufacturing, marketing and life cycle periods of the innovation;

4) impact of IP rights on the organization's business planning: market shares, margins, risks, opportunities, attraction for investors, etc.;

5) analysis of return on investment;

6) identification of decision milestones for the set up of periodical reviews:

   i) according to investments for the reservation of IP rights (lifecycle stages of titles: decision to file, extend, abandon, etc.);

   ii) according to technology, product and market lifecycle stages.

NOTE Analysing potential IPR is made prior to creating IPR, whereas IP assessment refers to the IPR already added to the IPR portfolio. For the IPR assessment, see Annex C.

6.4.3 Intellectual property exploitation

6.4.3.1 General

The organization should decide how to exploit the IP that was created and choose between eligible business models, both in the direct and indirect modes.

NOTE "Exploitation" in this context deals with profits and losses only, and does not deal with IP ownership status (which is balance sheet based). It excludes strategies like transferring IP rights to joint-ventures or start up creations that suppose change of ownership status, as well as monetization that supposes transfer of ownership capability to the creditors (banks, etc.). These scenarios are dealt with in the following sections.

6.4.3.2 Direct exploitation

Direct exploitation consists of exploiting directly vested interests (patents, copyright, brands, etc.) by diffusing products and services implementing the protected innovations (marketing of a product implementing a patented technology, publication of works, marketing of a brand).

Direct exploitation may serve "defensive objectives": the organization should strive to protect its innovations as early as possible in order to ensure their freedom of exploitation, and thus avoid that third parties protect them before the organization does which could eventually block the organization's exploitation of its own innovations.

Direct exploitation may serve "offensive objectives": the organization represents its vested interests to prohibit third parties from using similar products and services by reserving the exclusive IP rights.

6.4.3.3 Indirect exploitation

Indirect exploitation consists in benefiting from vested interests through their potential exploitation by third parties, such as:

— by granting a license to use IP rights on a clearly identified category of products and market.

This license may be conceded to the third party in exchange for payment (offensive objective) or in exchange for an IP rights license belonging to the third party and impacting the organization (defensive objective); in this last case, organizations often exchange IP rights portfolios; this is known as a cross-license agreement (cross-licensing):

— by emphasis on an important portfolio of vested interests so as to deter third parties from exploiting their IP rights against the company through fear of reprisal (defensive nature of dissuasion).

6.4.4 Acquisition, sale, concession and licensing (-in and -out) of third parties IP rights

In case an organization is considering changing its IP ownership status, it should increase or decrease its intellectual property asset perimeter accordingly. Such a strategy means resorting to external resources, notwithstanding and in addition to efficient exploitation of internal ones (see 6.4.2).

The reasons may be for example: execute a specific IP strategy, strengthening or divesting technology domains or product/market segments, increasing or divesting R&D or design capability in a specific domain, execute a specific brand strategy, execute a specific cash-flow strategy, etc.

Achieving change of IP ownership perimeter should be done through one of the following actions:

a) Increase property perimeter:

The organization is creating additional IP ownership, considering acquiring IP rights altogether or licensing IP rights from other parties (licensing-in). In this case the organization should secure freedom of exploitation for an existing technology, or reach critical mass in a domain or product/market segment where internal resources are sub-efficient to secure the success of an internally generated innovation. Depending on the criticalness of the strategy, the licensing IP rights may need to be exclusive in order to efficiently protect the domains or product/market segments involved. Such acquisitions require a preliminary due diligence of the same level as that involved in acquisition of tangible assets.

b) Decrease property perimeter:

The organization is transferring existing IP ownership of IP rights to other entities, like spin-off start-ups, joint ventures, external third parties (licensing-out), or of downright monetizing existing assets with financial partners (IP as collateral for loans, IP turned into equity bonds, etc.). In contexts of strategy shifts and portfolio rationalization, the organization should divest or reallocate intangible assets, which no longer support a viable strategy or no longer enjoy a competitive advantage. In context of explicit growth objectives, the organization should leverage the IP as a negotiation tool, seed assets for spinoffs or joint ventures, or invest upfront to speed up market acceptance and stakeholders' awareness of a technology. Such IP transfer tactics may require the intervention of a third party such as IP service firms, IP brokers or investment bankers.

Annex A
(informative)

Authenticated documentation to record IP

It is important that every organization, large or small, involved with scientific or industrial R&D that creates IP, establishes the discipline and routine to regularly record the results of these activities, which are made at the time of creation and at all later stages of development.

It is well established as “good practice” in all research and engineering endeavours, to keep a notebook to log these activities, which is often referred to internationally as a laboratory notebook, or an electronic archive in case of digital development.

The benefit to the organization from keeping a clear record of these activities is that it can be used not only to protect valuable innovations, but also to defend against actions for the infringement of third party IP rights.

In order for these records to be recognized as authentic, by third parties and legal authorities around the world, it is essential that they are well kept and meet several important criteria:

— The records belong to the organization and not the individuals who may leave it over time.

— The notebook needs to be properly bound and kept with numbered and dated sequential pages.

— Entries should only be made in ink and kept legible.

— Entries made by individual contributors to the log should be identified and initialled.

— Projects and activities should be clearly identified with consistent titles and numbering.

— No pages of the logbook should be removed or altered.

— A visible strikethrough of entries is allowable, if dated and initialled.

— Entries in the logbook should describe experiments and results in sufficient depth and detail, so that they can be understood and repeated by a competent third party.

— Entries should record the facts and avoid offering opinions or conclusions.

— Demonstrate a process of continuous development of the IP from its conception.

— The logbook should be regularly checked for its accuracy and countersigned by an independent and impartial third party, who is required to maintain confidentiality, in order to not compromise later protection of the IP.

— In some jurisdictions it may be advisable for the documentation to also be recorded, for example with a notary, a patent authority or by the use of stamped envelopes.

— The logbook and records should be kept permanently secure and confidential for future use.

In addition to recording innovation activities as a routine procedure, the organization should establish and maintain a formal system for invention disclosure on particular IP, as outlined in Annex B.

Annex B
(informative)

Innovation and invention disclosure

Each organization involved with creating innovations and intellectual property should establish a routine for recording IP from these activities, as outlined in Annex A.

Further information and a more formal disclosure are required by the organization's innovators or IP management when a particular activity or development is considered worth developing or protecting. In particular the information is required when the organization uses external advisers and patent attorneys on IP issues, due diligence and the registration of IP.

This information should be recorded both at the time and kept updated, as it may be held or restricted by different departments within the organization, for example human resources and legal department, or otherwise within the external IP counsel's organization, and not readily available at a later date to IP management. In particular, full details of the individual inventors are required in many jurisdictions.

The regular disclosure of inventions and innovations needs to be embedded as a routine procedure within the organization, rather than as an exceptional event. The contribution and legal status to IP made by subcontractors and suppliers should be clearly identified. An accurate record also needs to be maintained, concerning confidential disclosure agreements made with all external parties.

A particular idea or research may not appear to have commercial value to the organization at the time of its creation, but only with the benefit of hindsight. The opportunity to protect or invest resources in the innovation may be lost or compromised by the lack of accurate records.

Information required for innovation/invention disclosure includes (non-exhaustive list):

— title and abstract description of the innovation/invention;

— proposed classification and field of application for the innovation/invention;

— name and address of the inventor's employer or assignee organization;

— full name, home address and nationality of the individual inventor(s);

— contractual status of the inventor(s) as employee, contractor, consultant, supplier, etc.;

— declaration signed by the inventor(s) claiming originality and authorship of the invention;

— detailed account of the individual inventor's contribution and inventive step;

— summary of the prior art known to the inventor(s) at the time of creation;

— benefits of the invention over the prior art and common general knowledge;

— application of the invention to the organization's activities, domains, etc.;

— competitive context and advantage to be derived from the invention.

Annex C
(normative)

Methods and criteria for the assessment of IP rights

C.1 Objectives and principles

Intellectual property is an intangible asset of the organization's property.

IP can be used to create positive or to avoid negative cash flow when used to prevent competitors from delivering products or services that are protected by an organization's IP. Other uses include gaining market access or freedom to operate via IP agreements or providing security for loans.

The benefit obtained from an individual IP right or an IP rights portfolio depends on the present or future use of the IP right or IP rights portfolio, respectively.

The assessment of IP rights includes an assessment of present or future direct or indirect benefits for the IP owner from the IP, including patents, trademarks, designs, copyright, know-how, etc.

The assessment serves to optimize an organization's IP rights portfolio in the context of the organization's strategic aims and the company's business activities in that the assessment shall provide information on how much one or more individual IP rights create a competitive advantage for the organization and thus a benefit.

Present or future benefits can be of direct or indirect monetary nature, or strategic.

Monetary benefits include:

— Present and future cash flows that can be assigned to IP, including price premium, higher production volumes.

— Present and future avoided costs that were avoided because of owned IP.

Strategic benefits include:

— Influencing future market developments.

— Enabling and structuring of collaborations.

Monetary or strategic benefits or both depend upon how much one or more of the organization's individual IP rights affect or protect competitors or organizations' products and services.

The ability of an individual IP right to affect or protect competitors or organizations' products and services depends on the IP right's inherent qualities.

IP right inherent qualities depend on:

— Scope of protection provided by the IP right. In case of patents, the scope of protection is defined by the patent claims;

— Validity of the IP right.

IP right inherent qualities are subject to assessment by an IP expert.

The effect and thus the potential benefit from an individual IP right depend on the present and future impact and value of the products/services that are affected/protected by the IP right. Assessment of the present and future impact and value of products or services that are subject to protection by one or more IP rights can be complemented by market analysis and prognosis.

The aim of IP rights assessment is to promote IP rights providing relatively more benefits and to avoid or to abandon IP rights providing benefit or only little benefit that does not exceed IP costs.

IP rights and IP portfolio assessment depends on the nature of the particular IP right. For patents, the criteria mentioned below may be applied.

For brands, it is advisable to refer to ISO 10668.

IP rights assessment can be qualitative so as to distinguish the better from the worse. Alternatively or additionally, IP rights assessment can be monetary. The latter requires profound knowledge or qualified prediction on future development of markets and technology that may influence the use of protected products or services. A market approach that allows an assessment based on comparison of similar IP rights requires an active market for IP rights to be meaningful. Due to lack of sufficiently similar IP rights, a market approach is in most cases not applicable for monetary patent valuation.

A key aspect of IP rights assessment is transparency that allows confirmation of the assessment.

C.2 Strategic criteria

The patent is an element which serves and is in line with the organization's strategy. The assessment method provided and the strategic criteria and indicators to be analysed, depend on the operational context and on the strategy they are supposed to serve.

This list therefore provides elements for the strategic assessment of patents in order to align the organization's patent policy with its global strategy:

— Protection: ability of the patent to secure market shares and to preserve or create new revenue.

— Reserve: preparation for the future: early protection of pioneer and/or emerging technologies.

— Blocking: blocking access to a technical solution or group of solutions to competitors.

— Marketing / communication: promote or indicate an innovative activity to markets and competitors.

— Reduction of costs: contribution to the effectiveness and productivity of the organization or of the intellectual property activity.

— Freedom to exploit/design: compilation of a protective portfolio or creation of negotiation means preparing the possibility to enter into cross-license agreements if necessary.

— Merger and acquisition: recognizing the patent as a source of assets.

— Commercial and/or collaborative agreement: structuring tool to leverage partnerships and transactions.

— R&D actions: structuring of research and partnerships.

— Legal: management of litigation risk.

— License: generation of direct new revenue in relation to a third party.

— Human resources management: recognition and value-enhancement of internal technical experts.

— Standardization: potential of the patent to serve the organization's standardization policy.

Examples: some elements used to prioritize the aforementioned criteria

a) Market expectations:

1) Maturity;

2) “Short-term” marketing;

3) More “long-term” societal approach;

4) Attractiveness of technology;

5) Possible value of a license for the alternative;

6) Business plan (product plan / research plan);

7) Market type;

8) Mapping of previous rights affecting the market;

b) Patent type:

1) Disruptive technology patent:

i) Pioneer patent;

ii) Generic patent for several technologies;

2) Incremental innovation patent

i) Patents specific to a technology;

ii) Incremental patent;

iii) Development patent;

c) Level of integration in the organization's R&D and industrial processes (e.g. ability of the organization to appropriate, develop and exploit the innovation);

d) Production system change forecast;

e) Defensive or offensive use;

f) Standard/Regulatory Affairs (specific to patent)

1) In a standardization process, standards and patents are increasingly used in combination. The only obligations are (ISO/IEC/ITU common policy on standards and patents):

i) When one takes part in standardization works, there is the obligation to declare patents relating to technologies or processes addressed by the standards;

ii) One commits in advance to concede licenses on these patents, according to fair, reasonable and non-discriminatory (FRAND) conditions;

2) Patent compared to the standard

   i) Can the technology enter into a standard?

   ii) Can the technology be removed/ impeded by a standard?

   iii) Can the technology be at the origin of a standard?

   iv) Standard type;

3) Patent if integrated in a standard

   i) Immediate detection of patent counterfeit through application of the standard;

   ii) Mutualization of the risk of litigation where a patent pool structure exists;

   iii) Patent exploitation through patent pools: granting of a large number of licenses that compensates modest financial conditions;

   iv) Benefit to participants through networking with other participating patent holders.

C.3 Qualitative criteria

C.3.1 General

Time plays a major role in many assessment criteria, notably with respect to the technology and production lifecycles, and to the vested intellectual property rights validity period.

C.3.2 Techniques

— Claim: definition of the scope of the inventive nature of a technical solution compared to current implementations.

NOTE A technical solution may be protected by several claims.

— Technical scope of the claim: comparison of the technical characteristics positioning the claimed invention with respect to the state-of-the-art; first conclusions on the existence or non-existence of current or future competing technologies; general conclusion on evaluation of the essential nature and range of the scope in question.

— Feasibility: practical ability to implement the claimed invention by a person with knowledge of the state-of-the-art. Feasibility does not necessarily require a detailed validation of the claimed invention.

— Level of achievement of the idea: actual creation of the invention. Level of detail and sufficient number of relevant copies featuring the description of the invention.

— Durability of the invention: estimation of the lifecycle of the technology in years to market(s).

— Infringement detection: ability to describe simple methods allowing detecting infringement to the invention. Assessment of infringement detection methods to be implemented. Conclusion on infringement detectability.

— Ability of the protected technology to establish itself as a technical standard if the field is relevant to such practices.

C.3.3 Legal comments

These definitions are set in reference to an invention covered by at least one protected application.

— Internal art analysis (patentability): comparison between the technical characteristics claimed or likely to be claimed, and the content of the opposable publications and disclosures known at the time of analysis; observation of the relevance of the said publications/disclosures against patentability; redefinition of the claims' scope.

— Geographic coverage: determination of all situations in which current industrial property rights concerning the invention have been requested or are likely to be requested or have been granted.

— Description adequacy: comparison between the claimed invention and the described invention, aiming to determine if the claimed invention is described sufficiently clearly and comprehensively to enable skilled workers to implement it; assessment of the inadequacy risk.

— “Additional” patent claims analysis: position of the patent in the portfolio (needs reviewing for the purpose of the definition).

— Freedom to operate: comparison between the claim invention and the opposable IP rights known at the time of analysis; ownership of opposable IP rights recorded as relevant; assessment of freedom to operate the claimed invention.

— Standard/ Regulatory Affairs: interaction between standards and patents.

— Remark: ideally, the elements above should be taken into account each time a given group of patents is assessed, the patentability criteria being interpreted in various ways with respect to the different situations.

C.3.4 Ability to structure research and to develop partnerships

Intellectual property in general and patents in particular, are known for their ability to structure research and development partnerships between organizations. Patents are used to materialize, identify and assess at least part of the intellectual contributions and results of a partnership, and they contribute to securing flows of part of the knowledge that is shared and/or exchanged between partners.

C.4 Quantitative criteria

C.4.1 General

This paragraph features assessment methods that are used to establish financial value (expenditure/revenue), a rating or a volume-based leverage for an invention that is protected by a patent.

C.4.2 Rating-based assessment

Rating-based assessment involves the combination (addition, average, weighting, etc.) of qualitative and strategic parameters, as set out in Clauses 2 and 3, for which a rating is awarded by tools used either automatically or with some manual processing.

Such a rating-based assessment contributes to minimize the subjective nature of the assessment and to optimize formalization of the result and of its exploitation. Rating-based assessments are therefore a useful component in a multi-criteria and collegial decision-making process between the bodies concerned within the organization.

Therefore, when considering external assessment tools, it is important to understand the qualitative and strategic parameters that are applied and also the principle by which they are awarded a rating.

If external tools are used, it is preferable that the tool be configurable by the user and that the considered criteria, such as the scoring principle, be adaptable to the intended use.

Rating-based assessments can help prioritizing and comparing portfolios of different sizes and composition; they can also help making decisions such as go/no go.

C.4.3 Financial assessment

Different contexts in which financial assessment may be useful include (non-exhaustive):

— technology transfer;

— cession of intellectual property rights (portfolio downsizing);

— granting of licenses;

— merger/acquisition;

— assessment of contributions in a project among partners of a consortium;

— fund-raising campaign;

— assessment of damages.

Three types of conventional financial assessment methods exist:

a) Assessment by market: methods under this type are related to the market price, which is based on comparison with known transactions.

b) Assessment by cost: based on the compilation of all expenditure that was underlying to obtain the results claimed by the patent (R&D expenses, cost of patent filing and maintenance, etc.). Often two types of methods are used:

    1) *Development cost estimation*: based on the compilation of all expenditure that was spent to obtain the patent itself (R&D expenses, cost of patent filing and maintenance, etc.).

    2) *Replacement cost estimation*: based on the cost of expenditure that would be required to reproduce the same result under current state-of-art conditions.

c) Assessment by revenue: based on an estimation of future revenue brought by exploitation of the patent. The following three types of methods are often used:

    1) *Estimation of profit shares.*

    2) *Estimation of future royalties (royalty net present value).*

    3) *Estimation of future cash-flows (cash-flow net present value).*

The choice of the method(s) to apply depends on the context under which the financial assessment is done.

In the event that an action is effectively made under one of the contexts mentioned above, it is necessary to document the financial assessment as accurately as possible, and in accordance with the requirements of the tax authorities.

C.4.4 Quality/price ratio, threshold effect, etc.

As for an R&D project, exploitation of an IP asset is subject to a minimum efficiency of resources invested (internal or external); if this efficiency was not reached the estimated value of the considered intellectual property will be low or even negative.

A direct imperative consequence is the necessity to appropriately budget sufficient financial resources for the creation and maintenance of the IP rights. A strategic alternative consists of retaining the knowledge as trade secret know-how, but it is not always viable and it also implies considerable secrecy protection organizational costs.

Symmetrically, when preparing a budget, any investment that relies on external resources shall be subject to a quality/price analysis of the services proposed, and possibly to a benchmarking of a service provider's contractual conditions.

Furthermore, a number of government and institutional aid schemes are available for reducing organizations' burden of intellectual property costs.

C.4.5 Volume/portfolio effect

The volume of the additional patents portfolio (relevant to a specific technical area and/or strategy) offers leverage and additional credibility thanks to the number of exploitation business models considered. Consequently, the exploitation potential of a patent belonging to a portfolio is often much higher than that of a single isolated patent.

Annex D
(informative)

IP and standardization

D.1 General

D.1.1 Standards goals

a) General objectives:

   1) Supply, for common and repeated usages, rules, guidelines or characteristics, for activities or their results, ensuring an optimal level of performance in a given context.

   2) Establish definitions and common languages.

   3) Agree on minimum performance levels.

   4) Agree on technical specifications.

b) The needs for standardization are especially important for example in cases such as:

   1) Interoperability / interface.

   There is a strong context of interfaces and interoperability in sectors such as telecom, broadcasting and video display, smart grids.

   2) Tests and measurements.

   There is a strong requirement to develop new means of measurement and tests in sectors such as lasers, nanomaterials, nuclear energy production.

   3) Hygiene and safety.

   There is an impact on the societal acceptance, health, hygiene and safety of the public or workers (e.g. nanomaterials, nuclear energy production).

D.1.2 Common goal between standardization and intellectual property rights management: favour development and distribution of (the) innovation

The aim of standardization is to boost economic and innovation development. Standardization is an activity of general interest which aims at supplying reference documents elaborated and agreed (consensually) by all interested parties, on rules, characteristics, recommendations or examples of good practice, regarding products, services, methods, processes or organizations. It aims at encouraging economic development and innovation, while taking into account objectives of sustainable development. Also, an essential part of a patent is to incite (the) innovation, since it gives IP rights to its owner rewarding his/her efforts on research. The owners can then later on effectively exploit or have the patent exploited in an exclusive way, for example, to manufacture products, which they will make available to all their customers and society at large, or grant licenses to third parties against financial compensation, or else combine their patent licence with others within a patent pool related to a specific standardization group. The inventor would probably not engage in research without such incentives. Patents can structure a standard. They are then called “essential patents” which are:

— complementary within a given set;

— necessary to the implementation of the standard;

— not substitutable by other patents claiming to be technically equivalent.

D.2 Various strategies of the organization relayed by intellectual property

The intellectual property strategy in a standardization context depends on the involvement of the organization in the standardization activity; such involvement can be segmented as:

— watch and monitoring;

— follower role (not active but compliant);

— active participation but commitment to comply with the standard.

Each chosen level corresponds to a specific strategy for creation and management of intellectual property rights.

Analysis of standards impacts on the core business and competitiveness of the organization:

a) Characterization of its exposure in each business segment (understanding of the ecosystem and capacity to influence it). To define its level of involvement in the standardization, an organization analyzes its environment as a function of its explicit stakes; it does so by addressing the following issues (which are to consider a company's strategic aspects before considering the sole IP management discussion):

    1) What are the standardization bodies in this sector?

    2) Does the market recognize de facto standards not elaborated by standardization bodies?

    3) Are participants to the standardization bodies' potential business partners or not?

    4) Are there any "pools" of patents associated with the standards? How are the IP rights managed?

    5) What are the resources that the organization can allocate to standardization (men x months and budget)?

    6) What are the membership costs in standardization bodies (membership dues, meetings frequency, meetings locations)?

b) Devising a response strategy depending on context analysis. Once the context is characterized, the organization should adapt its IP rights strategy to its chosen level of involvement in the standardization process.

Annex E
(informative)

Intellectual property management in a collaborative environment

E.1 Introduction

Intellectual property has a dual role in the establishment of a collaborative framework:

a) Facilitator role:

   1) Identification of potential partners and lever for selecting them.

   2) Identification, formalization and securing of prior knowledge.

   3) Means of assessing the contribution of each participant.

b) Structuring role:

   1) Strong element of initial contract negotiation.

   2) Interface: simultaneously disseminates and protects knowledge.

   3) Repository of a common language: facilitates interactions.

   4) Eases up and speeds up knowledge transfer (e.g. license agreement).

   5) Recognized reference for conflict resolution.

It should be discussed as early as possible in exchanges between partners and simultaneously with business goals and monetization business models. Conversely, it may become a roadblock if handled only at the end of negotiation or even at the end of project.

E.2 Definition

a) Collaborative environment:

   Combination of at least two partners identified through a formal agreement, to create and/or exploit all the results from all or part of an innovation process.

b) Results of collaborative work (foreground):

   1) Results owned by one participant only.

   2) Common results (defined through the collaborative agreement).

c) Previous knowledge (background):

   1) Patents.

   2) Expertise.

   3) Secret know-how.

4) Copyright.

5) Database.

6) Trademarks.

d) Knowledge generated outside the scope of the agreement but nevertheless worthy of exploitation (side ground):

1) Exploitation models to be described in advance by the collaborative agreement.

e) Public Research Organization (PRO):

1) Publicly funded organization conducting R&D (and sometimes teaching), competent to participate in collaborative innovations and create value, but whose mission does not include industrial exploitation of results and who does not pursue systematically financial return goals on its R&D activities.

E.3 Scope of collaborative contexts

— Cost sharing.

— Risk sharing.

— Time saving.

— Valuable creation and leveraging technical synergies.

The following are excluded from the scope of the processes generating intellectual property because the open source communities and standard design organizations have their own rules:

— pure open source software developments;

— all royalty-free contents including standardization programmes.

E.4 Different types of collaboration in the innovation process

a) Collaboration to create:

1) Collaboration to create knowledge, maintain workload and develop business reputation.

2) Collaboration to create tangible benefits through economic exploitation of results.

3) Public / private:

i) Collaborations within the institutional programmes jointly-financed by public funds, without financial flows between partners (e.g. agency programmes such as Framework Programmes, ANR, FUI...);

ii) Collaboration between partners with related financing;

iii) Collaboration with assignment of R&D tasks between partners with industry stakeholders financing the PRO activities:

— Without margin sought by the PRO (charged at full cost only).

— With margin objectives for the PRO: these R&D services may generate a financial profit.

4) Between industrial / private stakeholders:

   i) Collaboration with assignment of R&D tasks between partners and related financing.

   ii) Outsourcing agreements from integrators.

5) Between research organizations without industrial resources (e.g. contract laboratories):

   i) Collaboration with distribution of R&D tasks between partners and attached financing.

   Whenever the innovation generated by collaborative research is generic enough that it can give rise to several sector specific implementations, the public research institution should retain freedom to pursue development and technology transfer in sectors which fall outside the core businesses of joint industrial owners or that have no strategic value for them.

b) Collaboration for exploitation and dissemination of previously created innovation (public and/or private partners):

1) Common programme to promote market acceptance:

   i) Search partner for future alliances;

   ii) Increase the likelihood of adoption of technologies by the market;

   iii) Participate in standardization activities;

2) Common licensing programme (e.g. example, standard-essential patents):

   i) Creation of a patent pool to consolidate the operation of a set of patents that are essential to a standard or connected to a same technology (single window);

   ii) Multilateral license programme on a technology;

3) Cross licensing agreements (bilateral, already implemented patented technologies).

4) Negotiate an exploitation agreement of the rights of intellectual property for the assigning public authorities limited to one or several sectors of interest for public authorities and worthless strategic value for the industrial partner.

NOTE See also Annex D for the participation in formal standardization activities.

E.5 Legal

a) Reminder of the legal bases (IP code, civil code, commercial code, labour code, etc.) which prevail in case of absence of contractual agreement.

b) Typology of the standard clauses to be validated:

1) IP sharing rules / assignment of ownership (of the) results (joint, alternate, finance-driven, etc.).

2) Access to background.

3) Access to foreground.

4) Management rules for joint-ownership.

5) Commercial business model outside joint-ownership.

6) Rules of compensation of IP owners who will not complete the development cycle.

c) In the case of a joint-ownership between a non-directly exploiting PRO and a private stakeholder partner with industrial resources, supposed sole user of the results, compensation may be considered to offset the imbalance between operating owners.

d) Rules for publication of results (PRO concern and KPI for its scientists).

e) Generation of IP by non-permanent contractual employees (trainees, PhD and post-docs, visiting scientists, etc.).

E.6 Collaboration to create; impact of financing sources on IP ownership, assignment

a) Joint financing or public joint financing:

1) IP (ownership of the results) reverts to employers inventors;

2) Possible situations for joint-ownership for common results:

i) Analysis of risks and constraints of the joint-ownership:

— If the joint-ownership is too complex to manage, it is desirable to establish mechanisms for allocating IP to one or both partners early in the project, for example, allocation based on the background, redemption quotas after the first submission of a patent application.

— If not, it is recommended to draft joint-ownership rules for administration procedures and direct or indirect exploitation of the IP early in the project.

NOTE It is to be noted that a case where the co-inventors are not demonstrably implementing the patented technology can lead to the invalidity of the patent, especially in the US.

3) IP returns to the common legal structure if it exists.

b) Majority financing by one of the partners:

1) Sharing of IP rights is negotiated depending on the level of respective financing and respective background. The risks intrinsic to the ownership shall be taken into account at this stage.

E.7 General best practices to comply with

a) Never start without establishing a collaboration contract.

b) Sign a confidentiality agreement before the collaborative negotiation contract.

c) Identify the IP background of each partner before collaboration.

d) Identify the respective shares of common interest to cooperate (integrative negotiation) compatible with the organization's strategy.

e) Decide what should remain secret and what should be patented and / or published (can be patented first, and then published).

f) Write up and date all contributions.

g) Draw the foreground IP during the collaboration distinguishing each contribution, i.e. explicitly draw all innovative initiatives (invention disclosures, laboratory notebooks, logbooks, minutes of progress reviews, etc.) that may create IP and relevant actions or decisions (submission, filing, disclosure, etc.).

h) Establish principle diagrams, ensuring that these principles are compatible with the IP policy of the organization in order to share:

   1) tasks (project governance, etc.);

   2) costs and expenses;

   3) IP rights related to collaboration;

   4) direct or indirect exploitation / protection of IP;

   5) financial returns / monetization of IP;

   6) develop and negotiate a detailed contract complying with these principles.

i) Ensure the implementation of the contract by stakeholders during its lifetime. If applicable, attach the contract application to the company's quality process.

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