



Identifying and assessing research results



TECHNOLOGY TRANSFER AND
COMMERCIALISATION
Hall "Ruen", 27th of September 2011

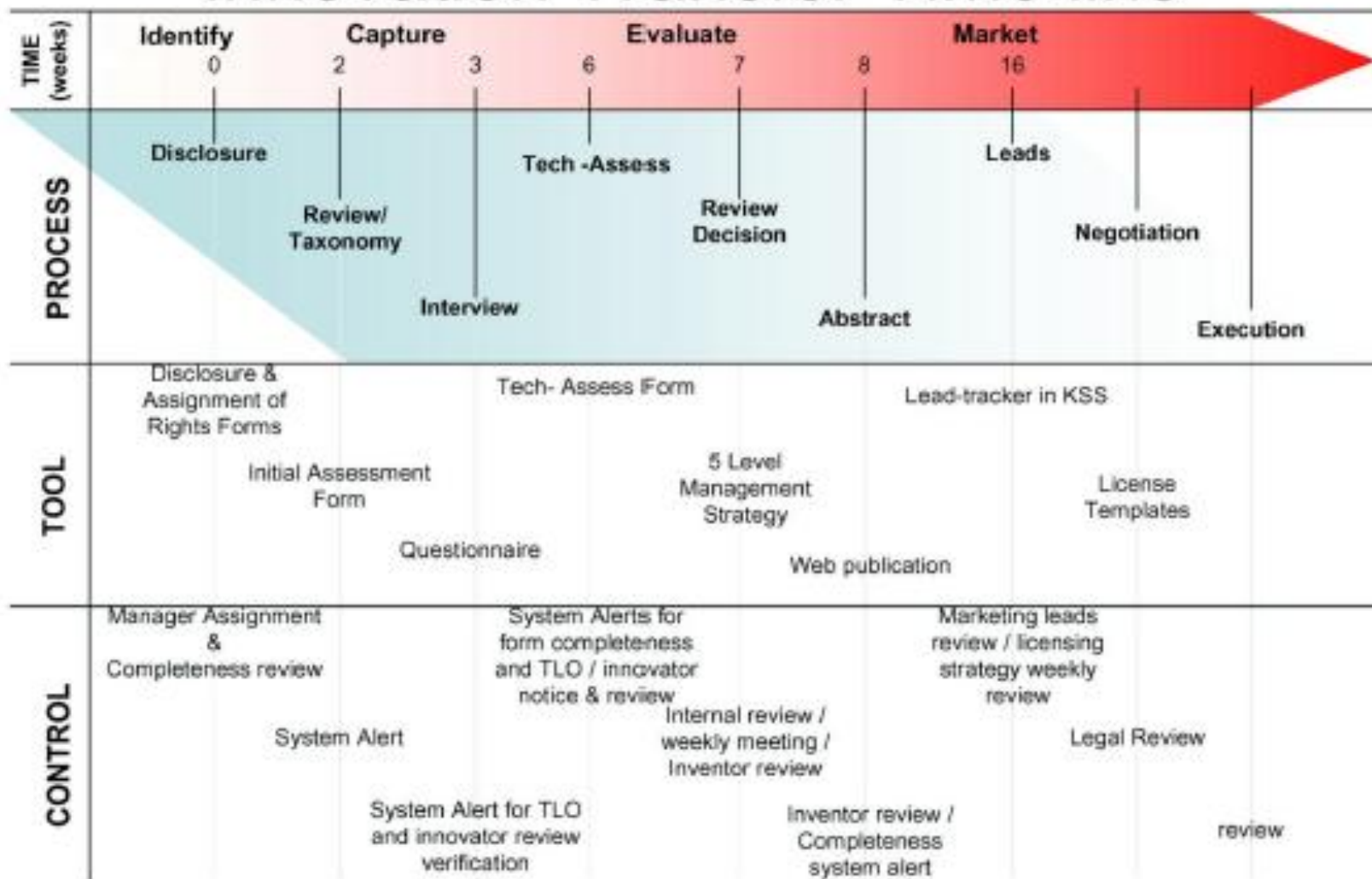
European Day of the Entrepreneur (EDE)
Sofia, 26-27 September, 2011



Outline

- Steps in technology transfer
- Technology Transfer Processes
- Documentation as part of the TT processes
- Identification of promising research results
- Key aspects in the evaluation of research results/ technology
- Decision making aids (methods, processes and procedures)

Innovation Transfer Time line





Stages and outcomes

Stages

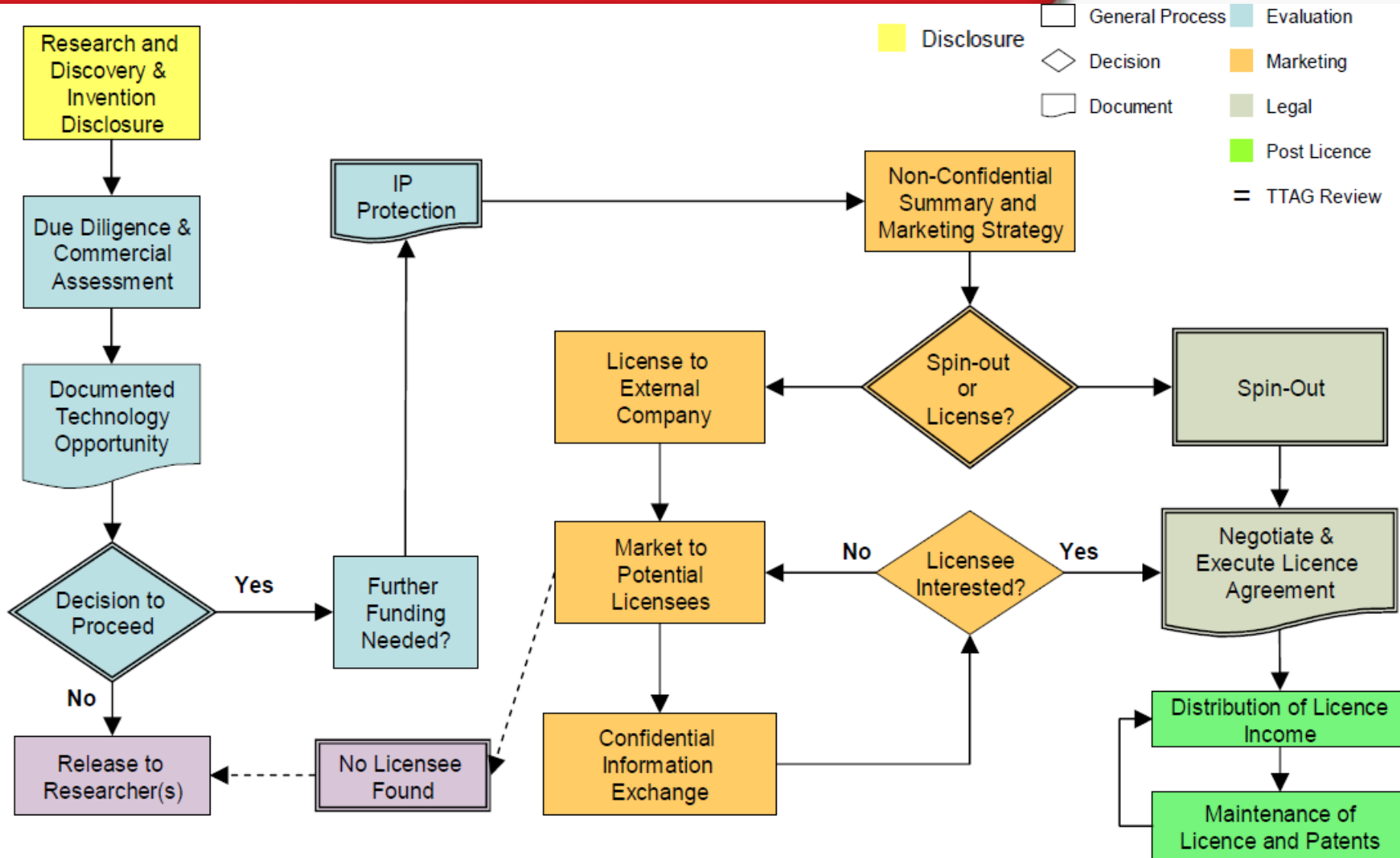
- Identification
- Capture
- Evaluation
- Market

Outcomes

- Invention Protection
- Commercialization
- Successful Innovation
 - Royalties
 - Equity shares



TT process





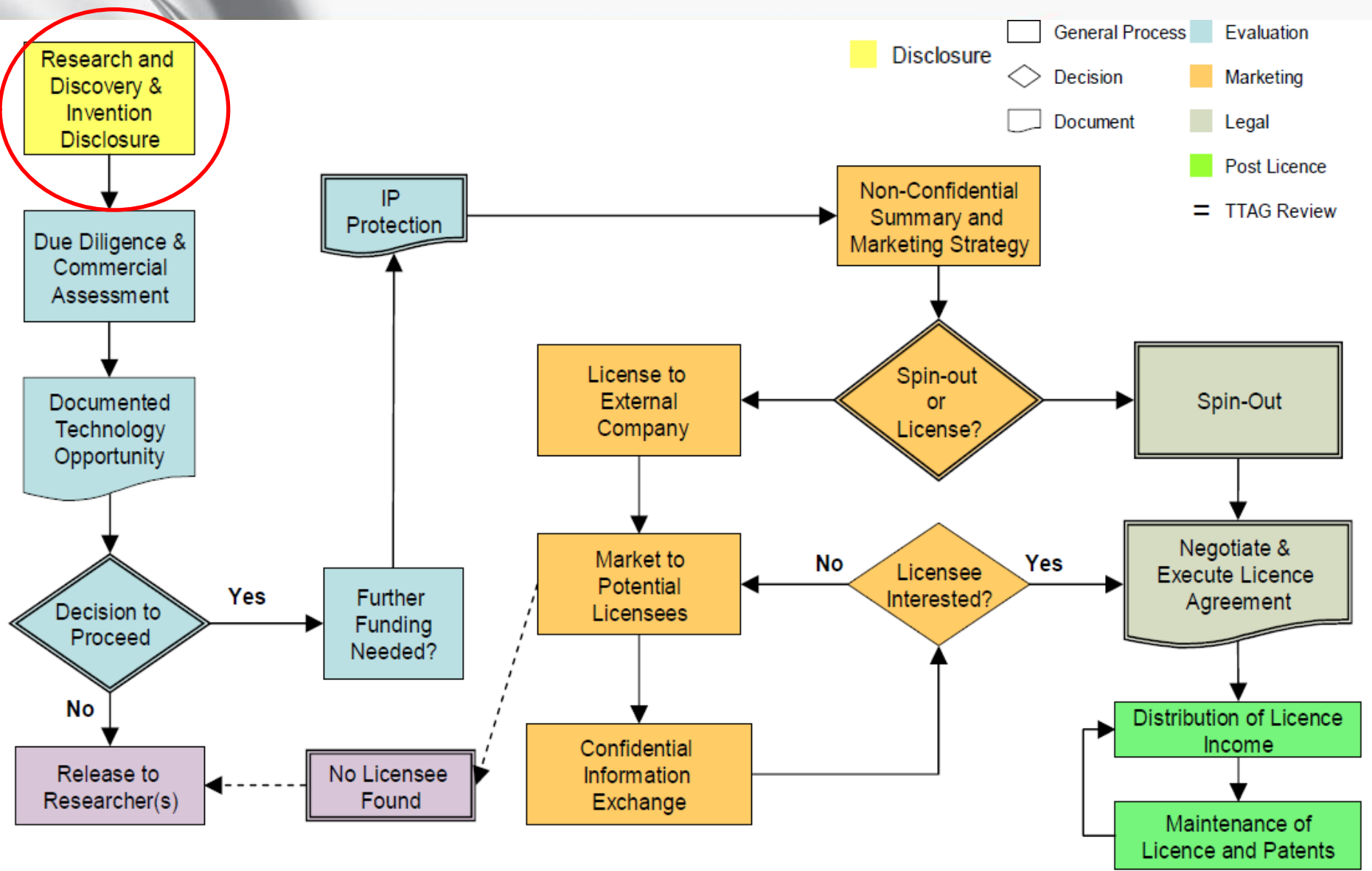
Documentation

The following documents are normally required to support the Innovation process.

- Disclosure
- Assignment of Rights
- Initial Assessment of the Technology Opportunity
- Application for IP Protection:
 - *Provisional Patent Application*
 - *Patent Application*
 - *Trademark Application*
 - *Copyright Application*
 - *Registered designs (design rights)*
 - *Database rights*
- Tech- Assessment to assess route to market
- License Templates/ Spinout business plan



Identifying...





Starting point: Invention Disclosure Form

- Serves as a precursor for formalising the confidential description of an invention
- A basis for determining patentability
- The technical information required to draft a patent
- Useful to establish rights to an inventions that can be protected by other means (e.g. copyright) other than patents
- The completed form should be treated as confidential information
- The Invention Record Should Be Signed And Dated By All Named Researchers.



Invention Disclosure Form

- What do you think your invention is?
- How and why does it work?
- How does your invention improve on the present situation and what is new about it?
- Are there any other uses of the invention?
- Do you know of any published literature relevant to your invention? Have you done any searching for published literature, and if so where?
- Has the invention been tested in the laboratory or has it been used? If so please give results.
- In which markets do you think this invention or design will find most success?
- List three key commercial benefits of the invention/ design.
- Name any commercial contact who may be interested in this invention.
- Attach any relevant sketches.

Invention Disclosure Form

Please read the notes, complete this form and send to:
Disclosures, Cambridge Enterprise Limited, University of Cambridge, Hauser Forum, 3 Charles
Babbage Road Cambridge, CB3 0GT.
Telephone switchboard: +44 (0)1223 (7)60339, Fax: +44 (0)1223 (7)63753.
Email: disclosures@enterprise.cam.ac.uk web: www.enterprise.cam.ac.uk

OPTING IN / OPTING OUT	Yes	No	Don't Know
Please indicate whether you wish Cambridge Enterprise to support commercialisation of your invention. You may wish to familiarise yourself with the University's IP policy: http://www.enterprise.cam.ac.uk/ipandlicensing.php?subsub=21			

1. INVENTORS

Please list all inventors. A co-inventor is an individual without whose intellectual and creative input the invention could not have been made in its present form. They must have conceived or contributed an essential element of the invention either independently or jointly with others, during the evolution of the invention or its reduction to practice.

a. Please list all inventors and nominate one person as the principal contact.

Inventor(s)	Position	Department	Phone/Fax	Email

2. INVENTION

Notes:

a. A brief, descriptive title to aid in identifying the invention; say, six words maximum, please!

b. In describing the invention, please explain:

- The problem it solves
- How it works and the commercial applications
- Advantages and improvements over existing methods, devices or materials

c. The date is when the inventor(s) devised the essential concepts of the invention - but without necessarily having proved that it would work or having built a prototype.

d. In most countries a patent application must be filed before an oral or printed publication is made available to the public. Publication means the first time the invention is made available to the public. Confidentiality, would have been able legally to gain access to your description. Oral disclosure means lectures, seminars, conference presentations, any talk to external research groups, or in general conversation with people outside the university. Written disclosure means the same. Activities were covered by a documented obligation of confidentiality.

a. Title:

b. Please attach a brief description of the invention. What is the invention's first commercial use? Please choose from the following options. Idea, Proven concept or Working prototype

c. What date did you make the invention?

✓ Title of the invention
✓ Name(s) of the inventor(s)

✓ Design date and date put into practice
✓ Sponsorships where relevant

✓ A description of the invention

✓ Publication dates and data published (existing or projected) if applicable

Inventions (continued..)

d. Disclosures:

Are there any public disclosures planned? If so, in what form, when and where?

Have any details of any of the work been disclosed publicly?

In a journal (online or in print)

To a conference or seminar, as an abstract, poster, etc.

In any other publicly disclosed communication

In a PhD

3. PRIOR ART SEARCH AND MARKETING

Notes:

a. Please list research publications similar to your work. If you have done a patent search (e.g. using www.espacenet.com) please list the key words you have used and the patents found.

b. Please list companies you have contacted, those you think are active in the area, or who want to develop a new product line. If possible please give contact information (we'll consult you before we get in touch with them).

1. If you've done a search to find out about 'prior art' and competing technologies, please list key words and attach your findings.

b. Please list companies you think would be interested in commercialising the invention, and why.

4. SPONSORSHIP OF THE RESEARCH

Notes:

a. Give the applicable contract or grant (RG) number(s), project title(s) and the principal investigator on the project(s) in the table below if the invention was made in connection with research funding. We need to ensure that we fulfil our obligations under research grants and contracts.

a. Was the invention developed using any research grants/contract funds? Please answer Yes or No.

Contract/RG no	Sponsor(s)	Project title	Principal investigator	Date grant started

b. Have you entered into any commercial or other agreements (e.g. material transfer agreement, consultancy), if yes provide details. Please answer Yes or No.

5. CONTACT

If you have discussed the project with Cambridge Enterprise, please give the contact:



Evaluating...

Research and Discovery & Invention Disclosure

Due Diligence & Commercial Assessment

Documented Technology Opportunity

Decision to Proceed

Release to Researcher(s)

IP Protection

Further Funding Needed?

No Licensee Found

Disclosure

Non-Confidential Summary and Marketing Strategy

Spin-out or License?

License to External Company

Market to Potential Licensees

Confidential Information Exchange

Licensee Interested?

Spin-Out

Negotiate & Execute Licence Agreement

Distribution of Licence Income

Maintenance of Licence and Patents

- General Process
- Decision
- Document
- Evaluation
- Marketing
- Legal
- Post Licence
- TTAG Review



Assessment of Technology Opportunity

To assess optimum management strategy for commercialisation

Go OR Proceed with caution

OR STOP

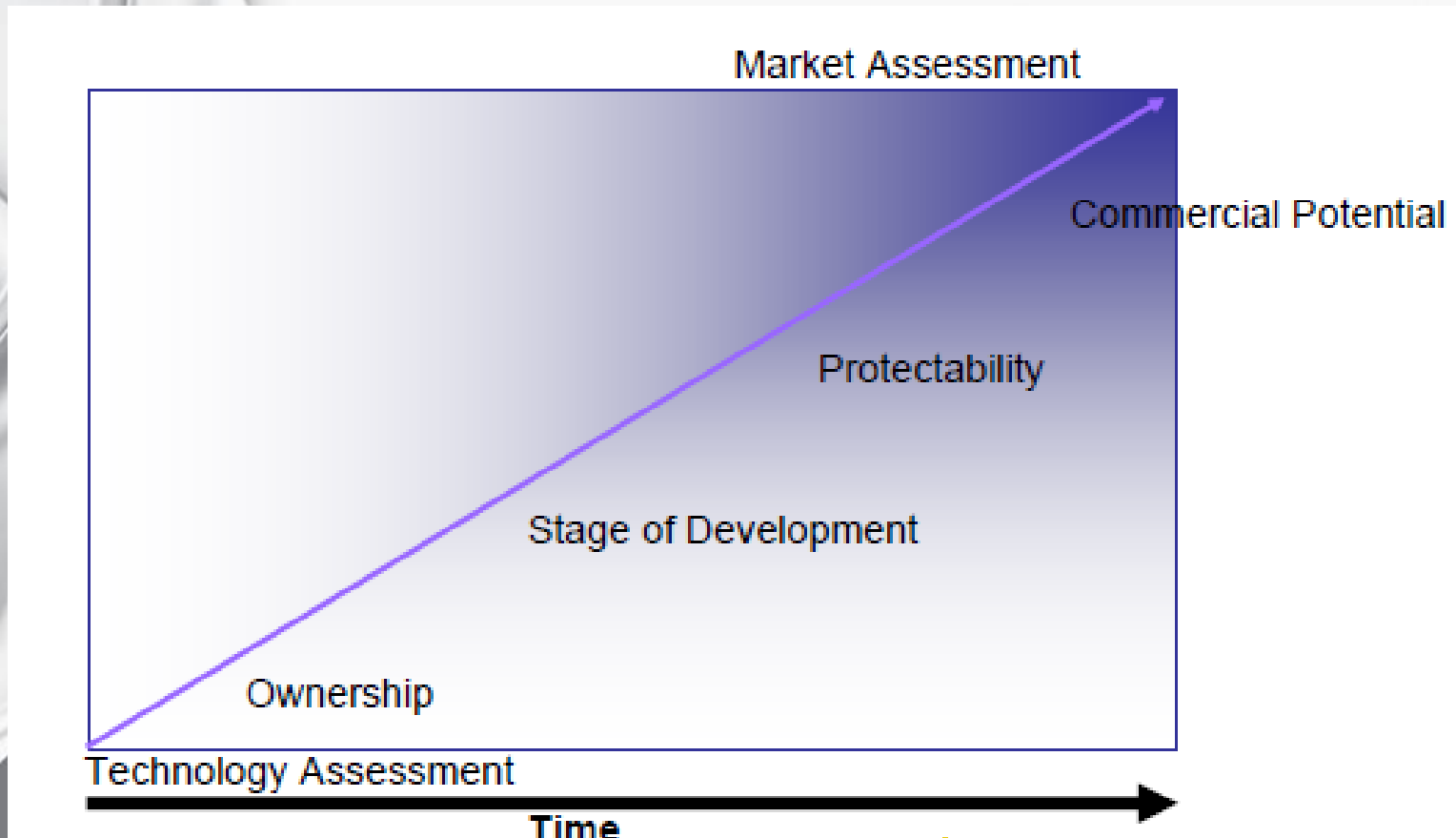
- Investigation of patentability
- Probing marketability



During the assessment (evaluation), disclosing outside the institution is safe if a Confidential Disclosure Agreement (CDA) or NDA is used



Evaluation Sequence





Technology/ Invention Assessment

6 Pillars approach

1. Ownership
2. Feasibility and Scope of Protection (IPR)
3. Strength of Technology
4. Commercial Potential and Value
5. Stage of Development
6. Commitment of Inventors

All pillars matter.
If one pillar is weak or missing,
chances of success are much lower





1. Ownership

- **Assignment**
 - Have rights to this technology been pre-assigned to a third party?
- **Joint Inventorship**
 - Number of co-owner institutions
- **Funding (Source of funding)**
 - e.g., corporate, state, etc.
- **Other Agreements**
 - Material Transfer Agreements, Memorandums of Understanding, etc.
- **Inventorship**
 - Number of inventors/authors



IP ownership

Ownership depends on many issues:

- Who is paying the costs (research funding)?
- Who proposed the project?
- Who is designing/managing the project?
- Is the project critical to the Industry partner?
- On what Background IP or resources does the project rely?
- Can the project be kept separate from other PRO researcher's activities?
- What is the effect on future research by PRO?



Formulas depend on country/ institution

Greece – generally for “dependent inventions”:

40% to employer (University/ PRO)

60% to employee (researcher)

University of Minho - Portugal

University owns IP. Benefit sharing:

- 45% researcher(s)
- 45% University
 - 15% Department
 - 15% Faculty
 - 15% Central Services
- 10% risk capital



US Formulas

- US Formulas for the allocation of OTT revenues from license royalties:
 - Most common formula: Equal sharing among the university (33%), the department (33%), and the employee inventor (33%).
 - Another common formula: 50%-50% sharing between the university and the inventor.
 - Average net revenue distributions: University (35%), department (25%), and faculty inventor (40%).



IP ownership

Types of research funding

- Open Research – wholly funded by public funds or grants. Results are generally published, publication can be delayed to allow patent filing.
- Contract research – PRO is paid 100% of all costs (market rate + profits), acting as service provider. IP is fully owned by the contracting party.
- Collaborative research - both parties provide resources for the project and both parties have an interest in its outcome. IP is agreed on a case by case basis.



IP ownership

Different ownership positions:

- Industry owns the IP and PRO has no right to publish results
- Industry owns the IP and PRO can use results for academic purposes
- PRO owns the IP and Industry has exclusive rights
- PRO owns the IP and Industry has exclusive licence in a certain area (application, market)
- PRO owns the IP and Industry has nonexclusive rights



2. Feasibility and scope of protection

- **Timing**
 - Publications exist or are planned
- **Strength**
 - Ability to work around patent
- **Enforcement**
 - Infringement detection
- **Security**
 - Ability to exclude others from practicing
- **Challenge**
 - Aggressive area of US or Worldwide Patent/Copyright activity
- **Reach**
 - Worldwide protection

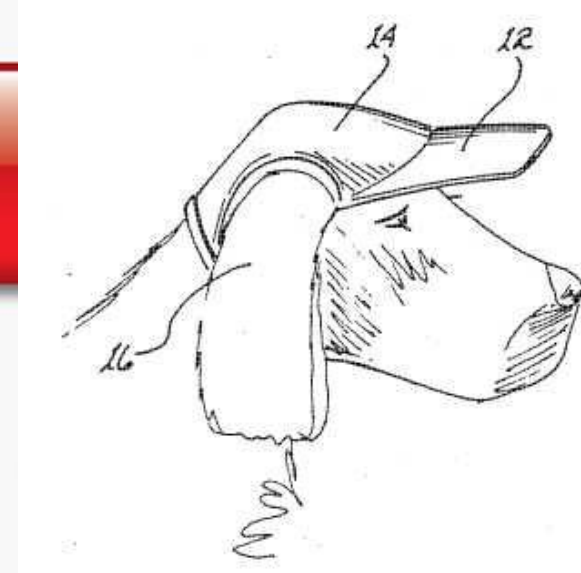


Factors effecting the Protection Decision

For patenting decisions
use patenting decision guide
(patent decision trees)

However... also think about

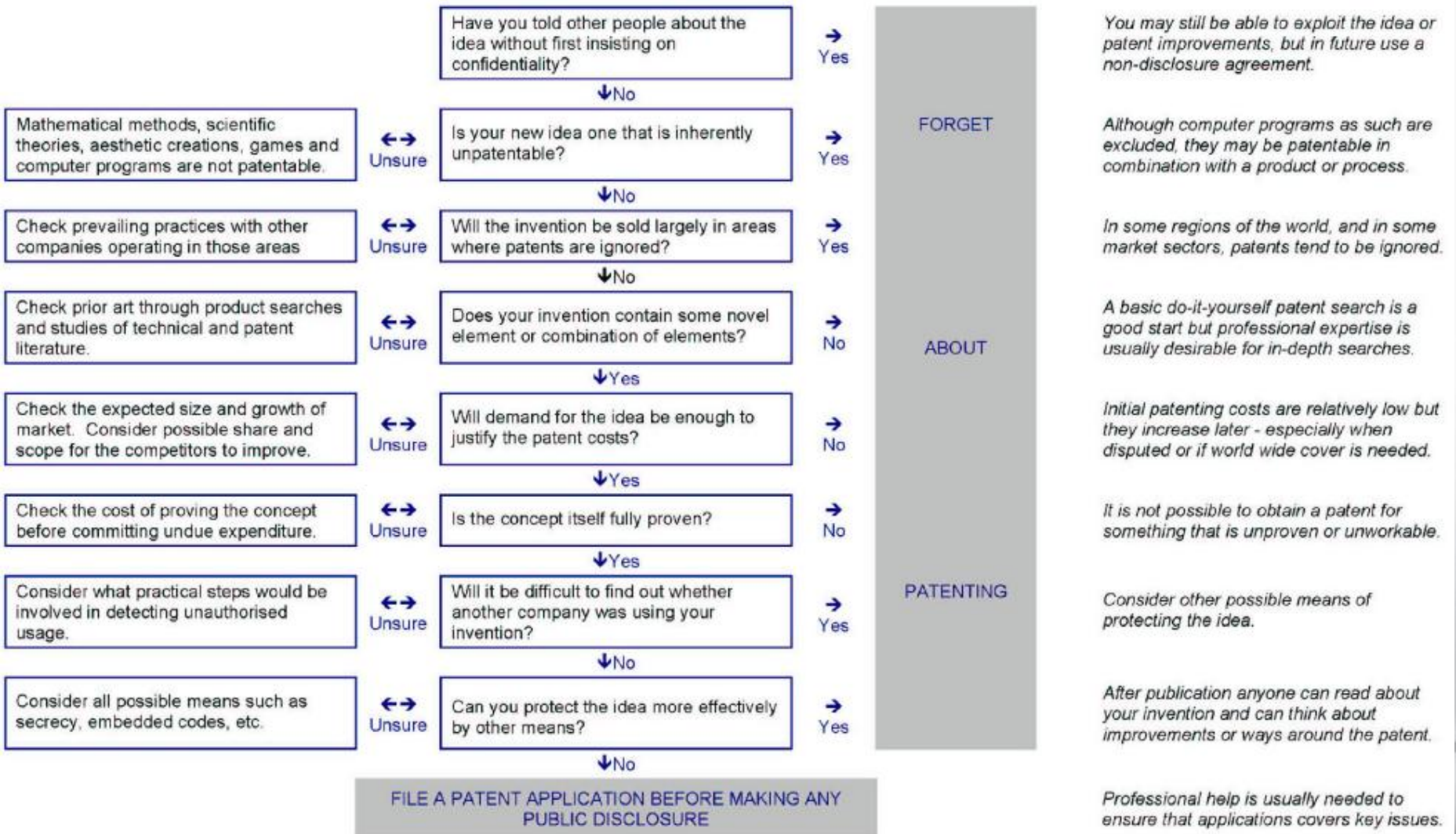
- The availability of funding
- The existence of other projects
- The other pillars!



United States Patent [19]	[11] Patent Number: 5,031,388
Ode	[45] Date of Patent: Jul. 16, 1991
[54] DOG HAT APPARATUS AND METHOD	669,909 3/1901 Young 54/80
[76] Inventor: April Ode, 1510 Catherine Dr., Lake Havasu City, Ariz. 86403	673,738 5/1901 Spong 54/80
[21] Appl. No.: 469,718	750,505 1/1904 Walther 54/80
[22] Filed: Jan. 24, 1990	FOREIGN PATENT DOCUMENTS
	18288 of 1900 United Kingdom 54/80
	<i>Primary Examiner</i> —Robert P. Swiatek
	<i>Attorney, Agent, or Firm</i> —Harry M. Weiss
	[57] ABSTRACT
[63] Related U.S. Application Data	A hat apparatus to protect a four-legged animal from extreme heat and direct sunlight. The hat comprises a head covering section, a visor section to protect the animal's eyes from sunlight, apertures to permit the passage of the animal's ears therethrough, and a chin strap to attach to the chin or bottom portion of the head of the animal. Preferably, the animal hat is used for dogs and the head covering comprises a liquid absorbable material for absorbing, for example, cold water in order to provide a cool hat apparatus for the animal.
[63] Continuation of Ser. No. 211,048, Jun. 24, 1988, abandoned.	
[51] Int. Cl.³ B68C 5/00; A01K 13/00	
[52] U.S. Cl. 54/80	
[58] Field of Search 54/79, 80, 81; 119/142; 2/10, 177, 195, 423	
	References Cited
	U.S. PATENT DOCUMENTS
	100,000 2/1870 Anderson 54/80
	120,208 10/1871 McGovern 54/80
	342,186 5/1886 Corley 54/80
	382,668 5/1888 Sullivan et al. 54/80
	3 Claims, 1 Drawing Sheet



Patenting decision guide



FILE A PATENT APPLICATION BEFORE MAKING ANY PUBLIC DISCLOSURE

Professional help is usually needed to ensure that applications covers key issues.



When to avoid patenting

- **Idea is not an invention**

Doesn't qualify as eligible subject matter

Publication created bar to patenting

- **Idea is not fully developed**

Enablement issues

Patent issuance unlikely

- **Patent position is not commercially useful**

Narrow coverage

Dominated by other patents

- **No viable commercial market**

No promising application

Small market for products

- **No interested commercial investors**

Return on investment not sufficient

Difficulties in making products



Premature Disclosure

The **public** release of information relating to an invention before a patent has been filed.

- abstracts
- poster sessions
- seminars
- shelved theses

Premature disclosure usually disqualifies an invention from being patented



Confidentiality

- An invention and associated information must remain confidential prior to any IP protection.
- The University usually encourages publication, provided that the implications for possible commercial exploitation and existing confidentiality obligations are considered first.
- If you wish to publish or make any public disclosure concerning a possible invention you should first seek advice on the most appropriate form of action.
- USE “CDA” and “NDA”.



NDA(Confidentiality Agreement)

Exchange of information before a collaboration or License:

Subject and definition of information

- What is exchanged and considered as confidential information.
- Who is provider, who is recipient.

Dealing with confidential information

- Define / limit the purpose of use (e.g. "to evaluate ...").
- Define to whom confidential info maybe forwarded.
- For unpublished patents: Limit partner's freedom (e.g. "partner not to file patents during ...").

Retention of rights / Return of information

Warranty / Liability

- No warranty of correctness/ suitability for any purpose.
- Only accept information that you really want / need.
- Do not accept a defined contractual penalty).



Non-disclosure agreements

Date: 201[]

Parties:

[NAME OF INDIVIDUAL RECEIVING INFORMATION] of [address of individual] OR [NAME OF COMPANY RECEIVING INFORMATION], a company registered in [England] under company number [number on Register of Companies] whose registered office is at [address of office on the Register of Companies] (**the Recipient**) and

[NAME OF INDIVIDUAL DISCLOSING INFORMATION] of [address of individual] OR [NAME OF COMPANY DISCLOSING INFORMATION], a company registered in [England] under company number [number on Register of Companies] whose registered office is at [address of office on the Register of Companies] (**the Discloser**)

1. The Discloser intends to disclose information (**the Confidential Information**) to the Recipient for the purpose of [insert details e.g. discussing the possibility of the Recipient and the Discloser entering into a joint venture] (**the Purpose**).
2. The Recipient undertakes not to use the Confidential Information for any purpose except the Purpose, without first obtaining the written agreement of the Discloser.
3. The Recipient undertakes to keep the Confidential Information secure and not to disclose it to any third party [except to its employees [and professional advisers] who need to know the same for the Purpose, who know they owe a duty of confidence to the Discloser and who are bound by obligations equivalent to those in clause 2 above and this clause 3.
4. The undertakings in clauses 2 and 3 above apply to all of the information disclosed by the Discloser to the Recipient, regardless of the way or form in which it is disclosed or recorded but they do not apply to:

- a) any information which is or in future comes into the public domain (unless as a result of the breach of this Agreement); or
 - b) any information which is already known to the Recipient and which was not subject to any obligation of confidence before it was disclosed to the Recipient by the Discloser.
5. Nothing in this Agreement will prevent the Recipient from making any disclosure of the Confidential Information required by law or by any competent authority.
 6. The Recipient will, on request from the Discloser, return all copies and records of the Confidential Information to the Discloser and will not retain any copies or records of the Confidential Information.
 7. Neither this Agreement nor the supply of any information grants the Recipient any licence, interest or right in respect of any intellectual property rights of the Discloser except the right to copy the Confidential Information solely for the Purpose.
 8. The undertakings in clauses 2 and 3 will continue in force [indefinitely][for [insert number] years from the date of this Agreement].
 9. This Agreement is governed by, and is to be construed in accordance with, English law. The English Courts will have non-exclusive jurisdiction to deal with any dispute which has arisen or may arise out of, or in connection with, this Agreement.

Signatures page ...



Material transfer agreement (MTA)

Recommended for any transfer of biological or chemical material. Material is usually provided for free (in some cases costs covered)

Clear definition / description of:

- Original material.
- Allowed use / research purpose.

Restrictions

What / Who / Where / How long.

Statement about:

- Ownership and NO transfer of any rights
- Related confidential information,
- unmodified derivatives, modifications.
- Filing of inventions by recipient.
- Publications by recipient.
- Warranty, liability and handling of material.

**UC Davis Material Transfer Agreement
for UC Davis Pluripotent JM8 Mouse Embryonic Stem Cell Line
for Not-for-Profit Organizations and Research Institutions**

The Regents of the University of California, as represented by its Davis campus ("UC DAVIS") asks that the RECIPIENT agree to the following before the RECIPIENT receives the Pluripotent JM8 Mouse Embryonic Stem Cell Line ("MATERIALS").

1. The above MATERIAL is the property of UC DAVIS and is made available as a service to the research community.
2. THIS MATERIAL IS NOT FOR USE IN HUMAN SUBJECTS.
3. The MATERIAL will be used for teaching or not-for-profit research purposes only.
4. The MATERIAL will not be further distributed to others without the written consent of UC DAVIS. However, the RECIPIENT may transfer modifications containing the MATERIAL to not-for-profit organizations and research institutions under a material transfer agreement that has terms that are at least as protective of the rights of UC DAVIS as the terms of this Agreement. The RECIPIENT shall refer any request for the MATERIAL to UC DAVIS. To the extent supplies are available, UC DAVIS or UC DAVIS SCIENTIST agree to make the MATERIAL available, under a separate material transfer agreement to other scientists for teaching or not-for-profit research purposes only.
5. The RECIPIENT agrees to acknowledge the source of the MATERIAL in any publications reporting use of it.
6. Any MATERIAL delivered pursuant to this Agreement is understood to be experimental in nature and may have hazardous properties. UC DAVIS MAKES NO REPRESENTATIONS AND EXTENDS NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, THERE ARE NO EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR THAT THE USE OF THE MATERIAL WILL NOT INFRINGE ANY PATENT, COPYRIGHT, TRADEMARK, OR OTHER PROPRIETARY RIGHTS. Unless prohibited by law, RECIPIENT assumes all liability for claims for damages against it by third parties which may arise from the use, storage or disposal of the MATERIAL.
7. The RECIPIENT agrees to use the MATERIAL in compliance with all applicable statutes and regulations.
8. This Agreement may be executed in any number of counterparts, including facsimile or scanned PDF documents. Each such counterpart, facsimile or scanned PDF document shall be deemed an original instrument, and all of such counterparts, together, shall constitute one and the same executed Agreement.

WE ARE NOT ABLE TO CHANGE THE TERMS OF THIS AGREEMENT.



3. Strength of the technology

- Uniqueness of the invention
- Emerging alternatives
- Novelty of the invention
- Breadth/ Edge of technology
- Applicability of technology (integration)
- Legislative issues
- Standards
- Environmental Impact

You may need impartial experts to address these issues



4. Commercial Potential and Value

- Ability to identify market **need**
- Potential market **size**
- Availability of market contacts
- Feedback from industry contacts
- Market **Location**
- Market Place **Competition**
- Ability to compete in the market place
- Time to Market
- Regulations
- Significance
- Licensing Barriers
- Timeliness... etc....etc

But do not exaggerate with analysis...!

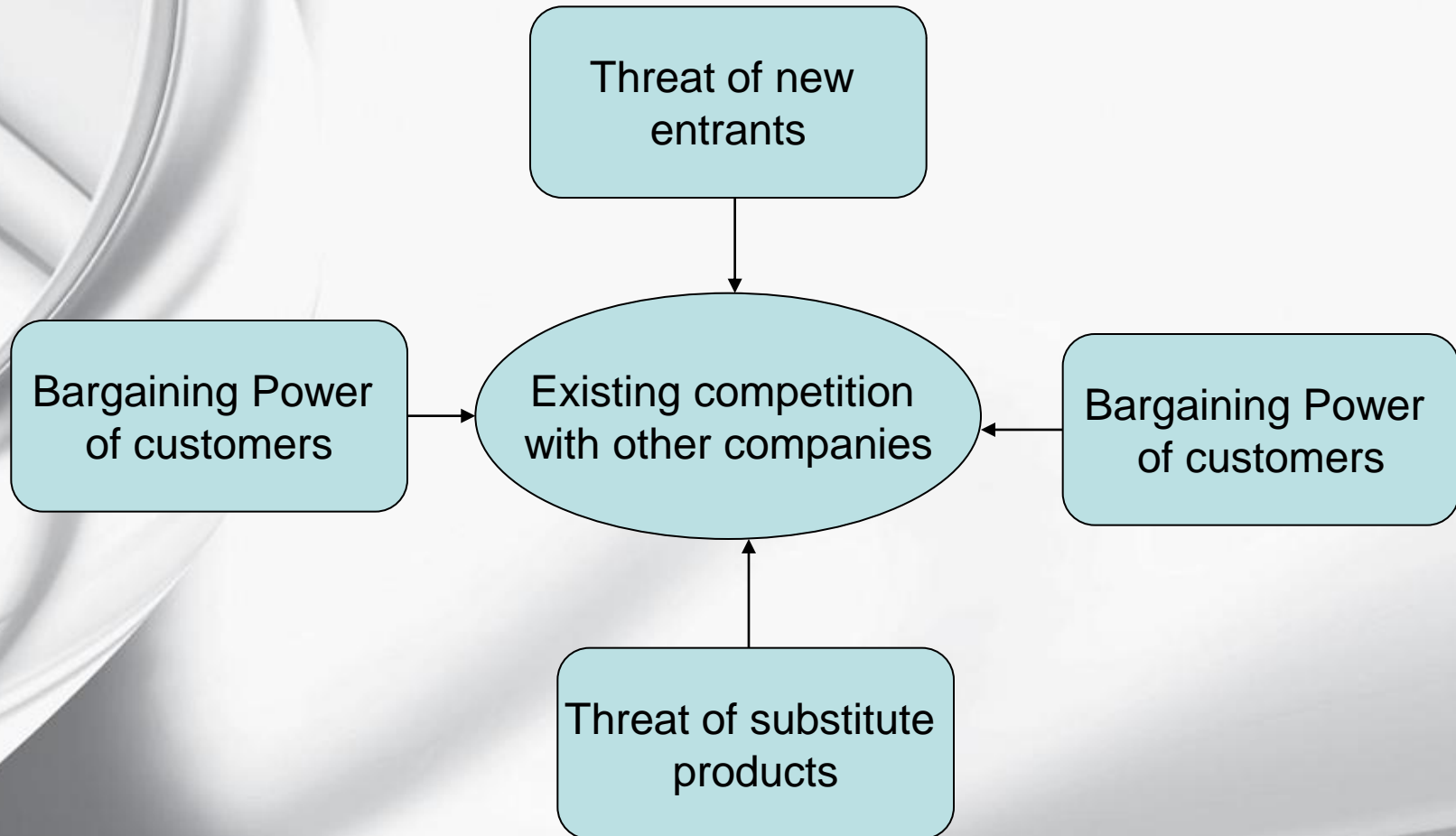


Market Characteristics

- Market Size
- Stage of Development of the market?
 - Growth?
 - Mature / Static
 - Saturated and in Decline?
 - Market Segments - how much of this market you can realistically hope to conquer
 - Competitors
 - Substitute Products
- Market Trends
- Market Drivers
 - P**olitical
 - E**conomic
 - S**ocial
 - T**echnological
 - L**egal
 - E**nvironmental



Business Model – Porter's 5 Forces





Positioning in the market

SWOT analysis

Strengths

Weaknesses

Opportunities

Threats

Comparative “weight” or impact? Mitigation?

4Ps analysis

Product

Place

Price

Promotion

Do your market research! Primary and secondary sources



Market research

- **Secondary, open access to everybody**
 - Trade associations
 - Published studies
 - Government sources
 - Consultant firms, multi-client studies
 - Cost: medium
- **Primary, studies based on**
 - Questionnaire (conjoint analysis),
 - Telephone survey
 - Customer interviews
 - Field work
 - Focus groups
 - Cost: high



5. Stage of development

- **Understanding**
 - Ability to understand the IP
- **Reduction**
 - Simulation/Experimentation has been done
- **Trial History (Medical/ Health Sciences)**
 - certain information required by the regulatory processes has been compiled.
- **Prototypes**
 - The technology demonstration has occurred
- **Production**
 - Amount of scale up needed
- **Financial**
 - Investment needed for development
 - Investment needed for use

Interrelated with the next pillar(Inventors!)



6. Commitment/ Experience of inventors

- Lead Inventor Profile
- Scientific reputation of Group.
- Existence of a Project “Champion”
- Level of support available.
- Existing commercial Links

The importance of this issue is often underestimated



Structured Tools & Methodologies

Methodologies developed by various TT offices

E.g. The Texas TechAssess™ Scorecard: An assessment tool used to organize and communicate the various business aspects that affect the ability to successfully transfer technology.

- Do not blindly apply – be critical – adapt to your needs and to the extent that it is useful

Numerical evaluation sheets

- Help in avoiding missing something we should consider. (useful check lists)
- BUT do not rely just on a number to take a decision!
49% out? 50% in?
- Use spreadsheet analysis to inform not replace decision making.



To summarise...

Good Technology and Market Assessment
Decisions are:

- Not the result of meditation or gambling!



BUT:

- Structured and Balanced (6 pillars)
- Based on informed decision and experience
- Consider multiple view-points

