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Use of Information in the Public Domain for Economic Development: WIPO Guides on Identifying and Using Inventions in the Public Domain

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WIPO Project on the Use of Information in the Public Domain

- Development Agenda Project adopted in April 2016
  - Objective:
    - Build on TISC program activities to support TISCs in developing new innovation support services for ***identifying*** and ***making use of subject matter that has fallen into the public domain***
  - How?
    - ***Provide new tools*** to help identify inventions in the public domain and use this information to generate new research outputs and products

Background: Patents and the Public Domain

2 fundamental elements:

- **Protection**: patent owner gets exclusive right to exploit the invention for a limited duration

- **Disclosure**: system requires inventor to disclose technical information about the new invention to the public…

  - …in a "*manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art*" (Art. 29.1 TRIPS Agreement)

  - Up to 80% of current technical knowledge is only found in patent documents*

  - More than 150 million patent documents published to date

*Source: "Why researchers should care about patents", European Patent Office, available at http://ec.europa.eu/invest-in-research/pdf/download_en/patents_for_researchers.pdf

Strategic use of patent information

- **Technical/business:**
  - Avoid “reinventing the wheel” - insufficient use of patent information wastes R&D investments
  - Find most-up-to-date information about existing technologies and solutions to technical problems
  - Technology transfer: find a technology that is available for licensing or in the public domain
  - Search for inventors/companies active in a field of technology, track research activities of competitors
- **Legal**: avoid litigation - putting a new product on the market without doing a search can result in high costs

WIPO Project on the Use of Information in the Public Domain (PD)

- **Develop skills to:**

1. Retrieve and analyze patent documents to determine whether the subject matter belongs to the public domain

2. Integrate subject matter disclosed in patent documents into new products and processes

- **Project outputs:**

  - Guide on Identifying Inventions in the Public Domain

  - Guide on Using Inventions in the Public Domain

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Guide on Identifying Inventions in the PD

Structure

- **Part 1:** Patents and the PD – concepts and legal principles

- **Part 2:** Use FTO determination to search/analyze patent documents and identify if an invention may be in the PD
  - Describe the invention: WHAT-WHERE-WHEN model
  - Deconstruct the invention into key components/features
  - Search for patent documents in appropriate databases
  - Analyze patent documents to determine if any document might have an impact on freedom to use the invention as planned (claims and legal status information)
  - Prepare final report; understand risks and limitations

- **Annexes:** Checklists and templates

Overview: Guide on Identifying Inventions in PD

- **Aim:** help retrieve/analyze patent documents to determine if inventions are protected by patents or may be in the PD

  - A person who plans to use an invention wants to know:
    - Are there **any** enforceable patents that cover the invention?

      - OR -

    - Is the invention **not** covered by any enforceable patents? Is the invention "in the public domain" and free to use as planned?

- The Guide teaches how to address this question by:
  - Describing the client's invention
  - Searching published patent documents; and
  - Analyzing claims of potentially relevant documents…

  …using the process of **FTO determination**

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Overview (cont.)

- **Process:**
  - Explain concepts and legal principles of patents and the public domain
  - Teach how to use the process of FTO determination to search and analyze patent documents
  - Provide training and tools for each step, including checklists, worksheets and templates
  - Explain associated risks and limitations, and suggest risk management strategies

Part 1. Patents and the Public Domain

- **Patent rights are territorial, limited in time and in scope**

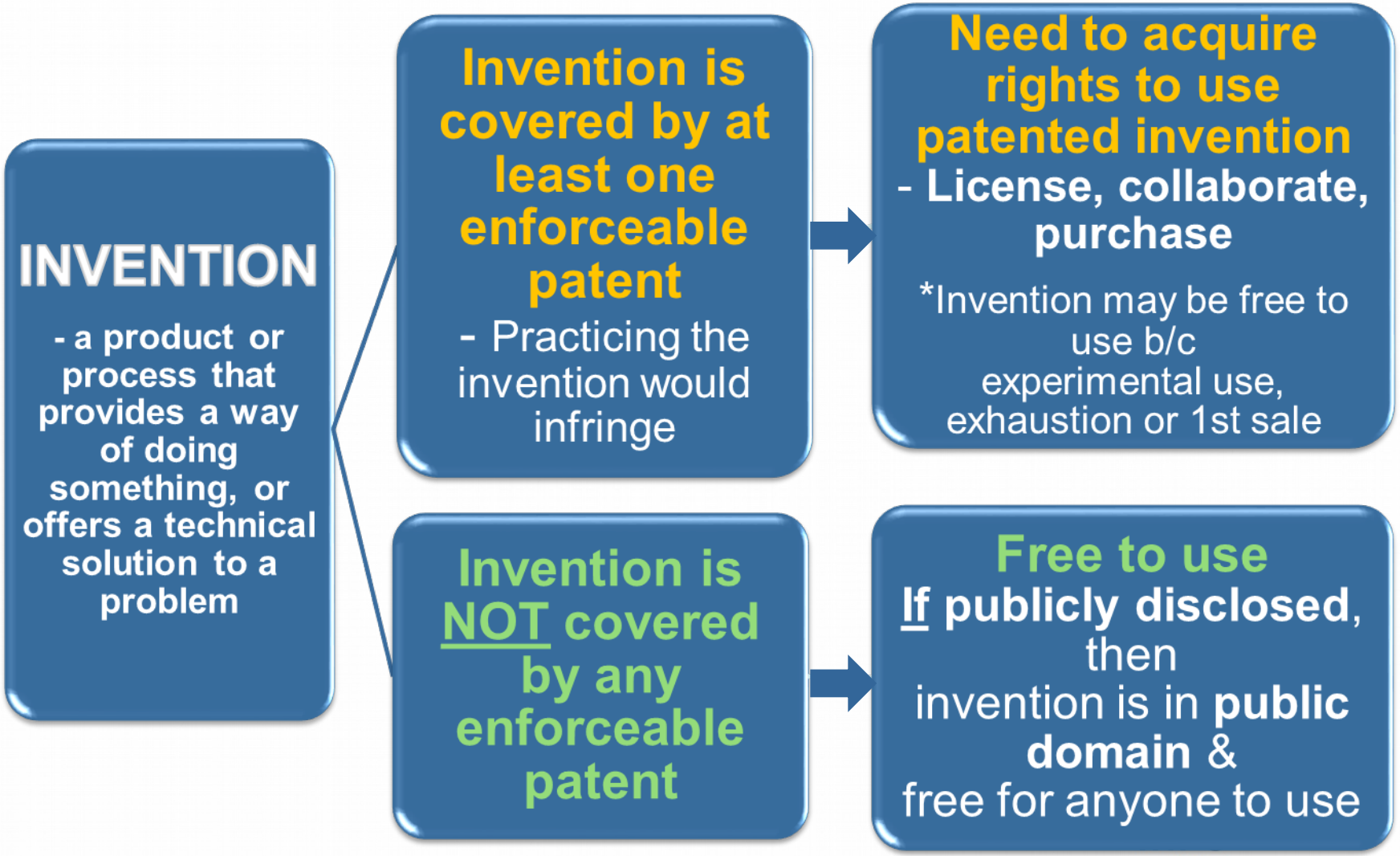
  Patent rights can be enforced for:

  - *In the country* that granted the patent
  - For a *limited duration* (fixed patent term)
  - The invention *defined in the claims*

- **A patent grants the owner the right to exclude others from**

  - practicing the patented invention without the patent owner's consent
  - in the country where the patent was granted
  - at any time when the patent is in force

Part 1. Patents and the Public Domain

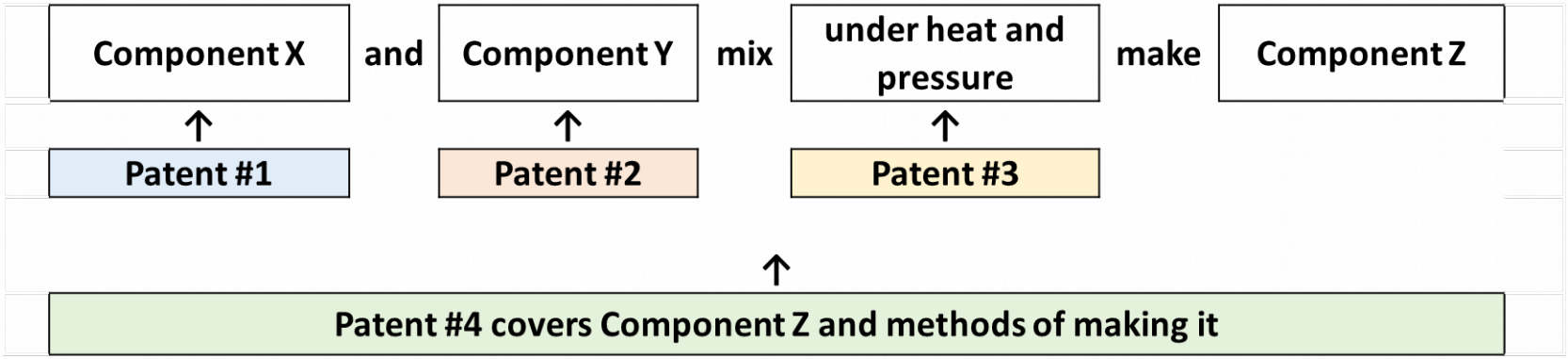


Part 1. Patents and the Public Domain

- **Multiple patents can cover an invention**
  - An invention is a product/process that provides an approach to doing something or offers a technical solution to a problem
  - An invention is characterized by one or more **features**
  - Any **feature** of an invention may be a previously patented invention
  - Innovation is **incremental**: a new invention may start with a previously patented invention and add new features
- Questions of patents, public domain, and rights to use an invention must therefore:
  - **Define the invention, country, and time frame for use**
  - **Consider the possibility that multiple patents may be covering different features of an invention**

Multiple patents can cover an invention: Example

A chemical product called Component Z was developed using previously patented components and methods. In Country A, patents covering the invention are:



Someone who wants to make Component Z in Country A using the method of Patent #4, may need to seek permission from owners of Patent #1, Patent #2, Patent #3, and Patent #4, as long as each patent is in force in Country A.

Part 2. FTO determination

- Use the process of Freedom to Operate (FTO) determination to search and analyze patent documents and identify if an invention may be in the public domain

  - **DESCRIBE** the client's invention: how it works, plans for using it
  - **SEARCH** for patent documents with **claims** that might cover the invention
  - **ANALYZE** potentially relevant patent documents to determine whether any document might have an impact on the freedom to use the invention as planned:
    1. Do any claims appear to cover the invention?
    2. Is the claim found in an enforceable patent?

Step 1: Describing the Invention

- **WHAT-WHERE WHEN model** to collect and organize information about the client's invention and plans for use using structured interview questions (sample questions in guide; Annex A.1)

1.WHAT? technical scope

- Technical features of the client's invention – how does the invention work?

2.WHERE? geographical location

- Where the client plans to use the invention

3.WHEN? timing

- When the client plans to use the invention

Gather technical information – Annex Template A.1.

1. Problem to be solved

2.A. Technical field(s) and type(s) of invention

2.B. Technical details of the invention – components/steps

3. Essential features – required for invention to work

4. Optional features – not necessarily required

5. Functional features – to achieve a result without mentoning specific components

6. Limits – critical values, critical ranges, exclusions

7. Different ways of practicing the invention

Gather technical information (cont.)

8. Documents and additional information – non-text features (images, chemical structures, protein or nucleotide (DNA/RNA) sequences; technical documents (drawings, flowcharts, circuit layouts, etc.); documents with technical details about components, steps, manufacturing

9. Background and context of the invention; other existing inventions that addressed the problem; existing IP owned by others

10. Differences and distinguishing features of the invention; differences in solving the technical problem

Gather business information: Annex Template A.1.

11. What does the client plan to do with the invention?
    In what countries, and when?
    Additional questions

Example: You ask questions and learn that the client plans to manufacture and sell a product in country A. After about 3 years of test marketing in country A, client wants to start selling the product in countries, B, C, and D

Gather and organize the information

Technical information	Business information
• **WHAT** is the invention? • **WHAT** does the client plan to do with the invention? **Result:** Technical description of the invention - technical field, components, steps, functions, features, limits, *etc.*	• **WHERE** does client plan to use the invention? • **WHEN** does client plan to use the invention in each country? **Result:** Knowledge of countries and time frames to search; more technical details
Technical information enables you to design the right search for this invention •Generate key words •Find patent classification codes •Build search strings	**Business information makes the search more accurate and efficient** •Find the right patent databases •Choose languages and support tools •Decide what time limits could be applied

Describing the Invention: Example

Interview client using structured list of interview questions:

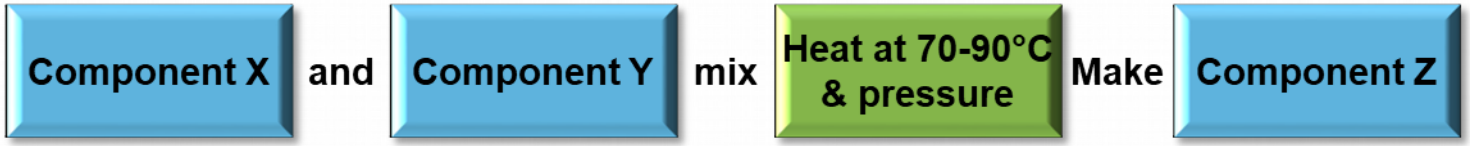
1. Technical information: How does the invention work? components, steps…

Combine X and Y under heat & pressure, to yield Z; purchased X, Y, and pressurized mixer from commercial sources; best at X:Y =1:2; heat is required; limit temp to 70-90°C; pressure is required, only 6-8 psi was tested; 10 min heat enough to produce Z

2. Business information: Where and when does the client plan to use the invention? *Make & sell in Country A starting 2020; sell in Countries B, C, and D starting 2023*

Invention:

Essential features



Optional features: *use X:Y at 1:2; heat for different times*

➢**Plan to search** countries A starting from 2020 and in countries B, C and D for patents in force starting from 2023

Describing the Invention: Follow-on analysis

- **Review and organize notes** from interview and document review
- **Prepare a description of the invention** identifying the components, steps, functions of the invention, interactions, and essential features - including functional and non-text features, list of initial key words
- **Recommended: draft at least one broad patent-style claim** that recites essential features as the claim limitations
- Use **Summary Report template (A.2.)** provided in the Guide to organize the information collected which will help plan for the FTO search process

Summary Report

ANNEX A.2.

SECTION II. IDENTIFYING TECHNOLOGY INFORMATION NEEDS

Template for Summary Report

The summary report can be prepared using the template below. The left column refers to interview questions and their objectives, as shown in Figure II.1. The right column provides spaces to enter information as indicated, to generate the report.

Interview questions	Information from interview notes, document review, and follow-on analysis
A. Technical information: Invention overview, details, background	
1. Overview: goal, purpose, plans Problem to be solved	List the problem to be solved List the goal or purpose of invention (if this is different from problem to be solved). Define the technical problem to be solved.
2. Technical description of invention A. Technical field(s) and type(s) of invention _____ B. Technical details of the invention: Components and steps; technical relationships; end result	A. List technical field of the invention List type(s) of invention _____ B. Provide a summary of the invention that describes how the invention is carried out from beginning to end. List components of the invention: List steps of the invention, and the components used in the steps Identify features of the invention by describing the invention from beginning to end, in terms of technical effects of the interactions of components and steps.

Step 2: FTO Search

- **Objective:** search for patent documents with **claims** that may be relevant to **any feature** of the client's invention

- **Process: using information from the Summary Report**…

  - Deconstruct the invention to generate key words
  - Find patent classification codes (IPC codes)
  - Select database(s) to search based on country, language, coverage, functions
  - Search, retrieve, and review search results; refine as necessary, and decide when search is complete
  - Prepare search report

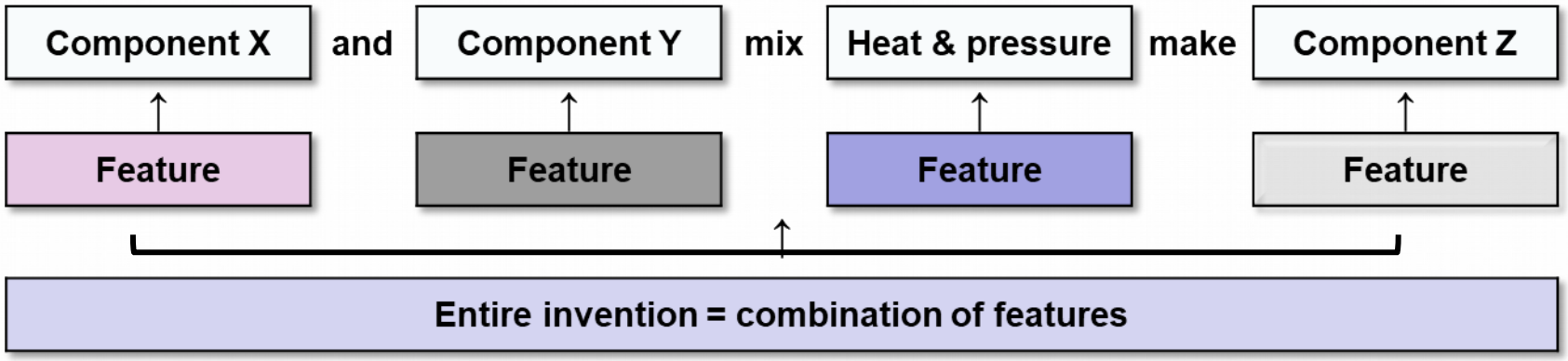
- Use **checklist** available in the guide (Annex B.1.)

Deconstruct the invention to generate keywords

- **Using the invention description from the Summary Report:**
  - Identify parts and essential features
  - Formulate a broad generic description of how the invention works
    - Generalize parts and essential features
    - Describe components/steps in terms of broad classes with similar structure or function
  - Expand results of deconstruction: find broader synonyms, equivalents
- **Results:** list of specific components, steps, functions
  - Generic description of the invention
    - Expanded set of key words and phrases to search for relevant subject matter described differently

Deconstruct the invention: Example

An inventor plans to make and sell Component Z in Country A, using the following method:



➢Design FTO search in Country A to find patent documents with claims that might cover:

- the entire invention (all features)
- or Component X or Component Y or Component Z
- or the method of combining X and Y under heat & pressure

Deconstruct the invention: Example (cont.)

- **Deconstruction of essential features**
  - Keywords/phrases to find similar language: expanded keyword list based on essential features

Feature	Client's invention	Generic description and expanded key words
Components (starting materials, products)	X	For each component X, Y, and Z: find other common names; chemical name(s); trade name(s); structural class(es); functional class(es)
	Y	
	Z	
Steps (processes)	Combine X and Y under heat and pressure	Type of reaction; functional class; reaction combining component of structural class of X with component of structural class of Y, under heat and pressure

Find patent classification codes

- **Patent classification codes** are used to classify patents based on:
  - Technical field, technical problem to be solved, technology used
  - Components, steps, or functions in the invention (features)

- **Find codes for an invention**
  - Relevant patent documents can provide IPCs
    - Client may have identified relevant patents (similar technology, competitor)
    - Patents listed for commercial products used in the invention
  - Tools: use key words and phrases to search IPC codes (e.g. IPCCAT, STATS, Catchword Index)

Select databases to search

- **Select database(s) to search based on coverage & functions**
  - Countries, languages, time frame, other functions (e.g. non-text features such as chemical structures or sequences to be searched in specialized databases), support tools (translation)
- **Hybrid search strategy** using key words/phrases to find similar language and using IPC codes to similar technology
  - Control scope with tools such as Boolean operators, proximity, truncation
  - Define focus with client-specific search parameters (e.g. country, time frame/launch date)

Search Results

- **Select the final set of search results**
  - Store all searches and results
  - Options: sort and/or rank search results, remove duplicates, errors
- **Prepare a table** using available database functions

Example

Patent or Pub. Number (Link to electronic copy)	Country	Title	Applicant/ Owner / Assignee	Application Number & filing date	Earliest priority application and earliest priority date	Estimated expiration date	All IPC	IPC "hits" – matches with assigned IPC codes	Search term "hits" - matches with text in claims or abstract	Rank or relevance

FTO Search Report

- **Prepare Search Report** (Annex B.1)
  - **Search Overview**
    - Brief description of the invention and features searched
    - Keywords and phrases, IPC codes, databases searched, languages used, support tools used (e.g. translation tools)
  - **Search Strategy**
    - Search strings and number of patent documents retrieved
    - Strategic decisions made (changes to search, decision to stop)
  - **Search Results**
    - Single master list (table) or multiple lists
    - Options: arrange by country, feature, predicted expiration date, relevance etc.
  - **Conclusions** - Brief, informal summary
    - Option to comment, e.g. on trends or surprising results

Step 3: FTO Analysis - Reading Claims and Legal Status Information

- **Objective:** determine whether the FTO search found *any* patent documents that could affect plans to use the invention
- **Process**: use information from search report to:
  - Carry out FTO analysis of each potentially relevant patent document (template available in the Guide)
    - **Infringement analysis** – interpret claims and compare with client's invention
    - **Legal status determination** – is the patent enforceable?
    - Make **final determination** after FTO analysis for each patent document
  - Prepare final technical report for client (no legal conclusions) – template (Annex C.3) in the Guide

FTO Analysis: Infringement analysis

- **Read the claims:**
  - Interpret the meaning and scope of the claims to determine **whether or not the claim could be found to cover the client's invention**
- **Comparison with client's invention:**
  - Compare the claim with the client's invention to determine if <u>every</u> claim limitation can be found in the client's invention
  - Recommend to **use a claim chart worksheet** to organize this information (template Annex C.2. in the guide)

Claim limitation	Claim construction	Corresponding structure in client's invention	Limitation Satisfied?
Copy the claim	*Notes and comments to interpret each part of the claim.*	*Notes about anything from the client's invention that might correspond. Explain as necessary.*	*Try to draw a conclusion, with explanations if necessary.*
		Conclusion: Could this claim cover the client's invention?	

First step: Claim construction example

- The client developed a table with a flat top, four attached legs and a footrest
- The FTO search found a patent with the claim: “A table comprising a flat surface and four legs attached to the flat surface, further comprising a drawer attached to the flat surface.”
- Use the first two columns of the claim chart for claim construction

Claim limitation	Claim construction	Corresponding structure in client's invention	Limitation Satisfied?
A table	Invention is a table		
comprising	(claim is open-ended)		
a flat surface and	must have flat surface		
four legs attached to the surface,	must have 4 legs attached to surface		
further comprising a drawer attached to the flat surface.	must have drawer attached to surface		

Second step: Compare construed claim with client invention

- The client developed a table with a flat top, four attached legs and a footrest
- Compare the construed claim with the client's invention and make a determination

Claim limitation	Claim construction	Corresponding structure in client's invention	Limitation Satisfied?
A table	Invention is a table	table	**Yes**
comprising	(claim is open-ended)	--	**(Yes)**
a flat surface and	must have flat surface	has a flat top = flat surface	**Yes**
four legs attached to the surface,	must have 4 legs attached	has 4 legs attached to top	**Yes**
further comprising a drawer attached to the flat surface.	must have drawer attached to surface	--	**No**
		has a footrest	**Not relevant**
		Conclusion: This claim does not read on client's invention.	

Example: After comparison, cannot make a determination

- What if: the client's table has a flat top, four legs, and a basket hanging from the lower surface of the top
- Compare the previously construed claim with this invention

Claim limitation	Claim construction	Corresponding structure in client's invention	Limitation Satisfied?
A table	Invention is a table	table	**Yes**
comprising	(claim is open-ended)	--	**(Yes)**
a flat surface and	must have flat surface	has a flat top	**Yes**
four legs attached to the surface,	must have 4 legs attached	has 4 legs attached to top	**Yes**
further comprising a drawer attached to the flat surface.	must have a drawer - **The specification does not define the drawer or equivalent structures.**	**Does a basket hanging from the top correspond to the drawer of the claimed invention? Not clear.**	**Cannot determine from available evidence**
		Conclusion: No determination can be made	

FTO Analysis: Legal status determination

- For **each granted patent**, determine if the patent is
  - **Enforceable** = in force ("alive")
  - **Unenforceable** ("dead")
    - Expired after full term? Abandoned, withdrawn, revoked, disclaimed, other reason?
    - If unenforceable before the full patent term expired, why? Can it be revived?
  - **Ambiguous/unsettled** legal status – cannot determine
- Determine status **based on the time** when the client plans to use the invention **and based on the country** where the patent was granted
- **Remember**: patent documents are "living documents" Legal status and claim scope can change over time!

Final determination after FTO analysis: Part 1

- Classify each CLAIM as follows:
  - Appears to read on cient's invention
  - May read on client's invention
  - Does not appear to read on cleint's invention or does not read on client's invention
  - No determination can be made for this claim

Final determination after FTO analysis: Part 2

- Classify each PATENT based on your classification of the claims in the patent and legal status determination for the patent

Patent Classification		
Patent of Interest - At least one claim classified as "appears to cover client's invention" or "may cover client's invention"	→	**Patent of interest – in force**
	→	**Patent of interest – expired/unenforceable**
Not likely to be of interest - Every claim in the patent classified as "does not appear to cover" or "does not cover client's invention"	→	**Not likely to be of interest – in force**
	→	**Not likely to be of interest - expired/unenforceable**
No FTO analysis of claims because expired / unenforceable - You determined legal status first, and did not carry out FTO analysis of any claims because the patent was expired / unenforceable		
No determination can be made - Potential impact cannot be determined because of unclear claim scope or ambiguous/unsettled legal status or uncertain/unknown elements in client's invention		

Step 4: Final Report of FTO Determination

- **Summary of client's invention and plans for using it**
  - FTO Search: summary report (inputs, resources used, search results)
  - FTO Analysis: report findings **using technical language**
    - Report all documents analyzed with final determination
    - Discuss specific patent documents that need to be brought to the attention of the inventor (e.g. relevant patents of interest in force)
    - Conclusions: results and details
      - No legal conclusion/only technical language: report to be used by the client to make further decisions about plans for using the invention
      - Include disclaimers (e.g. not a legal opinion)
  - **Template** for final report available in the guide (Annex C.3.)

Final Report

ANNEX C.3.

SECTION IV. FTO ANALYSIS: READING CLAIMS AND LEGAL STATUS INFORMATION

Template for Final Report

This template is provided to demonstrate how the Final Report can be organized and presented. The remarks in italics are merely observations and suggestions. It is important to follow instructions in the checklist and consult the discussion of the Final Report in Section IV., for more detailed guidance.

– Mark every page of this document as confidential –

TITLE OF PROJECT

Introduction and identification:

Identify the client, the TISC, and the TISC staff involved in the search.

These remarks can include a summary of interactions between the TISC and the client, e.g., initial contact, interview, period of search, time frames, etc.

The Invention

Summary of invention

Provide a brief summary of the client's invention based on the summary report of Section II, and any additional understanding of the invention you gained during the remainder of the project.

This summary allows the client to see how the reviewer understood the invention (and to make corrections to this understanding, if necessary).

Description of the client's invention. *Provide more detail about invention, based on technical information you gathered in Section II, and any additional relevant information.*

[Patent-style claims] *If you drafted patent-style claims, list those here.*

Essential features: *Briefly list components, steps (processes), functional features, critical values (limits), critical ranges, etc. that you identified as essential features of the inveiton.*

Other technical information used for FTO search: *List optional features, alternatives, non-*

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Risks and limitations associated with FTO determination

- **Risk management**
  - Sources of risk and error at each stage (technical errors in search process, quality/accuracy of data etc.)
    - Risk management strategy at **each stage** of the FTO process: carefully review inputs, search results, use appropriate tools, take time to understand the invention before starting the FTO search
  - Inform client of risks and limitations (disclaimers), e.g. the Final Report is a technical report that is not a legal opinion
  - Sometimes a final determination cannot be reached (scope of claims may be unclear; legal status may be ambiguous

Concluding remarks

- **Guide offers a workable approach to questions of public domain**
  - Use tools of FTO determination for the client's plans for using an invention
    - Search & analyze patents that might be relevant
    - Identify what might be covered by patent rights and what might not be covered
  - Prepare Final Report
    - Any enforceable patents that could impact the client's plans? Where? When?
    - Any invention, country, time, where no enforceable patents of interest were found?
- **Outcome:** by the end of the process, the inventor will have a technical report with information that can be used to make further technical and business decisions about the invention

Concluding remarks (cont.)

- **Benefits for stakeholders**
  - **TISC client**: information for making decisions
    - Report notifies client of potential problems, clear spaces, issues that could not be settled
    - Report provides information the client can use to make technical and business decisions
    - Search results may provide documents with additional useful information, such as technical details, alternatives, or unclaimed inventions disclosed in the specification
  - **TISC staff**: skills enhancement
    - Enhance the ability of TISC staff to use databases and related tools, analyze search results, interpret patent documents, and manage risk.

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