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Innovation Strategy in Research and Innovation Projects

Increasing the impact of your research

engage AG, 11. April 2017
Peter Häfner

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Key Technology Ventures

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Strategy & People

Commercialization Routes

Development Strategy

Marketing

Intellectual Property

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Our Mission: Creating Value from IP

- Founded in 2003 (holding company active in this field since 1991)
- Private commercial company
- Team of 20 university graduates of different fields
- Partners in public research in Germany:
  Universities > 15
  Research institutions > 15
- Identification and evaluation of more than 250 technologies per year
- Support of >300 patent applications and >100 license agreements
- Portfolio currently 14 spin-offs
- Associated seed fund for spin-offs

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innoveas

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Karlsruhe, Rostock, Leipzig, Berlin

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IP-Asset-Management

- Technology Screening
- Market Analyses
- Patenting
- Property Rights Strategies
- Licensing, Cooperations
- IP Portfolio Management

PVA MV

Grant Office

- Generating Project Ideas
- Setting Up Projects
- Tendering
- Project Management
- Financial Engineering
- Reporting

Spin-offs

- Generating Business Ideas
- Elaborating Business Model
- Structuring Financing
- Business Planning
- Launching Companies
- Ramp-up-Management

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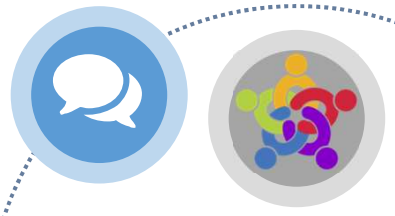
Innovation Strategy Planning Wheel



Innovation Culture

Corporate culture valuing efforts to turn knowledge into commercially valuable things and long-term strategy to get there

Communicate Strategy

Communicate your innovation strategy effectively so all are on board.

Setting Goals

Set goals for the innovation strategy which must be of high integral quality and be meaningfully connected to market needs of companies and people

Monitor

Establish evaluation procedures to monitor progress and be prepared to adjust when things go wrong.

Innovation Strategy

Identify existing and needed resources and capabilities

Identify what resources and capabilities are required to accomplish your innovation strategy?

Develop timelines

Map out what and when you or your organization need to do to meet your goals and innovation strategy objectives.

Assign and prioritize

Identify who the management process shall be defined, who is responsible to contribute with what resources, competencies and activities.

Motivated People

Base of people willing and able to transfer knowledge into valuable assets

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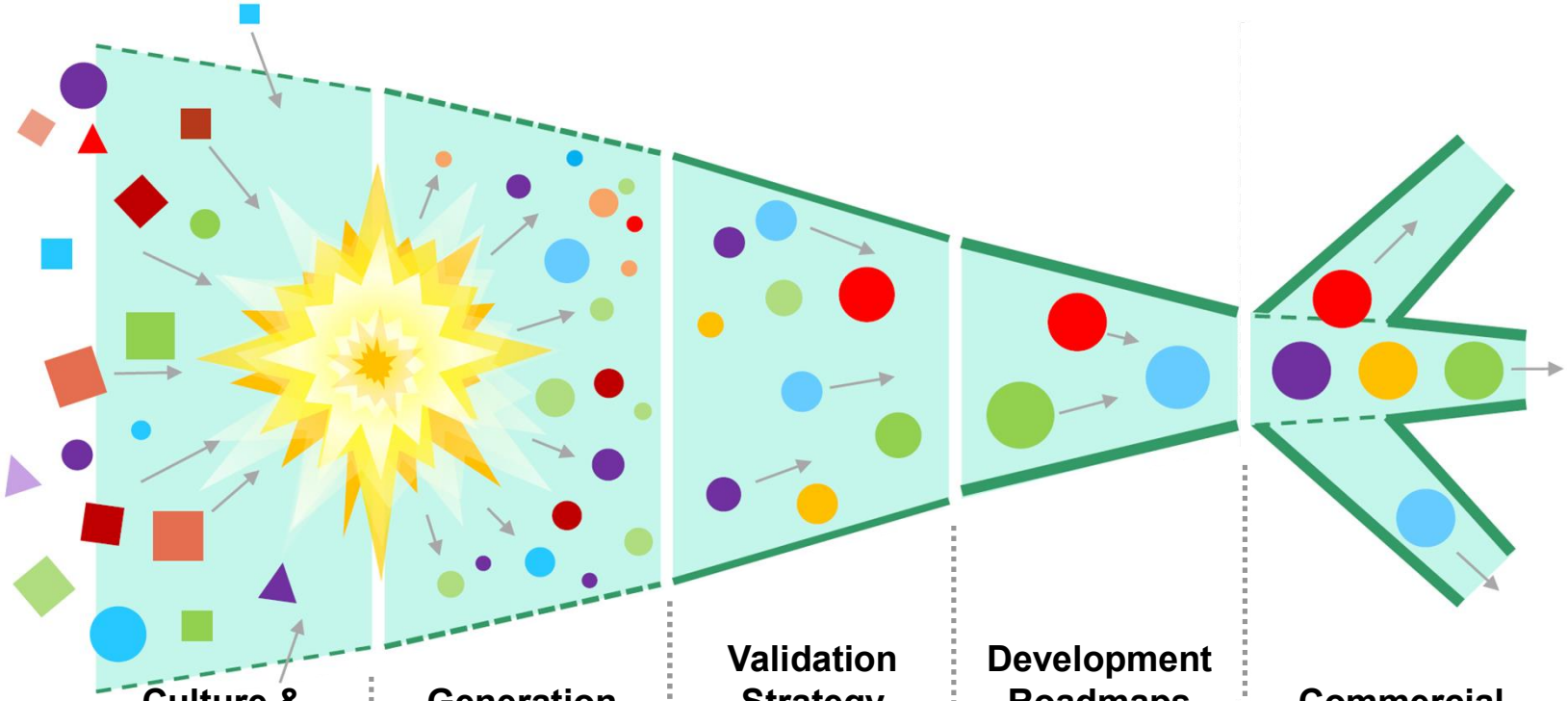
It‘s a Rocky Road to Success



Culture & Inspiration

- Workshops
- Information
- Organisational culture

Generation of Ideas

- Screening
- Brainstorming
- Networks

Validation Strategy IP Protection

- Marktstudien
- Strategie-entwicklung
- Patentierung

Development Roadmaps and Financials

- Technologie-Roadmap
- Fundraising (öffentlich, privat)

Commercial-ization

- Start-up
- Licensing / Sale
- Cooperation
- Contract R&D

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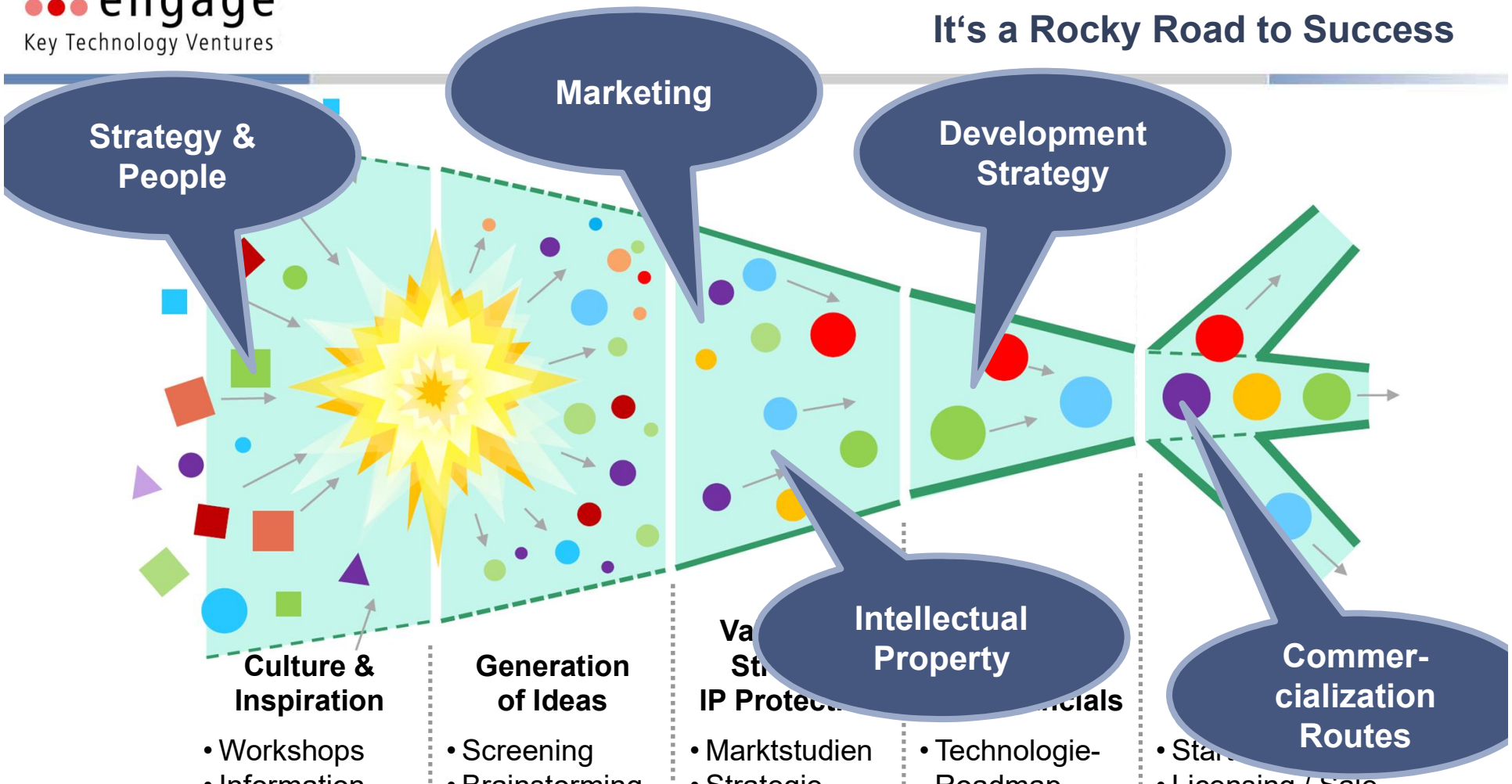

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Personal Goals & Strategy – what do YOU want?

- What are your personal goals?
- What are your talents & gifts?
- Does your environment fit your goals?
- Do you want to stay in research or enter industry?

- What does your family say?
- How much risk are you (and they) willing to take?

- Develop an individual strategy integrating
  - Personal needs
  - Organizational requirements and opportunities
  - Availability of funding
  - Requirements of the innovation (money, time)

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It‘s all about people!

- Motivation is key, you can’t force people
- A brilliant scientist most of the time is NOT an excellent entrepreneur
- IP is (mostly) worthless without the right people taking care of it
  - deep knowledge – inventor or colleagues
  - Motivation – go the extra mile
- Not only start-ups need entrepreneurs:

  → intrapreneurs with a specific mindset and skills

- Think of whom you hire
- Connect with the relevant industry
- Think about the right people as early as possible
- If possible, use or set up support structures for motivation and education
  - Leadership support
  - Best Practice / Role models
  - Information on possibilities

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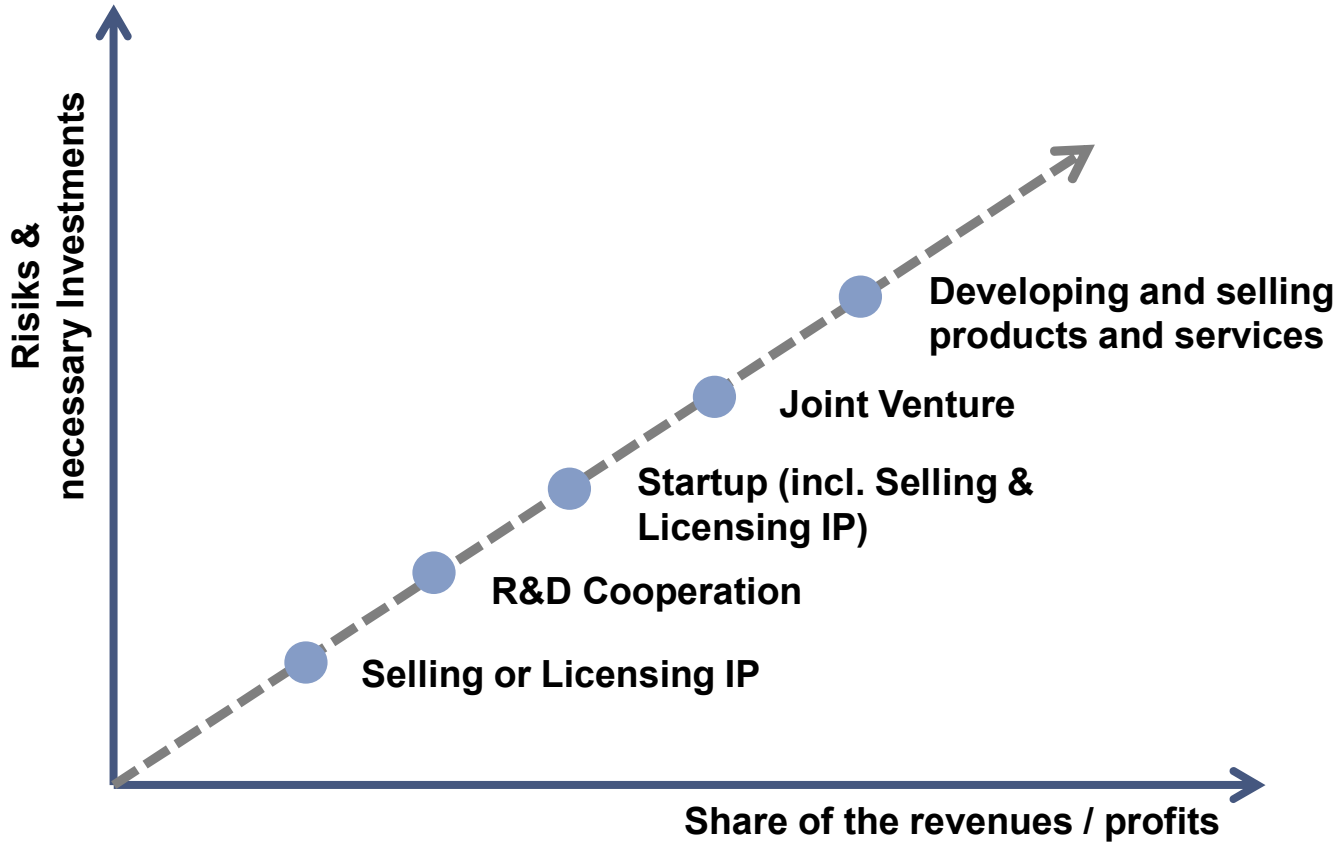
Commercialization Routes – Opportunities and Risks



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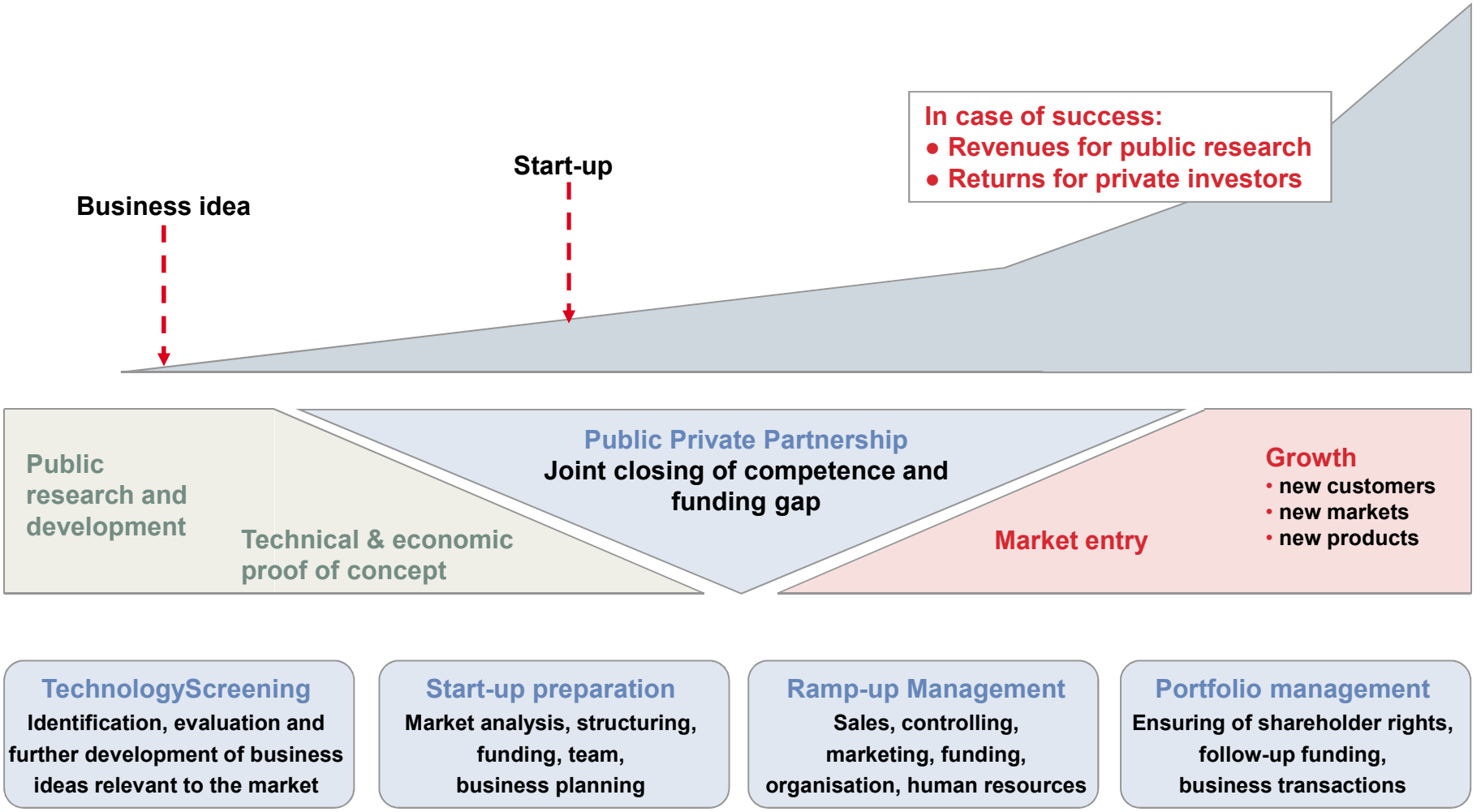
Challenges with Respect to Commercialization



Which Commercialization Route to Take

Key Questions

- How much risk are you / your organization willing to take?
- How much are you able to invest (own money, funding, etc.)?

- Do you have partners / pilot customers?
- How much risk are they willing to take?

- How and where to do the nexts steps? Do you need your organization's resources (labs, equipment, etc.) for that?
- How much money do you need for the next steps?

- How to transfer IP towards a commercial entity?
- How to compensate appropriately?

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Work hard to not end up like this

2 Main Problems

- Innovation from research is cutting edge but not industry-grade
  - Scale
  - Reliability
  - Availability of manufacturing equipment
  - BUT: research is often only proof of concept

- Industry wants products, not technologies
  - They don’t want to combine different technologies themselves
  - They want turn-key solutions

    (technologies + equipment + service + training + financing solutions + …)
  - BUT: research is most of the time very narrow

Solution

- Develop towards application (upscaling)
- Find additional competences (partners)

Development Roadmap

Basis is a deep knowledge of a technology's central use points (customer needs, benefits they're looking for) and its unique selling points.

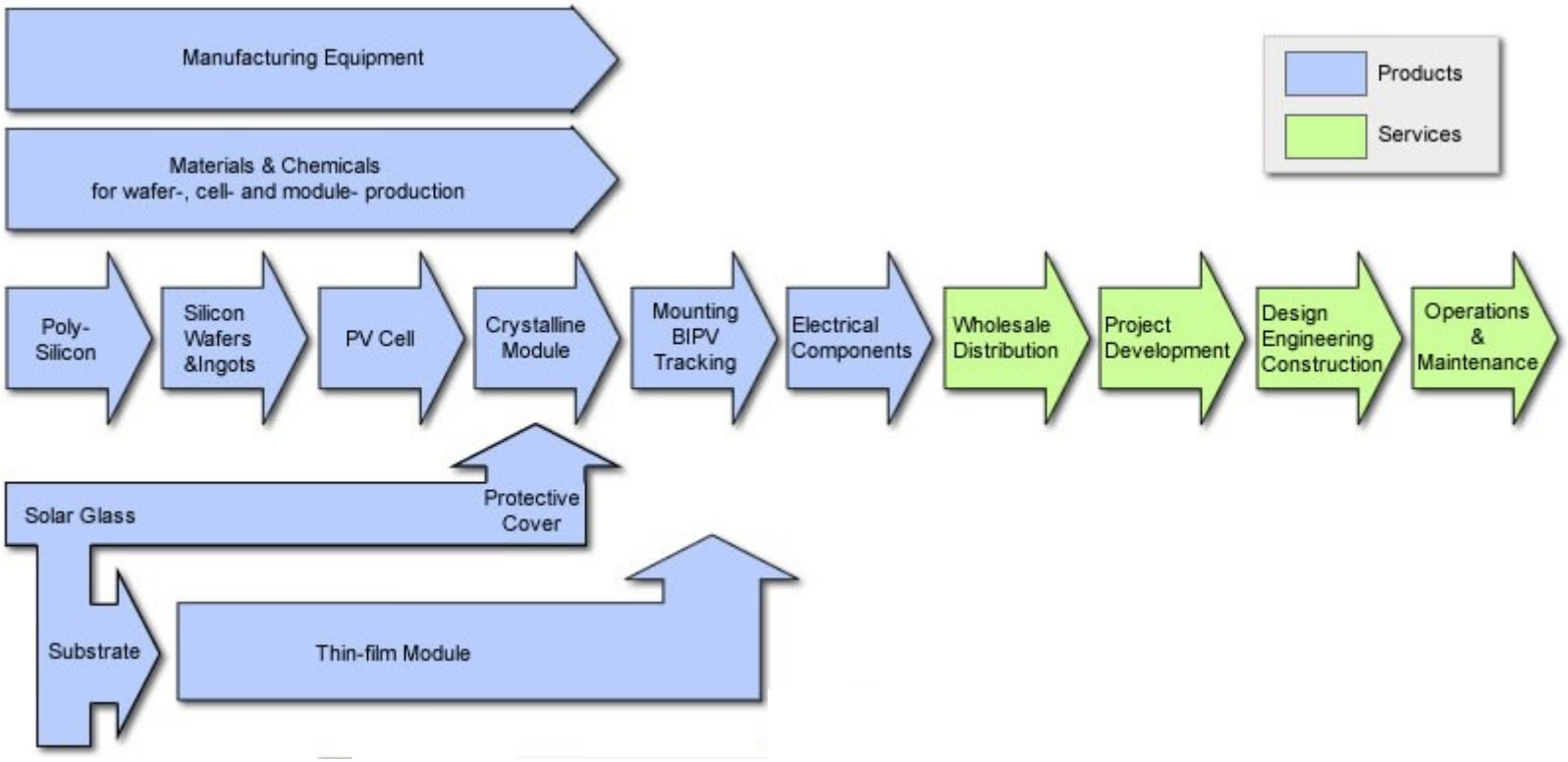
Upscaling

- Necessary R&D on existing research results
- Clear picture on parameters and performance needed
- When will a commercial actor take over
- Financing of further development
- Options of using publicly funded programmes

Additional competences & partners

- Possiblity of in-licensing additional IPR
- Possiblity of extending the IPR position (optimal geographic scope)
- Inclusion of partners with complementary competences (research, commercial, …)
- Acquiring new internal competences

Additional Competences & Partners Along the Value Chain



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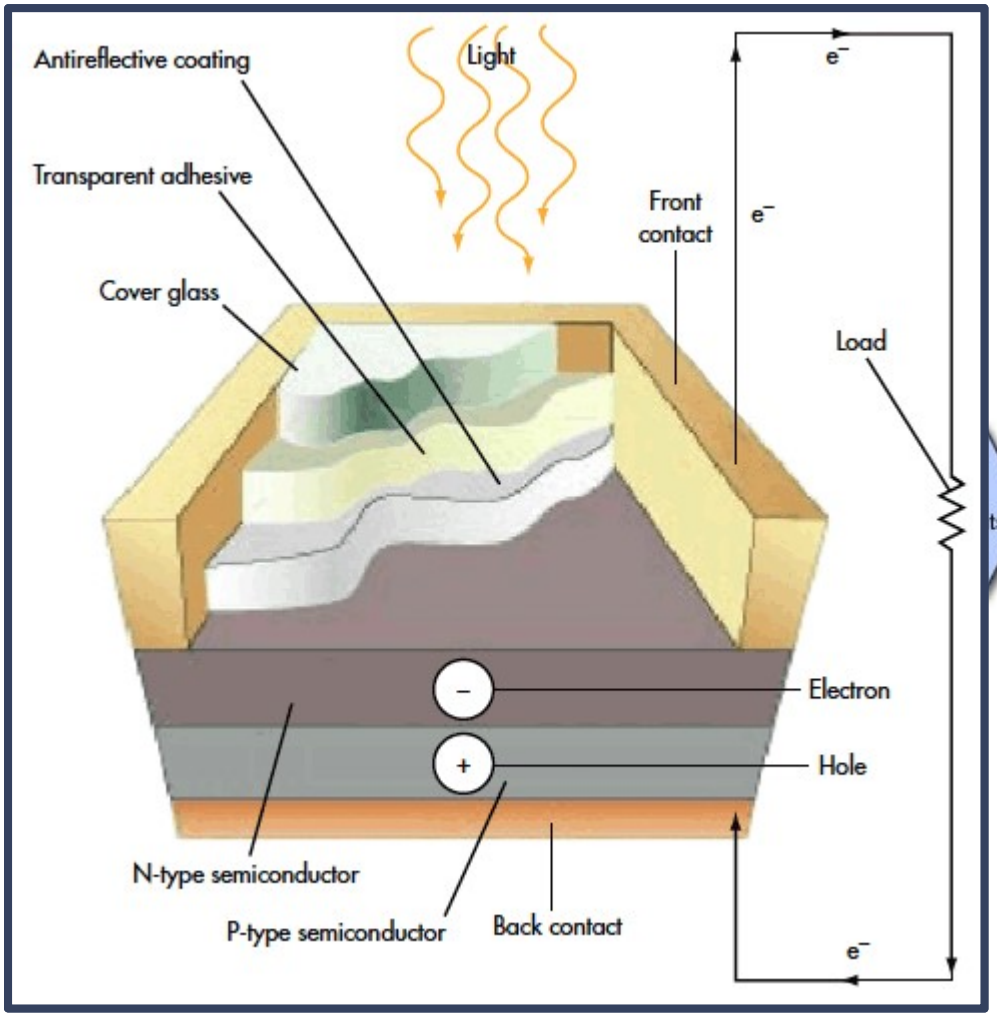

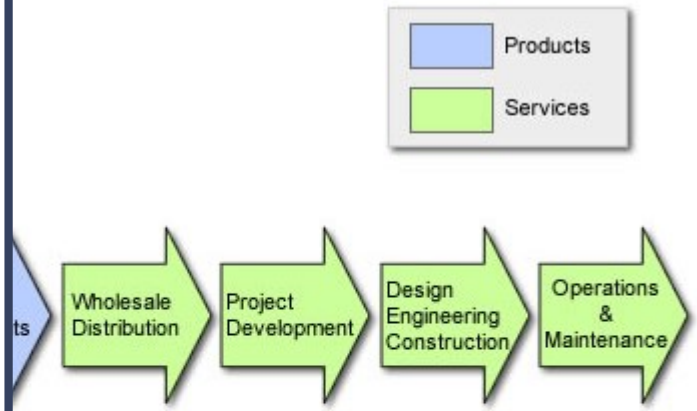

Think of natural fits

- Technically:
  - Processes connected with your technology (depending, similar, …)
- Commercially:
  - Processes done by similar actors
  - Processes requiring similar technologies

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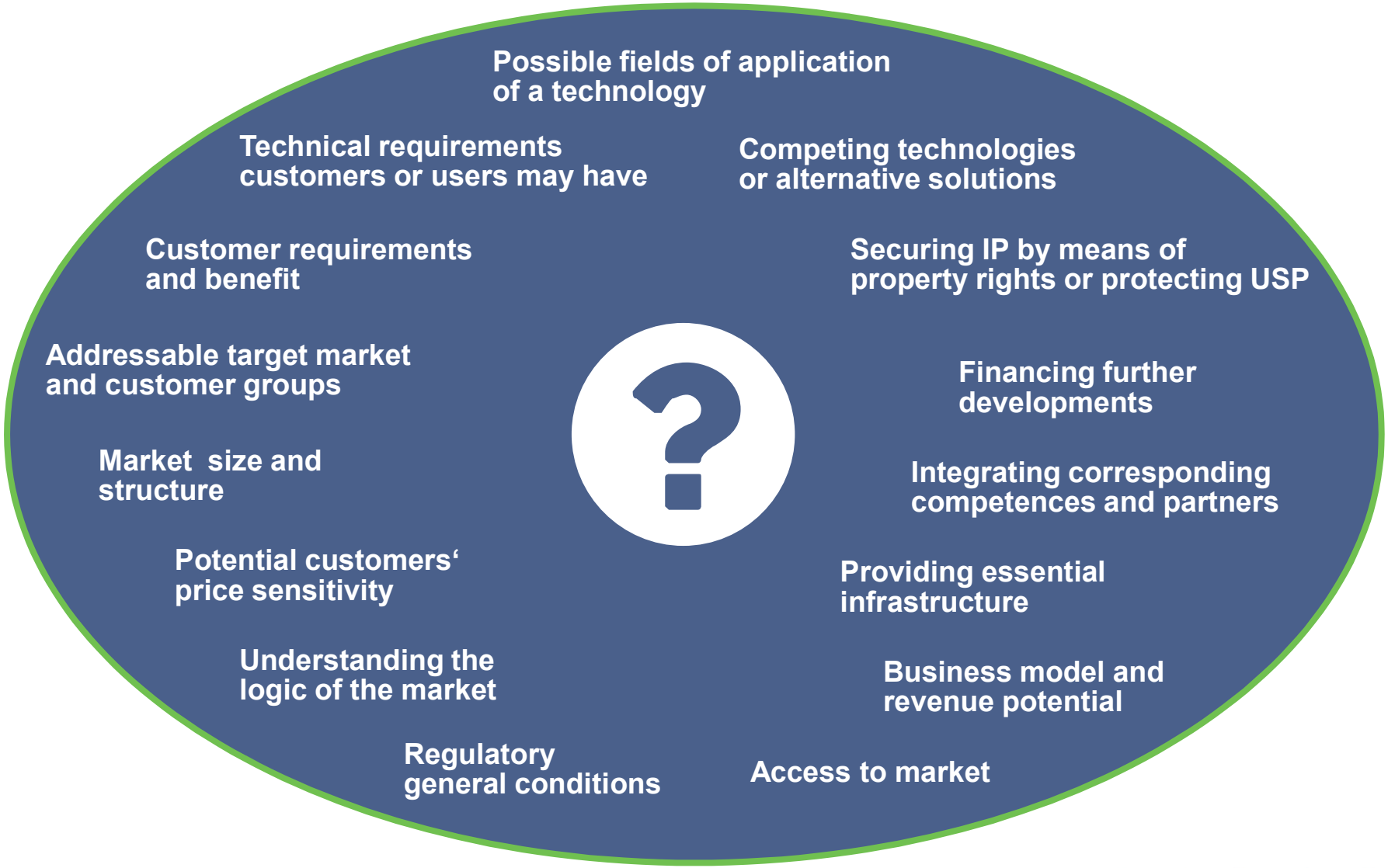
Innovation from Research Results - Questions



- **Goal:** not just numbers but a **deep understanding**

- Talk to people!
- Web or written surveys don’t do much good
- Don’t try being representative
- Understand your customers problems and pains
- You don’t need business people to do this – do it yourself
- Problems or chance often have no technical background
  - Legal or regulatory problems
  - Industry conventions and standards
  - Commercial reasons
- Which information is relevant?
  - Interests, needs and problems of potential customers
  - Operational requirements & status quo of available products (Infrastructure, Competition, ...)
  - Regular processes, procedures of evaluation and purchasing

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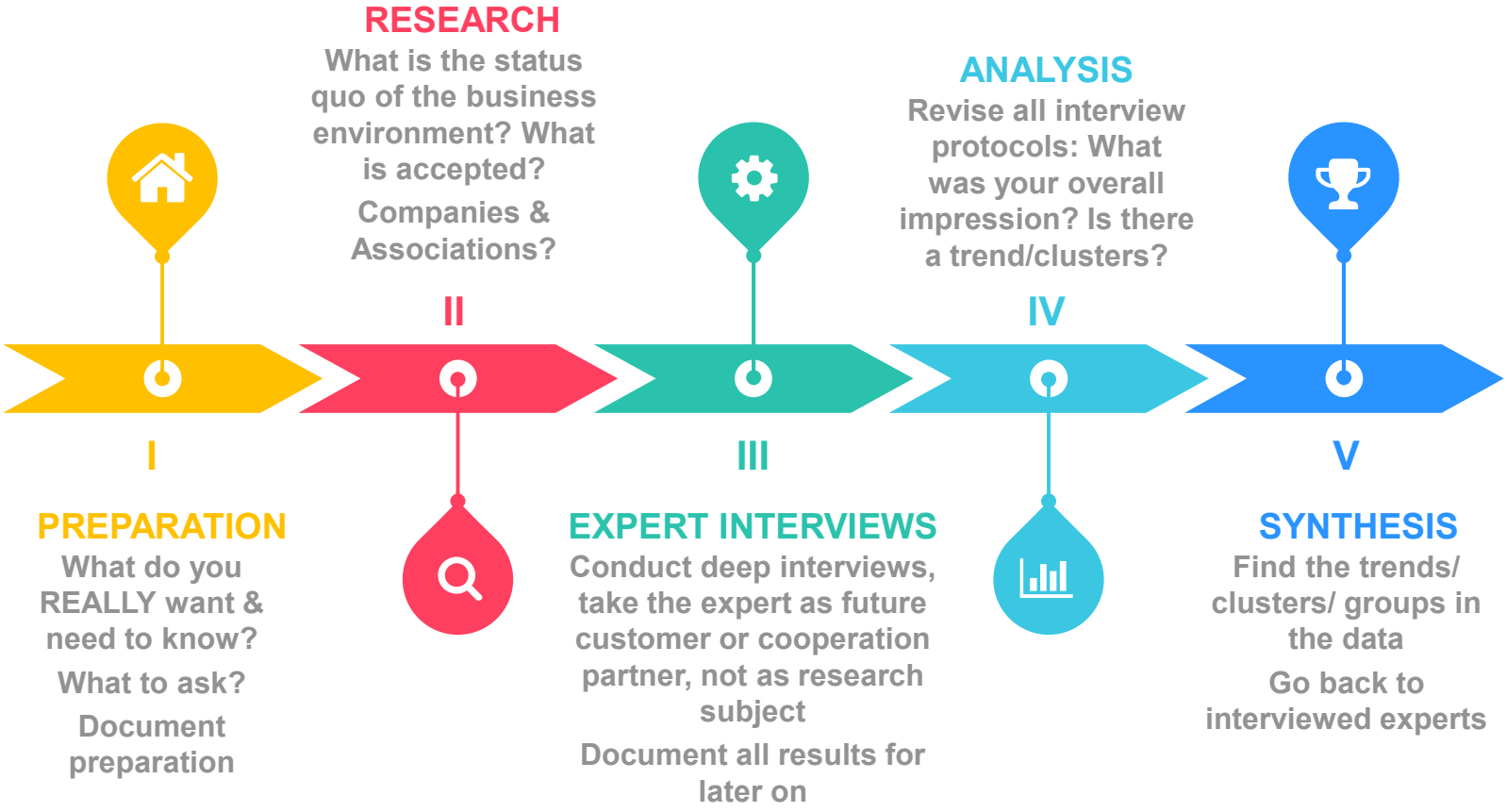
How to Learn What Customers Want?



Secondary Sources

- Quick Orientation
- Identification of important “players”
  - Outlines
  - Appendices,
  - …

- Provides never the required information exactly
- No Determination of the validity of the information
- Might be faulty
- Hard evaluation in regard of the quality
- Danger of loosing focus by searching for studies instead of answers

Primary Sources: Experts

- Who is an expert?
  - Almost every person who knows more than you in this field
  - Someone who is competent to answer your own questions
- Typical Background
  - Companies (for example potential customers of a product or a technology)
  - Public Research Institutions
  - Associations
- How to identify experts?
  - World Wide Web: Websites of companies (R&D, IR, PR)
  - Agenda of conferences
  - Through other experts and recommendations
- Nice side effect: you might find partners or pilot customers among your experts (particularly the users)

Golden Rules of Market Studies

- Try, try and try.

  In minimum 2 out of 10 people answer, often every second one.
- Email will get you nowhere. Use the phone!
- Get referrals
  - „To whom else could I speak to (within the company, competitors, etc.)?“
  - „Can you refer to further experts in this field?“
- You will not get an answer of a question which you don`t ask.
- Be sure what exactly you want to ask and prepare.
- It is not about science, it is about the market!

Key Questions:

- Is the current technology satisfying all relevant requirements?
- How important/ urgent are those requirements?
- How can our product´s features be proved?
- Do you think that you would use our technology?

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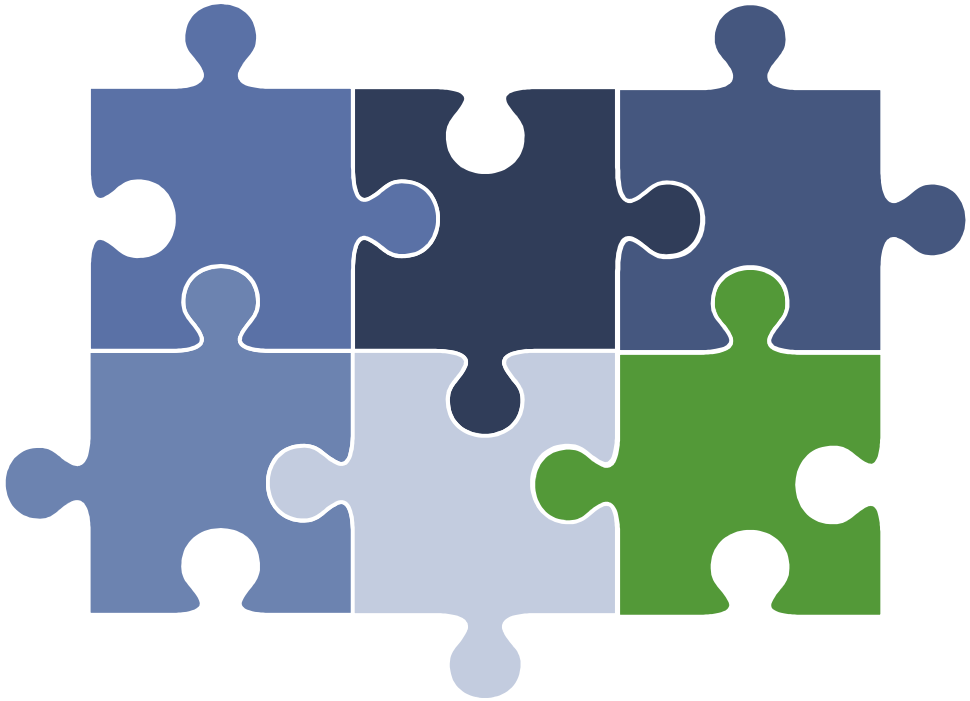
How To Deal With IP?

Patents



Trade Secret
Restrictive constructive measures

Accelerated Development

Copyright
©

Open Source
do not protect

®
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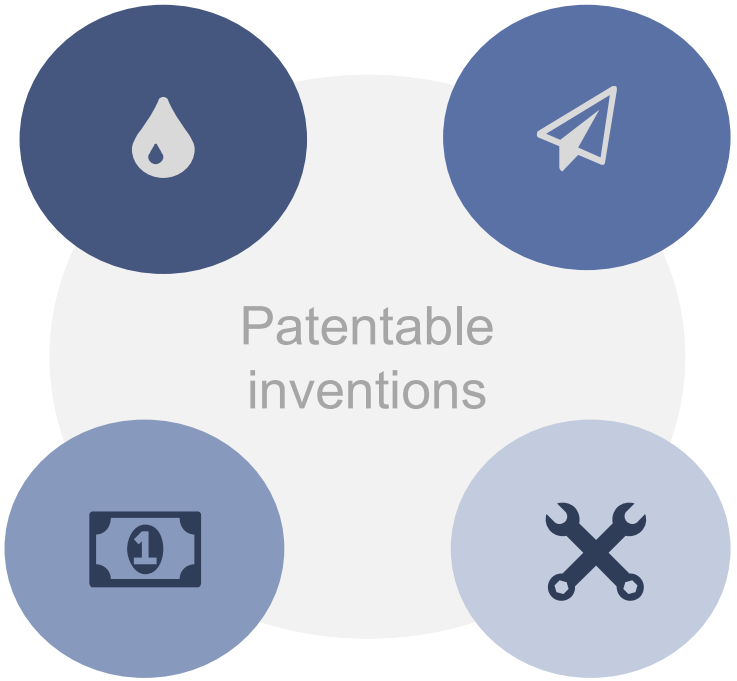
What Are Patentable Inventions?

Novelty

i.e. not be state of the art

Inventive step

i.e. not obvious from the state of the art



Commercial use

i.e. convertible into a product

Technical character

Not patentable: state of the art, discoveries, scientific theories, mathematic methods, artistic works, immoral and disorderly inventions like mail bombs

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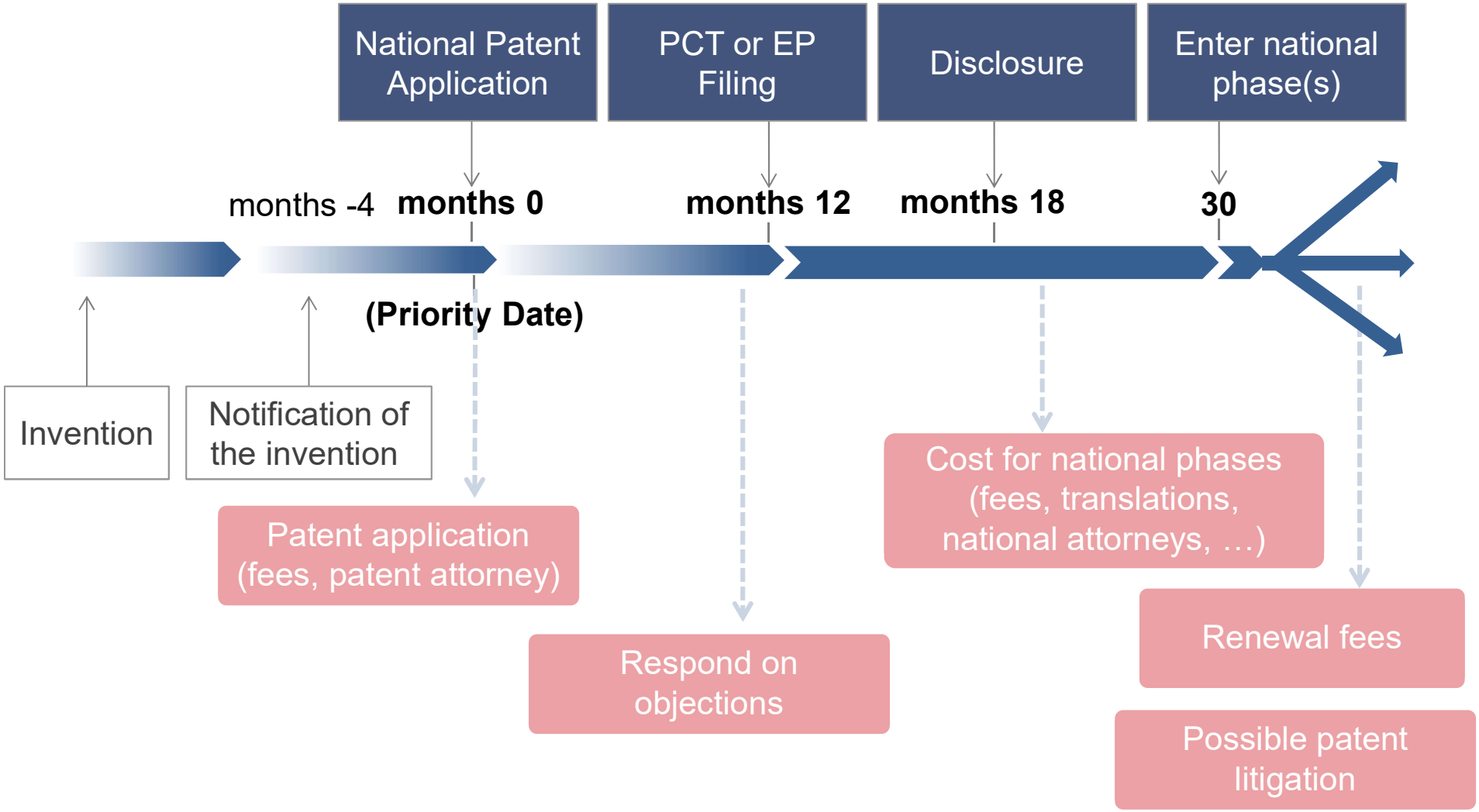
Patent Expenditures



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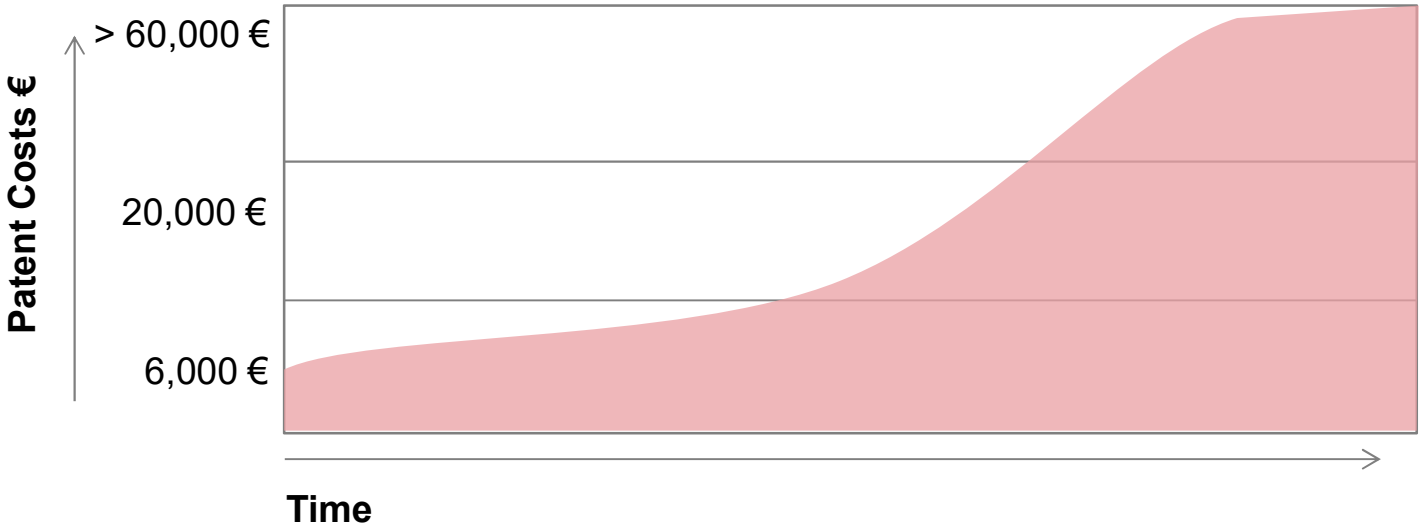


Average cost for European patent: 32,000 €

Average cost for US patent: 10,000$ - 30,000$

Annual Renewal fees (EPO for pending patent application): 500 € - 2,000 €

Renewal fees (US patent): 400$ - 16,000$

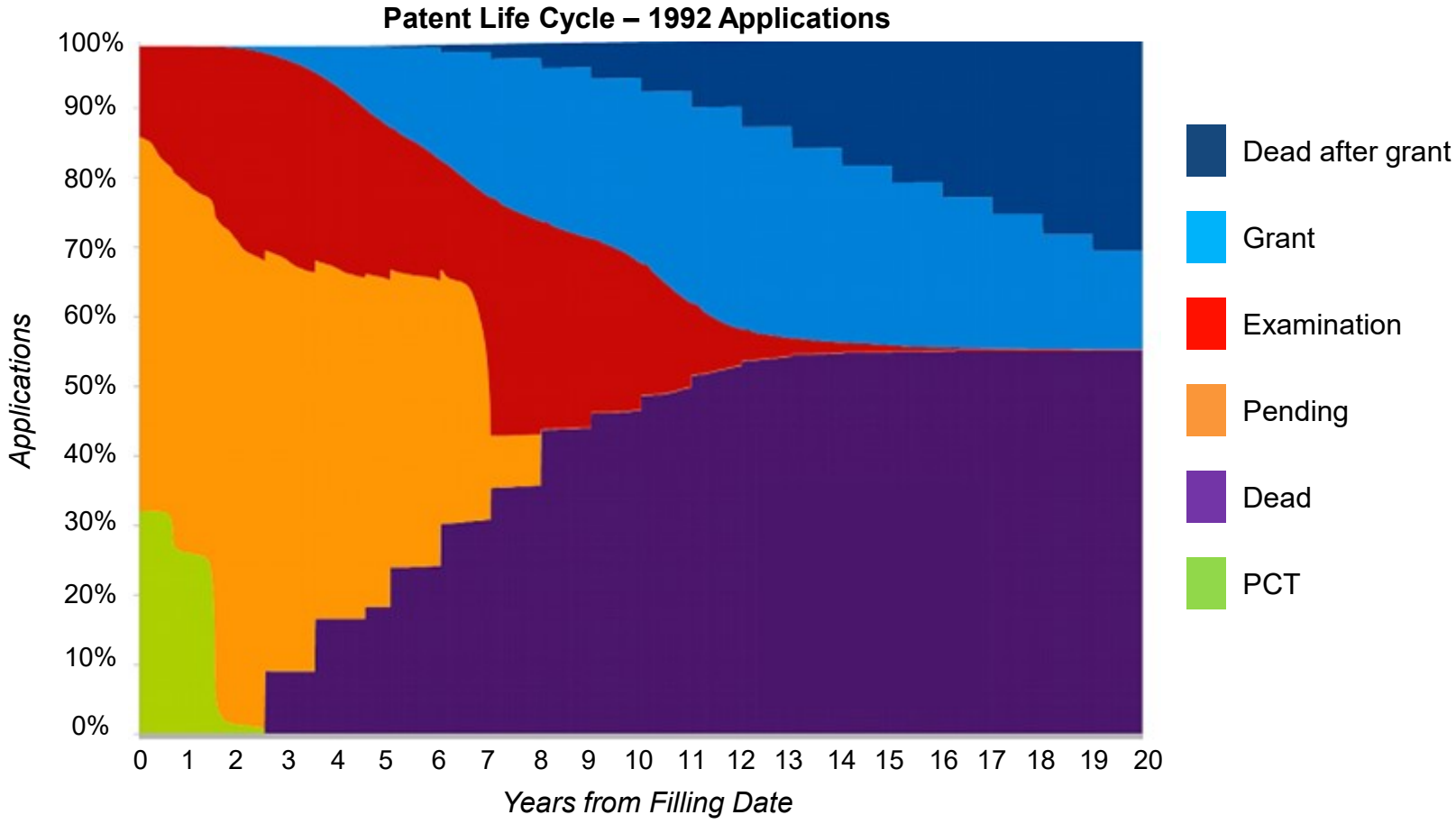
Cost for patent litigation may easily reach millions of US$

PRO & *CONTRA* *Patents*

- Prohibit others to use your technology
  - Strongest legal protection available
- Prevent others from possibly patenting your technology
- Demonstrates economic potential
- Demonstrates competence to stakeholders
- (limited) protection against patent trolls and competition
- Opportunity to license to 3rd party

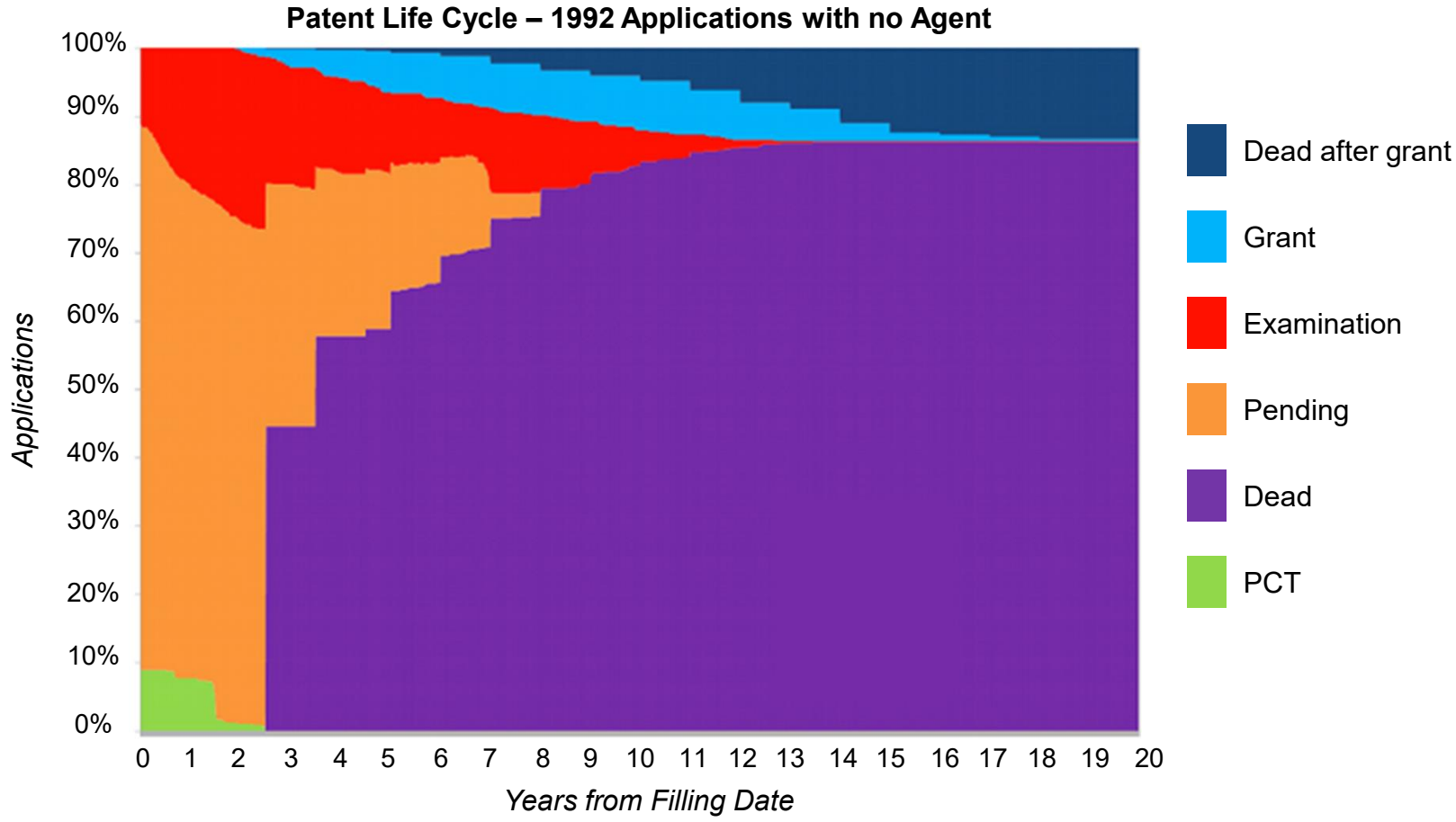
- Expensive to obtain and maintain (depending on geographical coverage)
- Some information disclosure needed (publication of application)
- Not all patents are similarly strong
  - Process patents are weaker than manufacture or combinaton of matter patents
  - If too small than easy to circumvent
- Difficult and expensive to enforce
  - Infringement sometimes difficult to detect and prove

Patent „Life Cycle“



Source: Alan Macek, DLA Piper Canada LLP, *Patent Life Cycles*, 2013

Patent „Life Cycle“



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Questions & Comments

Contact

Peter Häfner
engage AG
Berlin / Leipzig
Tel. +49 341 308944-12
p.haefner@engage-ventures.com