Aalto University

From Ideas to Impact

Ideas, inventions and impacts in Aalto University

Aalto Innovation Services
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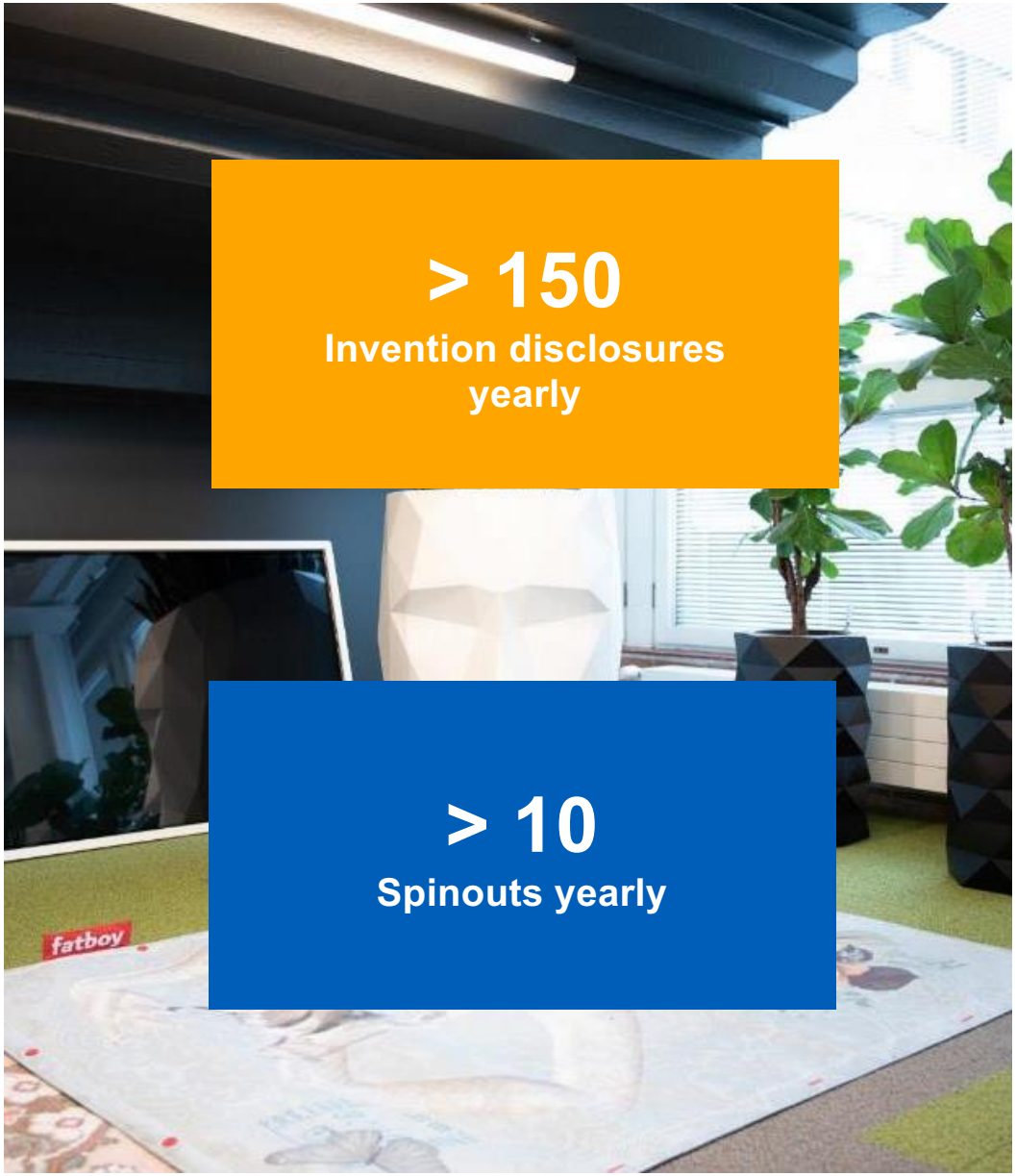
Innovation Services

From Ideas To Impact™

Innovation Services

- Innovation Services (IS) manages commercialization of inventions, intellectual property and technology transfer at Aalto University
- The priority is to convert research results to positive societal impact through commercialization



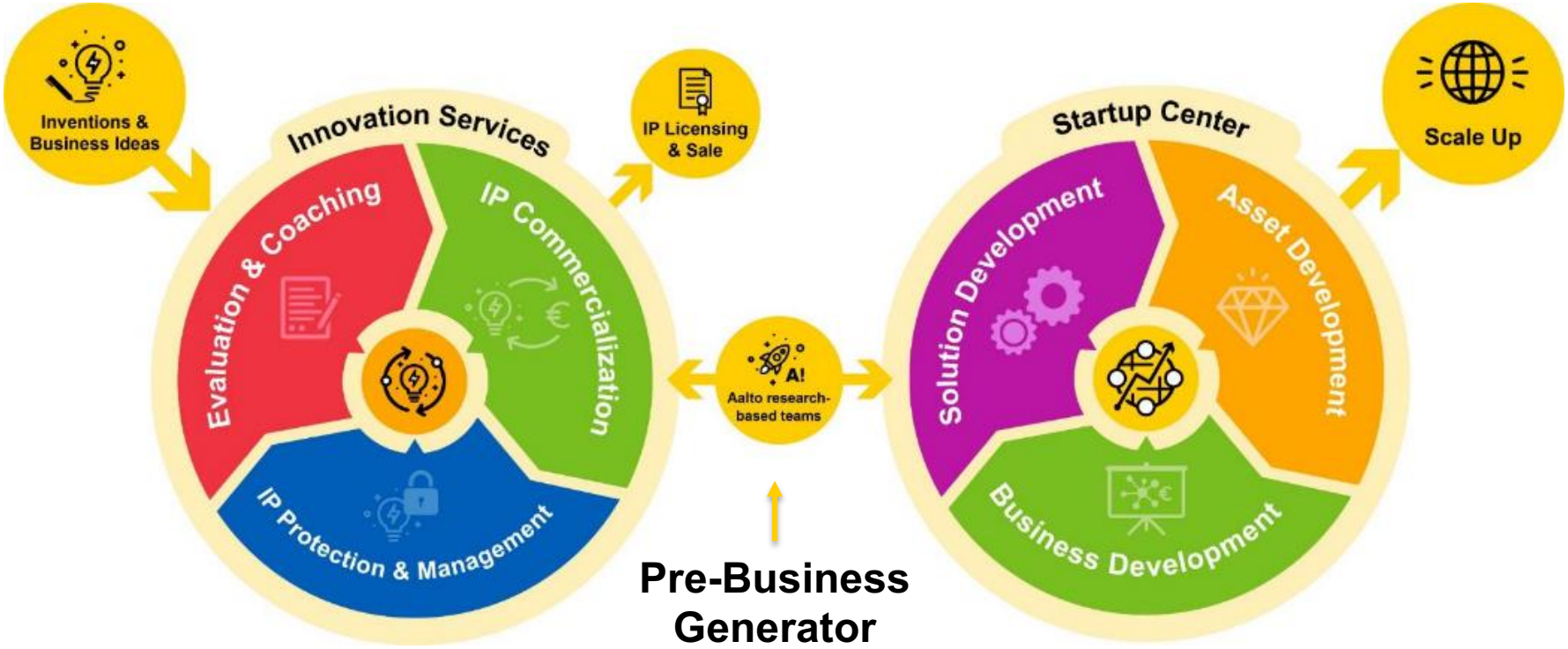
Key focus areas

Market analysis
Innovation potential
Team & partnering

IP strategy
Value creation
Concept development

Financial resources
Go-to-market strategy
Technology transfer

Close collaboration of Innovation Services and Aalto Startup Center



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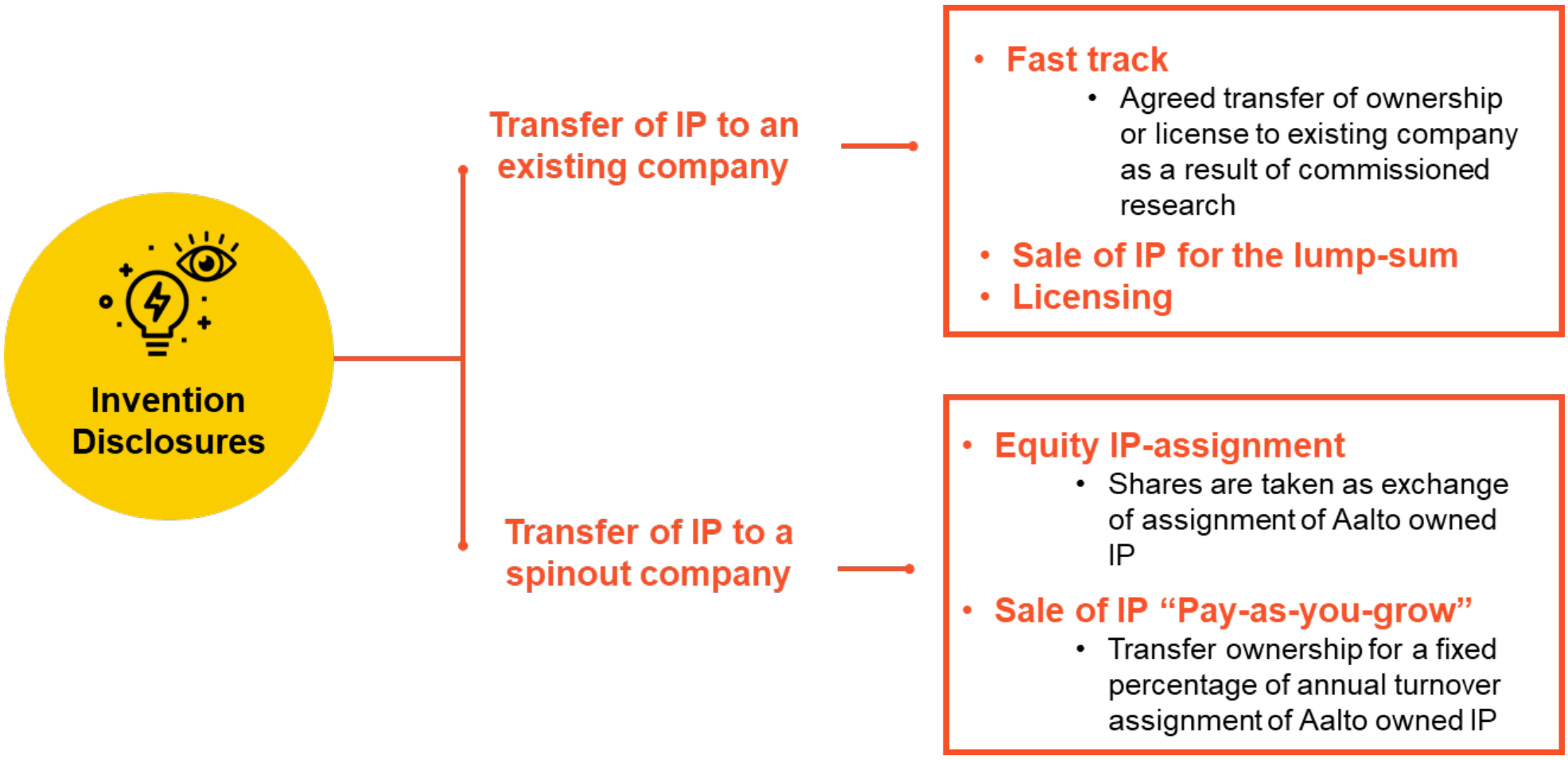
Technology transfer

- **The aim of Aalto University is to promote the protection and beneficial utilisation of *inventions* for inventors, the university and society**
- **Innovation Services manage and implement *technology transfer* according to the commercialization policy of Aalto University**

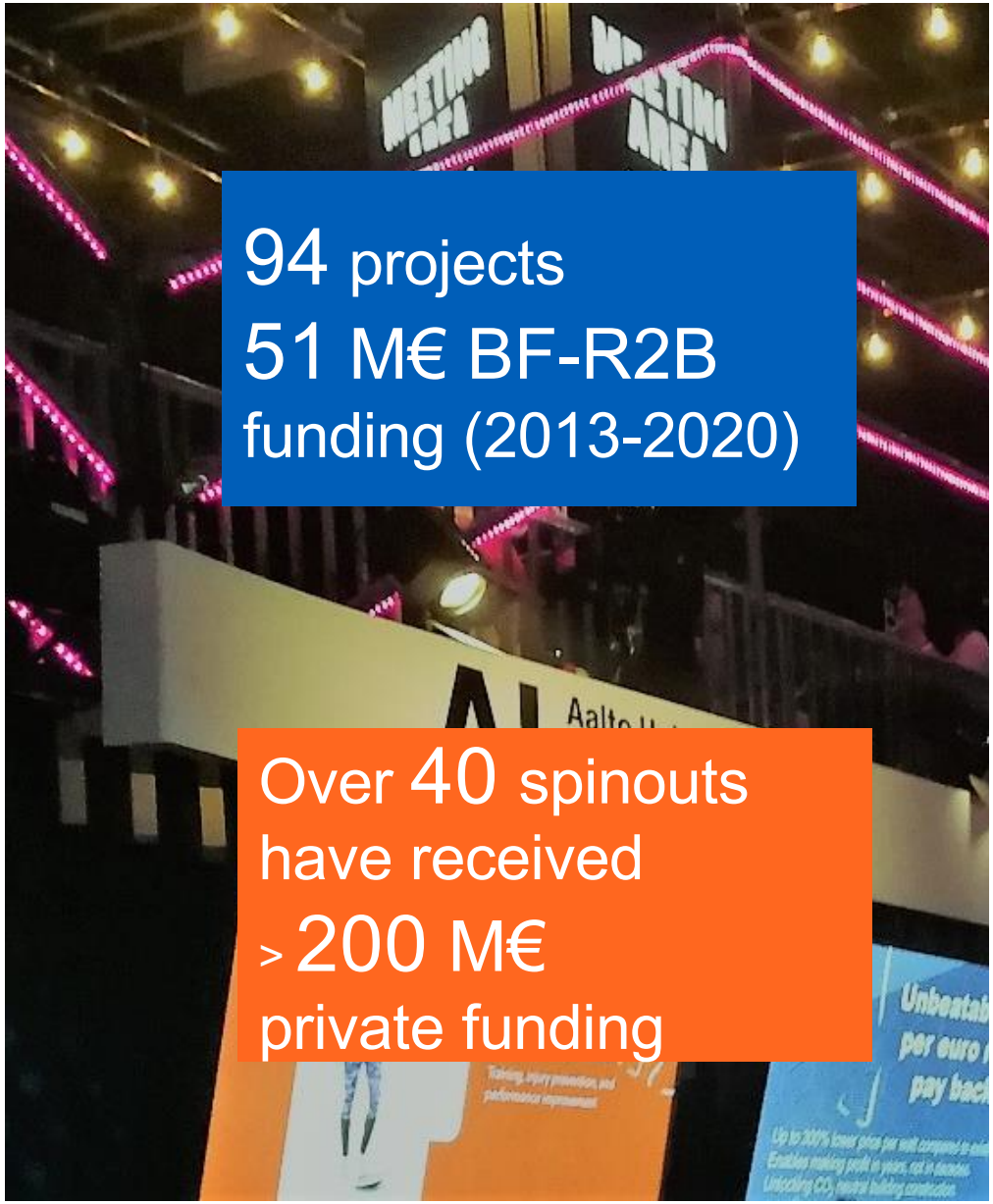
Aalto technology transfer models



Successful Business Finland funding

Research to Business (R2B)

- **Business Finland (BF) provides funding for projects that aims to commercialize a research idea (R2B, Research to Business)**
  - **https://www.businessfinland.fi/en/researchtobusiness**
- **Innovation Services coach Aalto-based research teams with the application and manage commercialization process in collaboration with the team**
- **The research teams led by Innovation Services have had a high success rate in receiving funding and commercializing research idea**



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Vice President of Innovation
Janne Laine

Head of Innovation Ecosystem Services
Tomi Erho

Head of Innovation Services
Matti Korpela

Innovation Coordinator
Sara Lipponen

Patent Coordinator
Katri Turkkinen

Innovation Advisors					
Janne Raula School of Chemical Engineering	**Patrik Hollos** School of Science (Life Science)	**Ilkka Hyytiäinen** **Juha Siivola** School of Science	**Pekka Kettunen** **Sami Ala-Luukko** School of Electrical Engineering	**Panu Kuosmanen** ENG	**Panu Kuosmanen** **Janne Raula** ARTS & BIZ
Innovation Agents					
2	1	2	2	2	1

Innovation Services staff

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Head of Innovation Services

Katri Turkkinen
Patent Coordinator

Satu Lipponen
Innovation Coordinator

Innovation Advisors

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School of Engineering

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A!
Aalto University
Innovation Services

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Principles of Commercialization of Intellectual Property in Aalto University

Aims

- Commercializing intellectual property to **maximize the societal impact through optimal utilization of results** produced in association with research, educational or other university activities.

- Maximizing the impact of new knowledge created by the university activities while **protecting faculty and student rights** in the commercialization process.

https://www.aalto.fi/en/services/the-principles-for-commercialisation-of-research-results

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Responsible for

- the management of inventions, intellectual property and technology transfer at Aalto University
- facilitating the translation of research into societal impact through commercialization

https://innovation.aalto.fi

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Outline of today's content

- **Idea - Invention – Intellectual Property Rights: Forms, principles and challenges**

- **Inventions done in university and company**

  - How do you know if your research results or ideas are inventions?
  - How to document your invention?
  - When should you submit an invention disclosure?
  - When is it too early, when is it too late, and when is it not needed or even a good idea?
  - What other intellectual property can be / should be disclosed before publishing?
  - What is expected from you and how much time does it take?
  - What kind of help is available?
  - Who decides what happens to your invention?
  - When can you publish your disclosed results?
  - When can you discuss and share your disclosed ideas with others?
  - How turn to business impact? Own company?

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Terminology

Intellectual Property (IP)

Intangible creations of the human intellect/mind

-inventions, literary and artistic works, designs, symbols,names and images used in commerce

Intellectual property law

Encourage the creation of a wide variety of intellectual goods

➡ Exclusive property rights to the information and intellectual goods

➡ Economic incentive for IP creation

Intellectual Property Right (IPR)

Immaterial rights which can be used to make business

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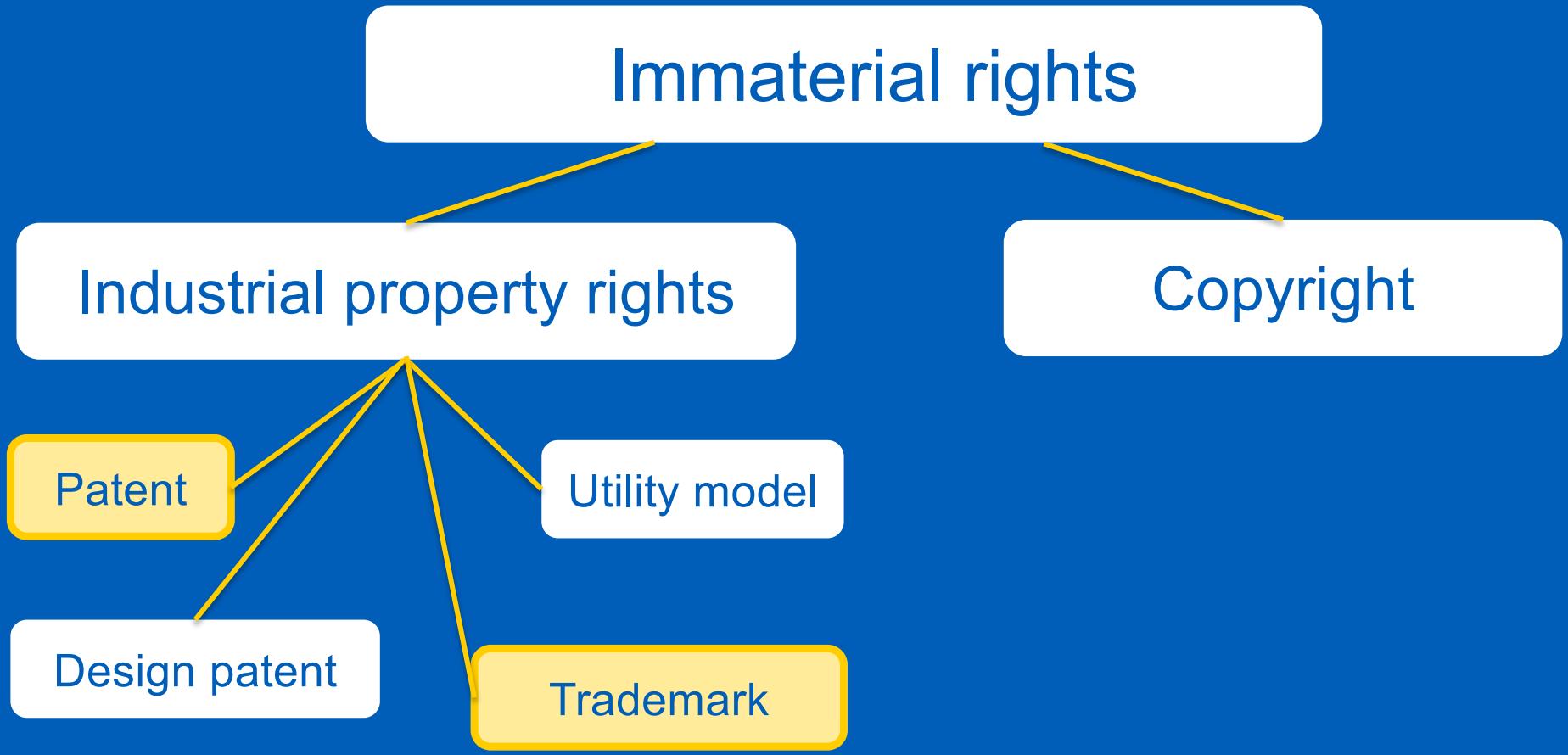
Intellectual Property Right (IPR)



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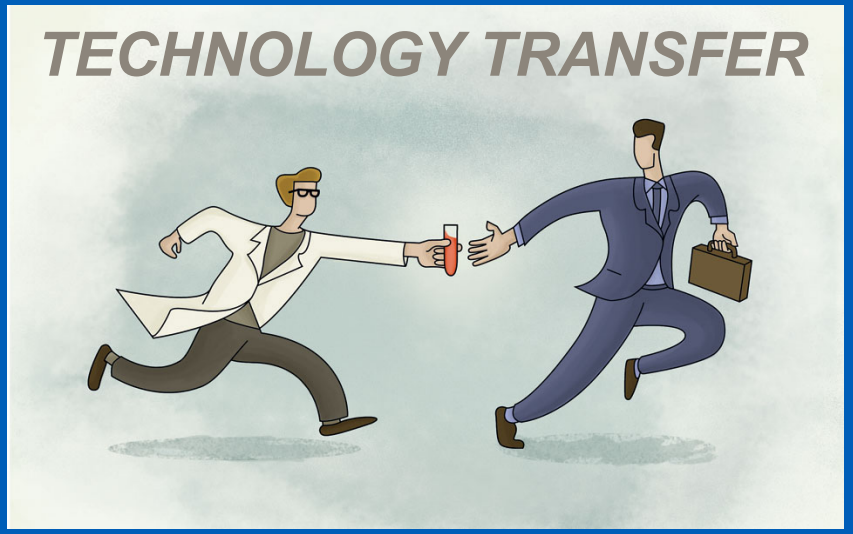
Types of IPR

Protection	Target	Period	Other
Copyright	Work	70 years from the death of copyright owner	'Automatically' given; weak protection
Patent	Invention	20 years from the application filing date	Novelty, inventive step and industrial applicability requests; examination takes time and money
Utility model	'Little' invention	10 years from the application filing date	Novelty request; no examination
Business name	Company name	Forever	Transfer only in case business is transferred
Trademark ™	Product name	Forever; Registration ® should renewed every 5th year and valid if ® is used	Protection via registration ® is much stronger
Design right	Design	25 years or 3 years	EU design right; one application cover the EU
Domain name	Internet address	Forever	Should be renewed
Trade secret	Confidential business information	'Forever' but…	Better to protect using contracts

IP to IPR

- IP *with* commercial value => ***Tradable IPR***
- Business asset: gives its owner the *legal right to exclude others* from making, using, selling and importing an invention for a limited period of years

- Source code
- Data (e.g. database collected by SW)
- Drawings
- Recipes
- Art work
- Domain names
- Tradenames
- Samples: components, material, biomaterial
- Patents and patent applications
- Trade secret



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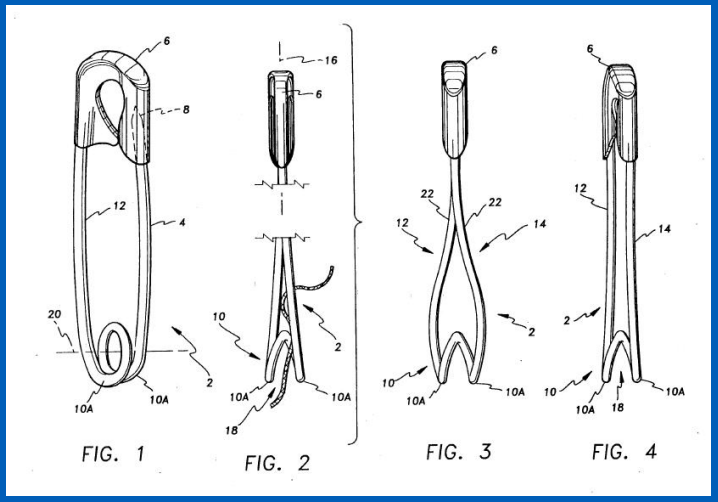
What is not an invention

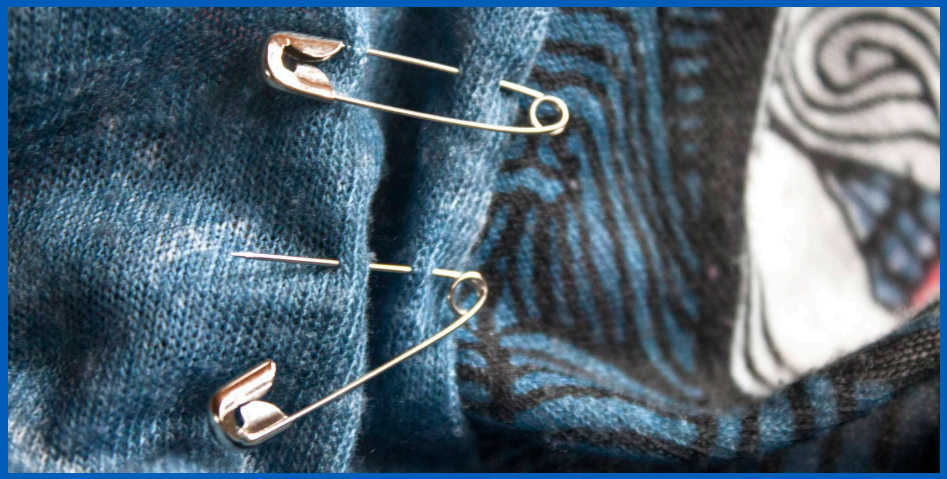
Typically an *IDEA* is not an invention

Because it lacks

- **Inventive step**
- **Industrial applicability**

Example: Safety pin





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What is patentable

Requirements

Novelty: Invention should be new compared to what has been published ever and anywhere before (scientific journals, patents, patent applications, presentations, chat in a pub…).

Inventive step: Invention should essentially deviate from the state-of-the-art published prior to the filing date of patent application. The solution should not be obvious for a skilled person in the field.

Industrially applicable: Invention should be technical and solve a certain technical problem. Should be industrially exploitable. Can be method, device, product or new way of use.

Differences and similarities between the inventions in university and company

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University

- Owned by university or inventor(s)
- Key Performance Indicators are scientific merits, received funding, teaching etc. i.e. soft values
- Invention is often a side product rather than aimed result
- University invest in invention if finds it as a game-changing solution for a problem
- Team is essential to create value for the invention
- High risks to commercialize the solution
- In the beginning, often no clear strategy for explotation

Company

- Owned by the company
- Key Performance Indicators are money-to-company, market leadership, branding etc. i.e. hard values
- Invention is often a result of focused problem solving
- Company invests in invention if it provides economic incentive
- Company add resourses for value creation
- Low-to-medium risks due to mature tech
- Clear strategy in business wise

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Why should a researcher care about intellectual property?

- *The Act on the Right in Inventions* made at Higher Education Institutions obliges university employees to report any inventions to their employer without delay.
- *Research funders* are more and more interested in the societal impact and societal benefits of research and creating intellectual property that can be commercialized.
- *Researchers get merit* from intellectual property such as patents.
- *Researchers get share of profits* created by patents.
- *Research co-operation with companies,* patenting is also one way to achieve scientific excellence and new discoveries.

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Why to apply for a patent

- Incentive for business (business asset)
  - A patent or a license (right to use) can be sold
- Exclusivity to the solution
- Gain competitive egde on the market compared to competitors or additional time in product development of own venture
- Competitors should invest time and capital to develop own proprietary solution
- Enables more extensive pricing policy and use of more expensive (or more inexpensive) prices

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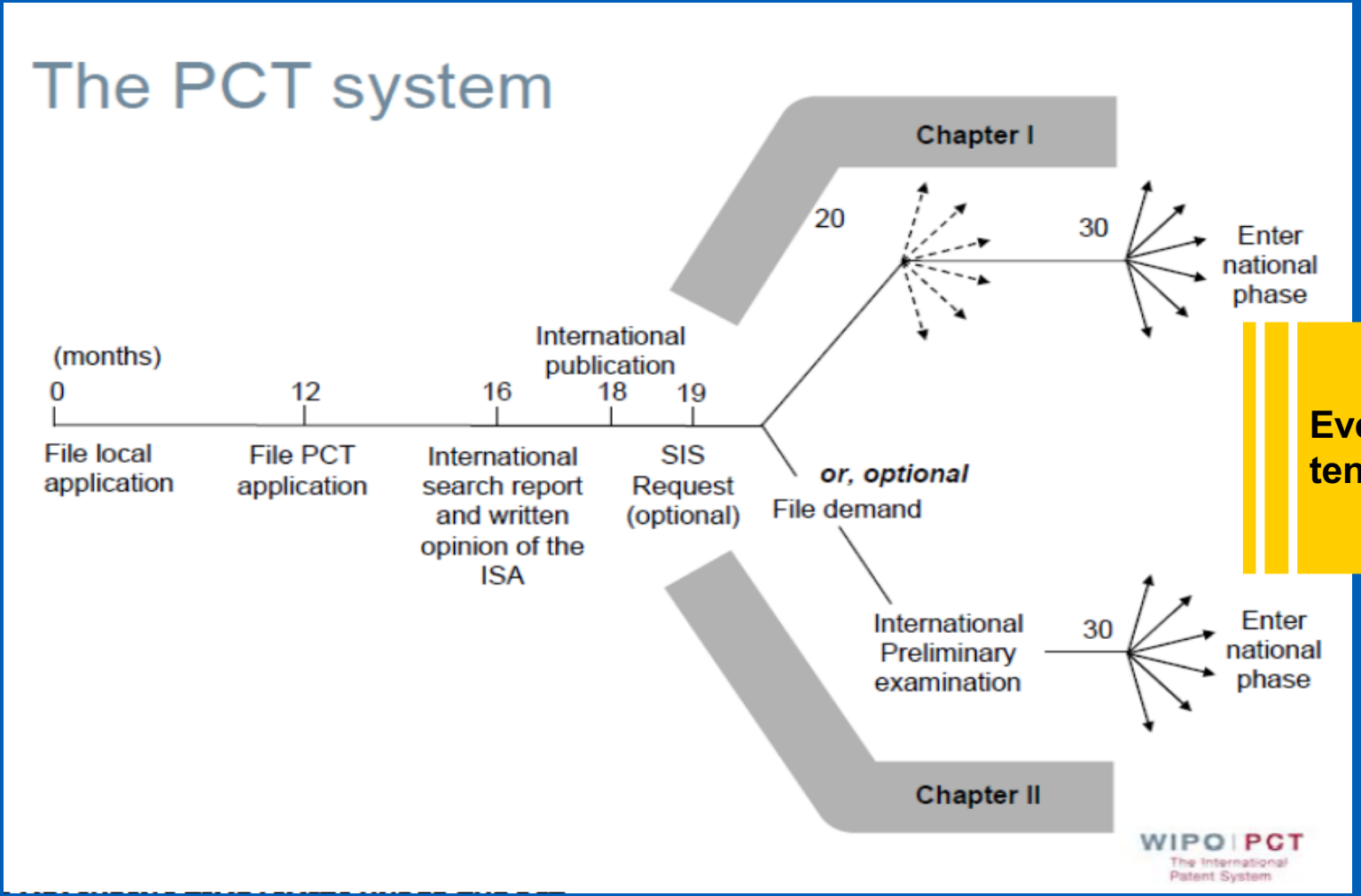
Patenting takes time, money and commitment



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WHEN to disclose *an invention*?

Timing for the invention disclosure is essential

- There is no novelty if the invention has become public

ORDER OF ACTIONS

1. Invention disclosure
2. ***Invention evaluation by Innovation Services***
3. Protection or not
   a) The *novelty* of invention is studied and evaluated.
   b) The *inventive parts* and *commercial utilization* are explored.
   c) Filing of *patent application* (or other forms of protection).
4. Publishing results

   Now you can publish your findings but *inform and ask guidance from Aalto IS before publication*

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Patent search

Various databases

- From simple to extensive (list to landscape)
- From free to very expensive
- From keywords to AI-based

Free databases

- Espacenet
- Google Patents
- …

Charged databases

- Derwent
- PatSnap
- Teqmine (AI)
- …

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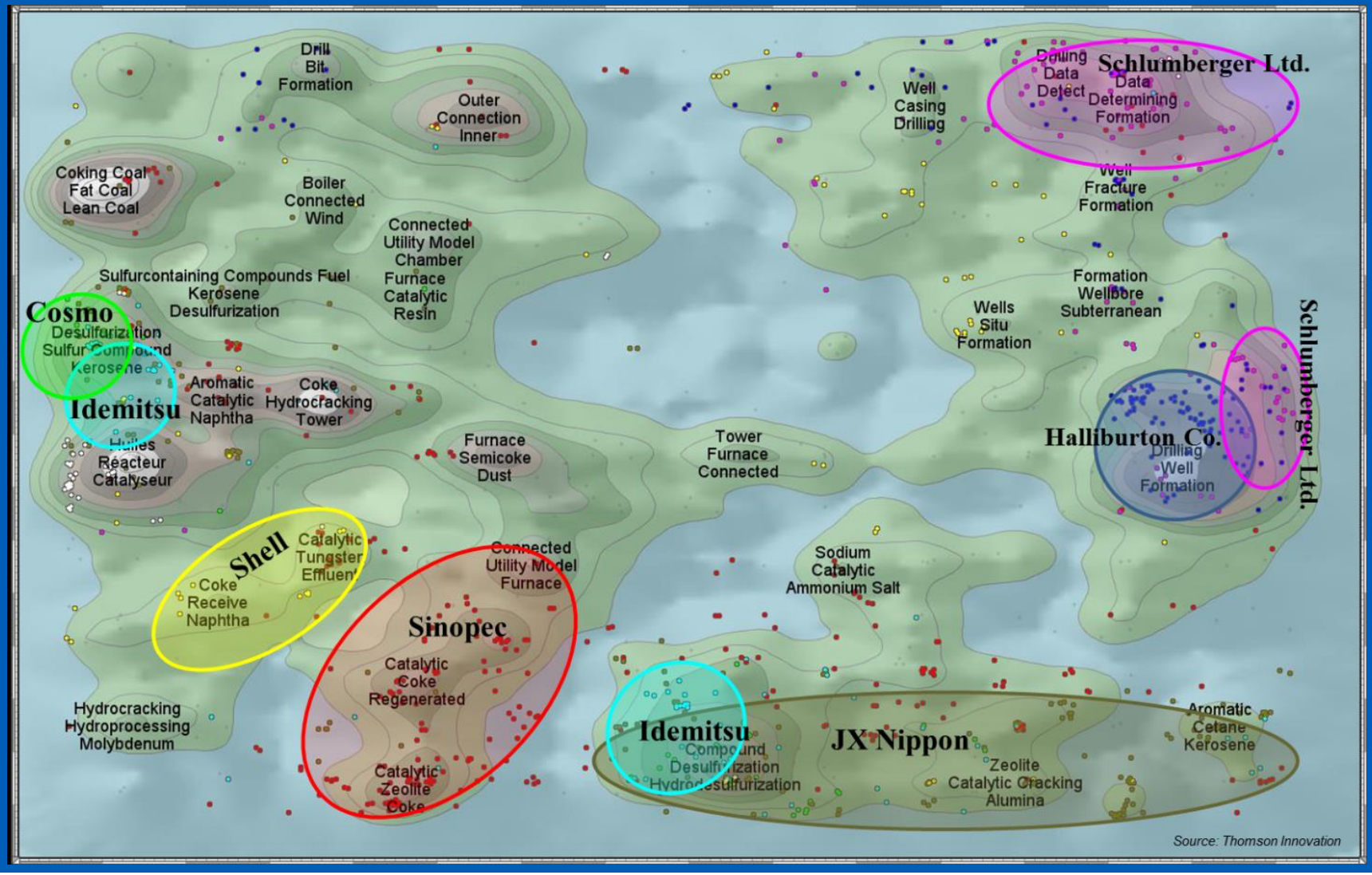
An example of patent landscape



You think it's an invention

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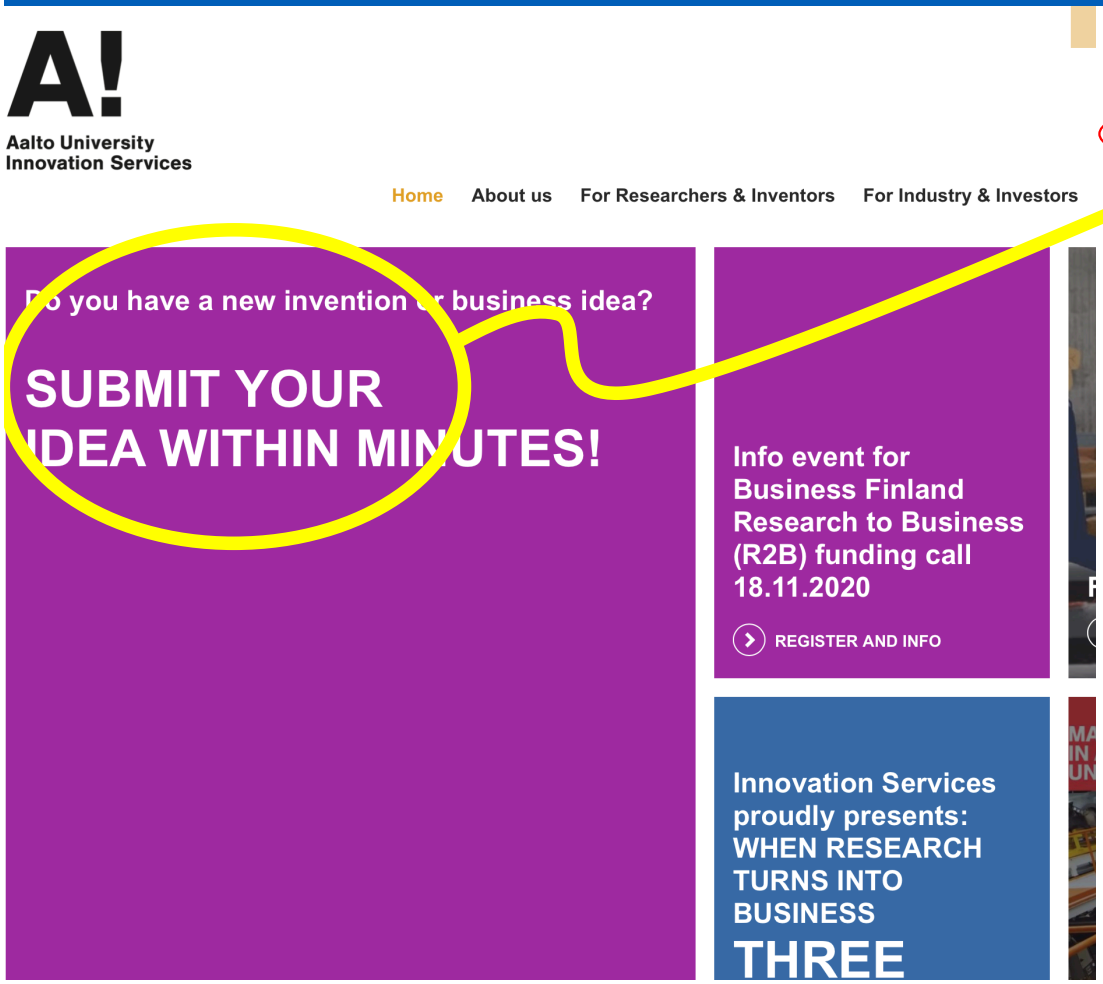
Submit an invention disclosure (innovation.aalto.fi)



CONFIDENTIAL

Type of disclosure *

- Invention disclosure
- Disclosure of work
- Other idea (Including all student proposals)

1. **Name of the proposal** *

Max 255 characters

Description *

Max 300 characters

In case of proposal being an invention it should be described in a separate attachment providing enough details for Aalto University to assess the invention. For further instructions, see Invention Disclosure instructions.

2. **Unit**

School * — Make selection

Department * — Make selection

Dept. number

3. **Inventors** ? ADD INVENTOR

First name *	*Last name* *	*Signature*	*Contribution(%)* *
Max 125 chara	*Max 125 characters*		100 %

E-mail * — *Max 50 characters*

Telephone * — *Max 50 characters*

Inventor from organization outside of Aalto University

Select who is primary contact person by selecting the option button *

Are any of the inventors from organizations outside Aalto University? If yes, please specify.

Invention disclosure

You can find it at innovation.aalto.fi

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Filing an invention disclosure is the first step in the path of commercializing an invention or idea.

1. What customer's problem does your invention/idea solve?
2. How does your invention/idea solve the problem?
3. What are the benefits to the customer?
4. How do you make money? What do you sell? Who is the customer?
5. How big is the entire market? How much is it growing annually in the future? Describe your assumed first customer?
6. How is the problem solved currently? What are the substituting competitors (companies, products, technology)? How are you different from the competitors?
7. What knowhow does your team have and what capabilities are you missing?
8. How much time do you have available per week on average for the commericiazation/R&D BEFORE the invention is commercialized?
9. How much time do you have available per week on average for the commercialization/R&D AFTER the invention is commercialized?

Is this solving real problems?

Is the solution a game changer or marginal improvement?

How big problems?

Is the solution sustainable (scale-up, now/future, feasibility etc.)? -Golden nugget-

Is there a tech champion? TEAM?

Any commercialization plan?

innovation

Related Terms

- business intell...
- dynamic continu...
- installment buy...
- technology driv...
- mature market
- dynamic efficie...
- coherent market...
- import substitu...
- transfer team
- intellectual pr...

Definition

See Examples | Cite Term | Add to Flashcards

The process of translating an idea or invention into a good or service that creates value or for which customers will pay.
To be called an innovation, an idea must be replicable at an economical cost and must satisfy a specific need. Innovation involves deliberate application of information, imagination and initiative in deriving greater or different values from resources, and includes all processes by which new ideas are generated and converted into useful products. In business, innovation often results when ideas are applied by the company in order to further satisfy the needs and expectations of the customers.

Email | Print | Embed | ? Quiz

Popular 'Economics, Politics, & Society' Terms

- immediate family
- dislocated worker
- business
- globalization

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To identify INNOVATION potency

NABC approach

Needs
Approach
Benefits
Competition

The method is the Stanford Research Institute (SRI) developed a tool for innovation and development of ideas

Need

- *What is the important customer or market need?*
- *How did you discover the need?*
- *What is the pain point for the customer, or what would delight the customer?*

Approach

- *What is your approach for solving the need? Pricing, logistics, technology…*
- *How will your specific approach address what the customer cares about?*
- *What makes your approach compelling?*

Benefits

- *What are the benefits to the customer, the investor, the enterprise, or the partners?*
- *What does it cost them in terms of money, time, and conversion efforts to use your approach?*
- *What about the ecosystem; would it support or work against your solution?*

Competition

- *Who are your competitors, by name?*
- *How is your approach superior to their solutions to the customer's needs?*
- *Remember that the customer always has the option of doing nothing.*
- *Demonstrate how your approach is compelling to those who might not want a solution.*

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From an idea towards an impact

- Systematic search of ideas
- Idea searching methods (TRIZ (theory of inventive problem solving), value analysis, morphology, trendsetting, weak signals, scenarios, internet agents, e.g.)
- Patent databases

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Product development and patenting

- Continuous product development and patenting is expensive
- Obstructive patenting demands for careful planning
- Patent families and scopes of protection
- Could you circumvent around the competitors' patents?
- The product development personnel makes 99 % of the inventions – not marketing, not management or blue-collar workers

Value creation chain

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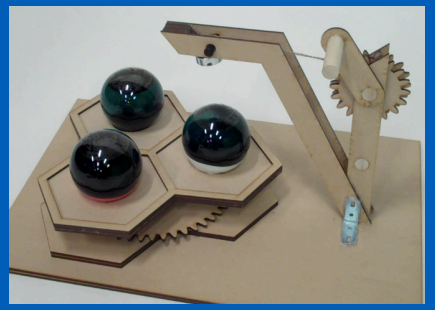


1. Understand

- Finding customer segment and problem
- Knowing your customers and their needs
- Knowing persons and what their aims are

2. Diverge

- Explore every possibility
- Open and broad thinking to get narrow
- Focus on individuals (who is customer)

3. Converge

- Decide on feasible elements
- Decide on fidelity level
- Decide on direction

4. Prototype

- Minimum viable product (MVP)
- Prototype the 'money' part, not just user experience
- Have more than one prototype or solution options

5. Test

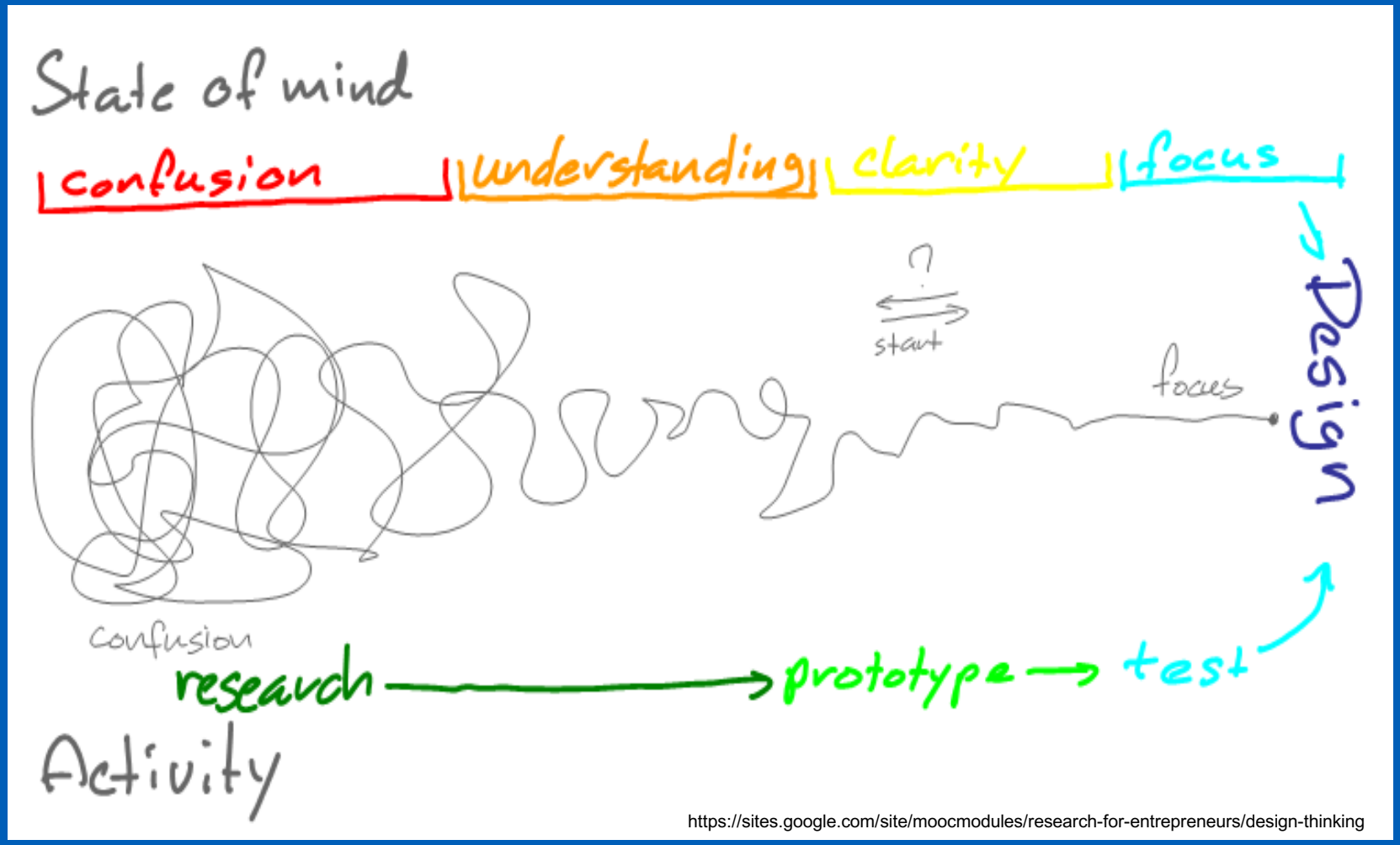
- Should it be built? Be critical.
- Rapid iteration and experimenting

CUSTOMER: Problem fit

PROBLEM: Solution fit

Design thinking

- A method is characterized by a very confusing start leading to more and more focus in the end



https://sites.google.com/site/moocmodules/research-for-entrepreneurs/design-thinking

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Innovation does not happen overnight

- Reserve time and invest capital
- Idea (inspiration) 1 %, hard work (perspiration) 99 %
- Applies in academia as well as in corporates
- No shortcut from rags to riches
- Continuous and systematic product development process needed

Innovation funding

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Most important funding instruments to look for commercialization possibilities for the inventions

- **Research to Business (ex-TUTLI) by Business Finland**
- **EU FTI & ERC PoC & EIC Transition**
- **Early stage venture capitalists (VC)**

Companies and start-ups from Aalto

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Researchers Practical Guide to Intellectual Property 2017

- Can be found https://www.aalto.fi/en/services/ipr-guide
- Reader-friendly guide to IP world in Aalto and in general

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Home take-away

- Focus on **solving the real problems**
- **Be aware of all the work done** related to your invention (patents, patent applications, scientific publications, conference profeedings etc.)
- Ask for **support and help and look for expertise** – alone it is very difficult

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Thank you!

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