



REPUBLIC OF TUNISIA
MINISTRY OF HIGHER EDUCATION
AND SCIENTIFIC RESEARCH

Tunisian Republic
Ministry of Higher Education and Scientific Research

National Agency for scientific Research Promotion



Gaps for an appropriate Technology Transfer

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NCP PRIMA

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National Day for Technology Transfer Offices

JRN-BuTT 2018

27 juin , Cité des Sciences

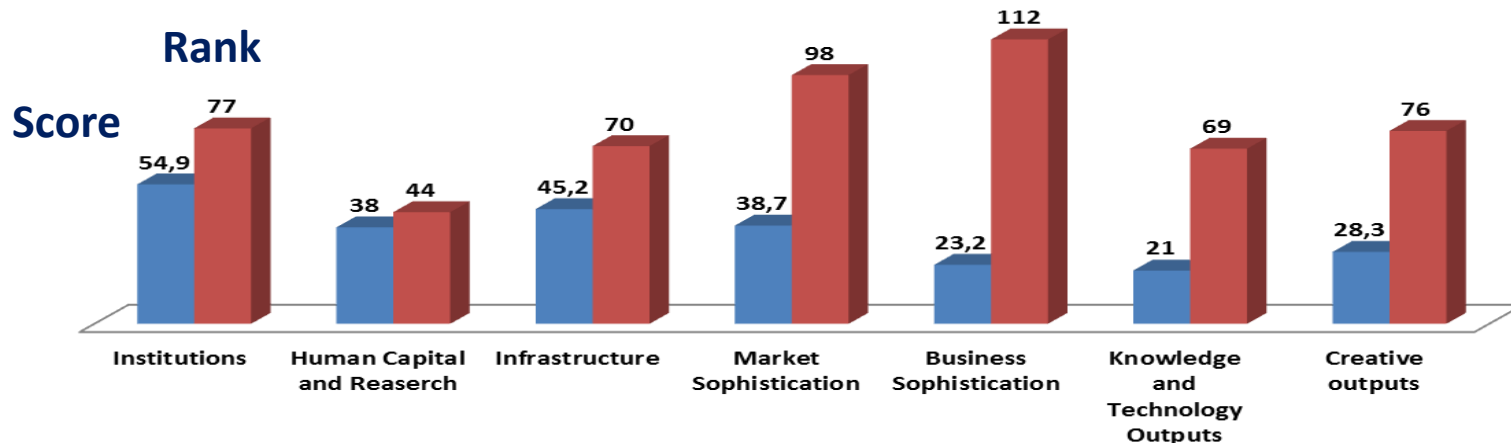
- Introduction: Why we need Tech Transfer ?
- Missions of ANPR to support Technology Transfer
- The Global Innovation Index (GII)
- Gaps for an appropriate Technology Transfer
- The National Scheme of TTO and their distribution
- Main activities to support TTOs
- The process of Tech Transfer
- The Role of TTO in this process
- The competences needed
- The Barrier of Tech Transfer in the universities/compagnies
- Korean recommendations

WHY WE NEED TO TRANSFER OF THE TECHNOLOGY ?

- To improve the competitiveness of enterprises :
- Law of the age of innovation: If you are not innovating, you are disappearing**
- To create Jobs
 - To avoid the appropriation of the innovation by a third party without compensation for the public institution
 - The largest number of people can access to innovation (medicines ...),
 - To participate in the financement of research

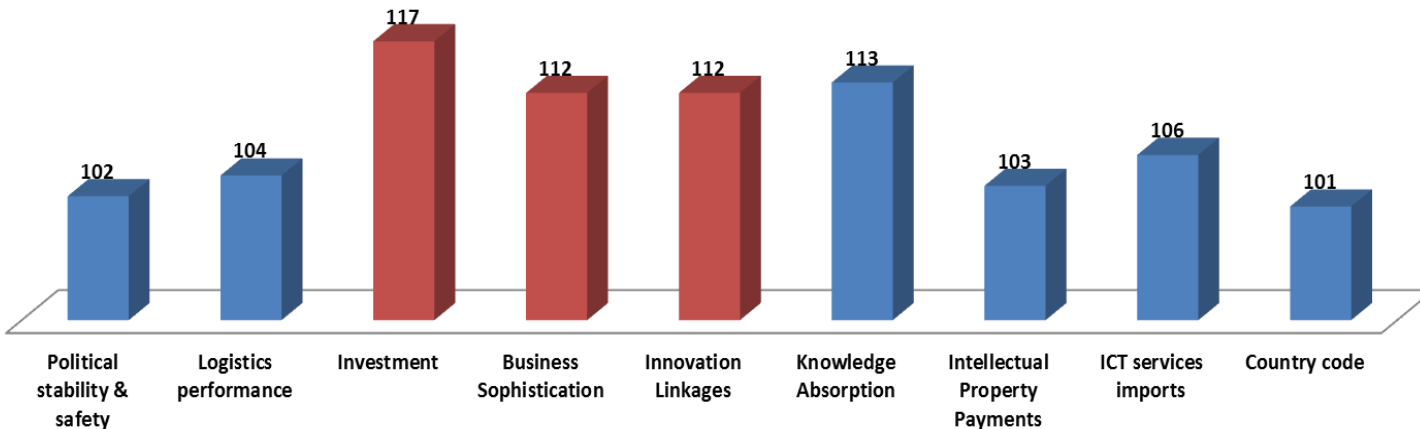
- ❑ Contribute to the implementation of national research programs;
- ❑ **Support the creation of transfer technology offices,**
- ❑ **Attend public structures in the fields of intellectual property, promoting the results of research and technology transfer;**
- ❑ Contribute to the establishment and animation of research consortia,
- ❑ Financial management of research projects,
- ❑ Intermediation between research structures, companies and foreign partners,
- ❑ **Disseminating mechanisms related to the valorisation of research results, technology transfer and the promotion of innovation concept;**
- ❑ **The exploitation of results related to scientific and technological scouting,**
- ❑ Give opinion in which concern the acquisition, the maintenance and the exploitation of heavy scientific equipments .

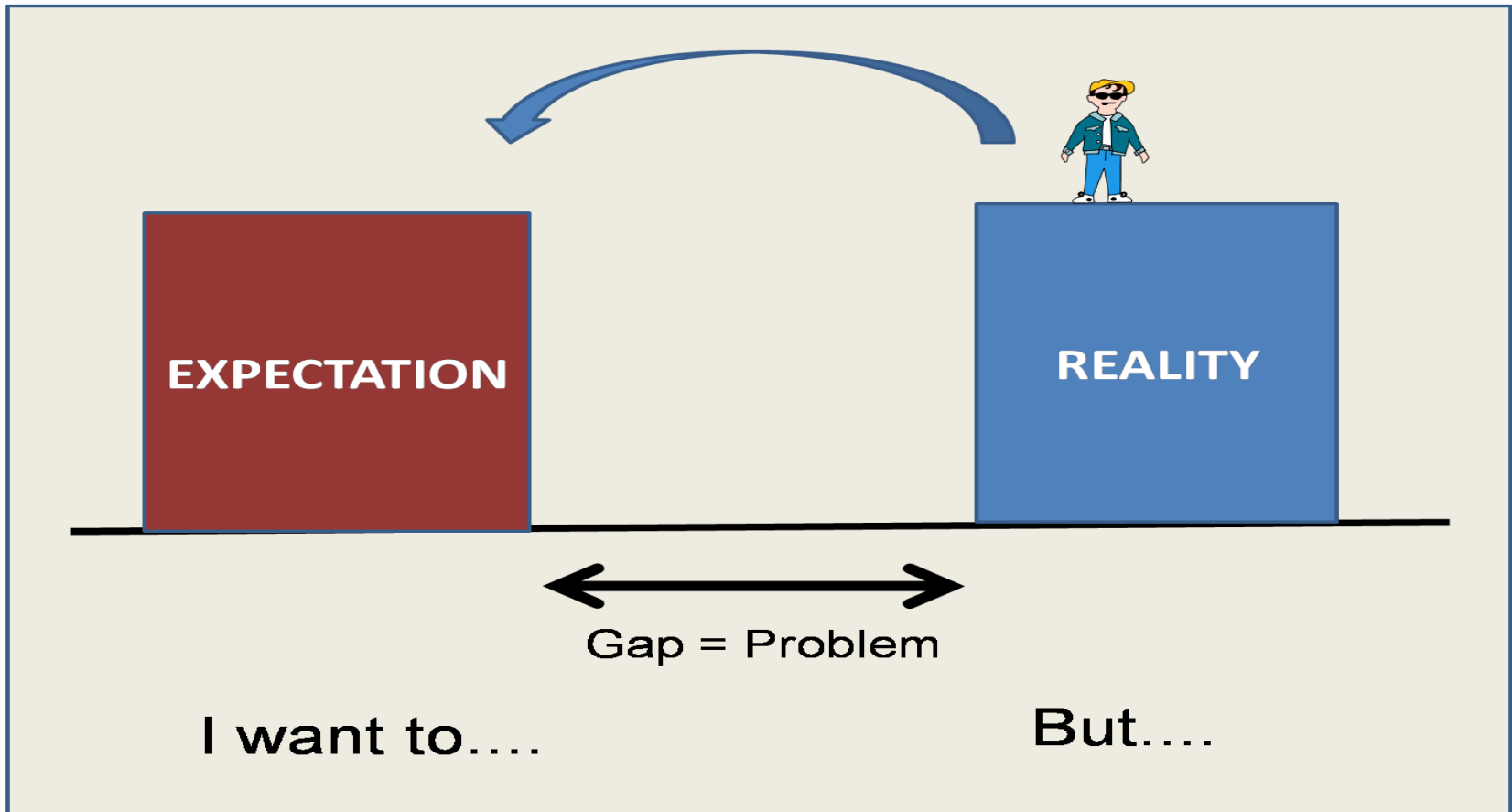
- Main institutionnel actors are present
- Human resources (researchers, ...) are important and qualified
- Funding is based in part on performance
- Scientific production is abundant and with good quality
- Availability of some Innovative Companies
- Availability of A few excellence structure with international position



GII:74/127

- ❑ No sustainability of Technology Transfer System and innovation
- ❑ No legal framework adapted to Technology Transfer
- ❑ No clear vision, No IP policy, No analyse for the Market, Few established clusters,
- ❑ No exploitation of the patent
- ❑ Weak private sector participation in R & I
- ❑ Weak links between research structures and the socio-economic environment





Cultural gap between Reaserch and Industry
Lack of dialogue , ignorance of expectations, difference in
the report time, no trust, prejudices

Networking
No assistance, no orientation,
information

Incentives for researchers

**Complexity of
administrative procedures,
evaluation**

National Strategy

**Sensibilisation, training,
consultancy in IP**

Financements

Real job of TT

Communication problems between research organizations and companies:

- ❑ Partners do not always speak the same language
- ❑ Poor knowledge of industry and research
- ❑ They do not use the same communication media
- ❑ They do not have the same means

Matériaux, Énergie, Environnement
Licensing

UNIVERSITÉ DE LYON
Lyon Science Transfert

Membrane à base de nanotubes de Nitrure de Bore pour la production d'énergie à partir de gradient salin

Les travaux, menés par l'équipe de l'Institut Lumière Matière, ont permis la mise au point d'une nouvelle membrane semi-perméable pour produire de l'énergie propre à partir de la différence de salinité entre l'eau de mer et l'eau douce.




Description détaillée

Utilisation de membranes à base de nanotubes de Nitrure de Bore, en lieu et place des membranes actuelles (semi-perméables en polymère ou autres matériaux) pour la production d'énergie à partir de gradient salin. Ces résultats prouvent qu'il est désormais compétitif de produire de l'énergie, 100% renouvelable, à partir de la différence de concentration en sel entre deux réservoirs.

Ce dispositif permet de générer des puissances de l'ordre de plusieurs milliers de Watts par mètre carré de membrane, pour une densité de nanotubes de 10^{19} cm⁻² soit une performance supérieure aux autres types de conversion d'énergie renouvelable, comme le photovoltaïque.

Avantages / Nouveauté

- Conversion d'énergie 1000 fois supérieure aux membranes existantes
- Non polluant
- Facile à mettre en œuvre
- Économique

Stade de développement

Réalisation d'une démonstration de principe. Programme de développement en cours.

Propriété intellectuelle

Dépôt de demande de brevet en PCT
Date de priorité : 16 Octobre 2012 (FR1259847)

Equipe de Recherche

Lyderic Bocquet, Anne-Laure Bianca, Philippe Poncharal & Alessandro Siria
UMR 5306
UCBL - CNRS

Applications

- Énergie renouvelable via la création d'énergie électrique à partir de solutions salines de concentrations en sel différentes
- Utilisation en micro-batteries ou micro-générateur d'énergie

Documentation

Siria A., Poncharal P., Bianca A.-L., Fulcrand R., Blasé X., Purcell S. T., Bocquet L., Giant osmotic energy conversion measured in a single transmembrane boron nitride nanotube. Nature ; vol. 494 ; pp 455-458, 2013

Type de collaboration

Lyon Science Transfert recherche des partenaires industriels pour la concession de licences de brevet.

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Lyon Science Transfert - Université de Lyon,
Quartier Serrgent Blandin
37, rue du repos 69361 Lyon cedex 07 FRANCE

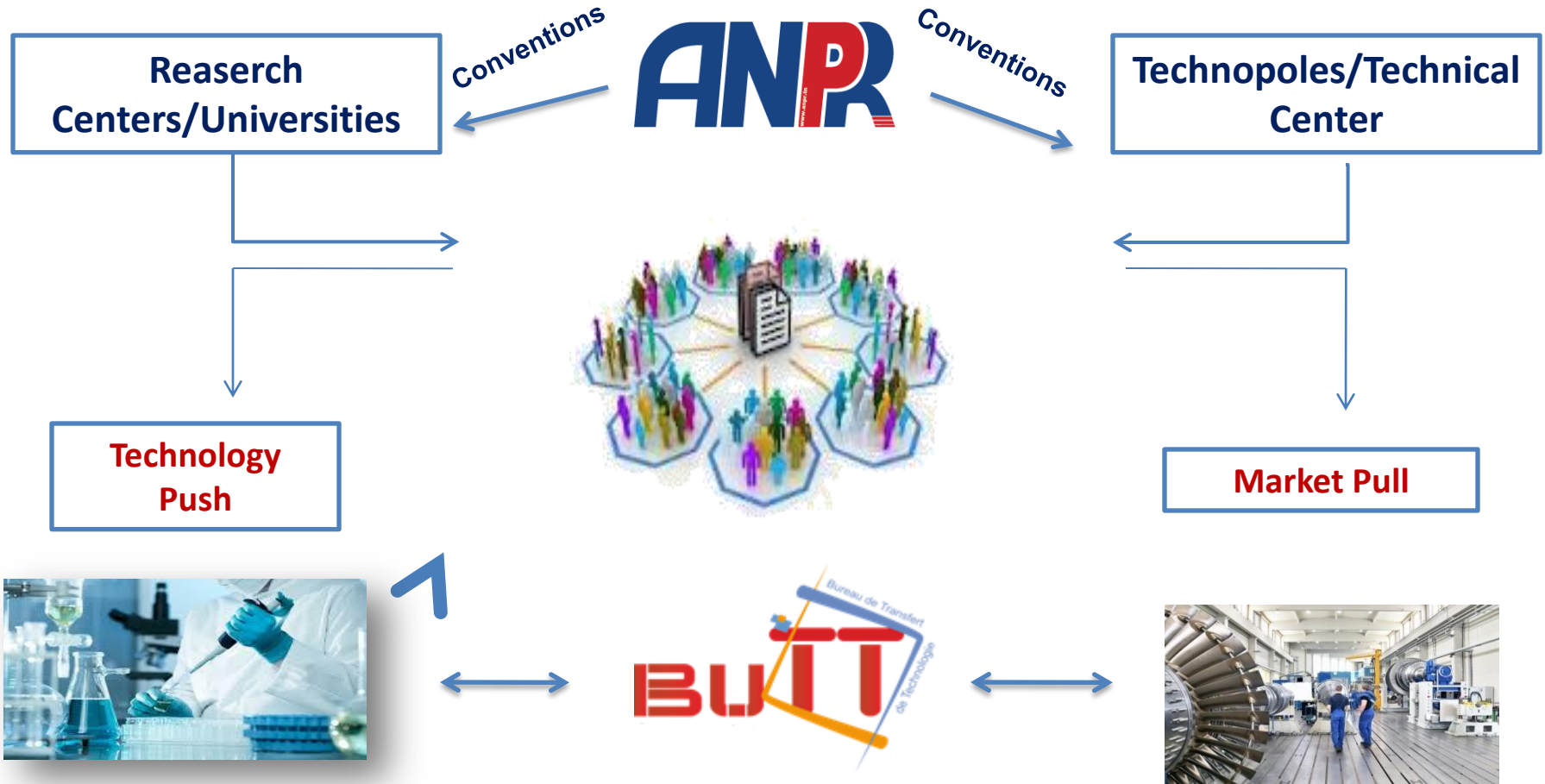
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Little incentive for university researchers to participate in commercialization and technology transfer activities

- Academic culture does not see the transfer of technology and commercialization as a legitimate and legitimate activity.
- SMEs, because of their limited financial resources, have difficulties in accessing technological information,
- Some industrial operators are unable to define precisely their technical needs;

Existing sources of information are not able to meet the specific needs of SMEs

- Companies rarely have qualified technical personnel for the management of transferred technologies
- The equipment available in the companies are obsolete
- The investments to put in place are heavy
- A small market
- An uncertain investment because of the risk



- Reaserch structures
- Specilised unit of valorisation

Compagnies

ANPR, hosts the national office of transfer of technology and federates the activities of the national network of TTOs, by means of **conventions**

1. Tunis University
2. Tunis El-Manar university
3. Carthage university
4. Manouba university
5. Jendouba university
6. Kairouan University
7. Sousse university
8. Monastir university
9. Sfax university
10. Gabes university
11. Gafsa university
12. General Direction of Technological studies
13. Pasteur Institute of Tunis
14. Technopole of Bojr Cedria
15. National Institute of Reaserch and Chimical and Physical analyses
16. Biotechnology Center of Sfax
17. International center des of environnement Technologies of Tunis
18. Institution de Recherche et de **l'Enseignement** Supérieur Agricole
19. National center for nuclear Science and Technology
20. Center of reaserch studies in telecommunications
21. Reaserch center of Water technologies
22. National reaserch center for Materials Sciences
23. Digital Reaserch Center of sfax
24. Center for reaserch in Microelectronics and Nanotechnologies
25. CERTE

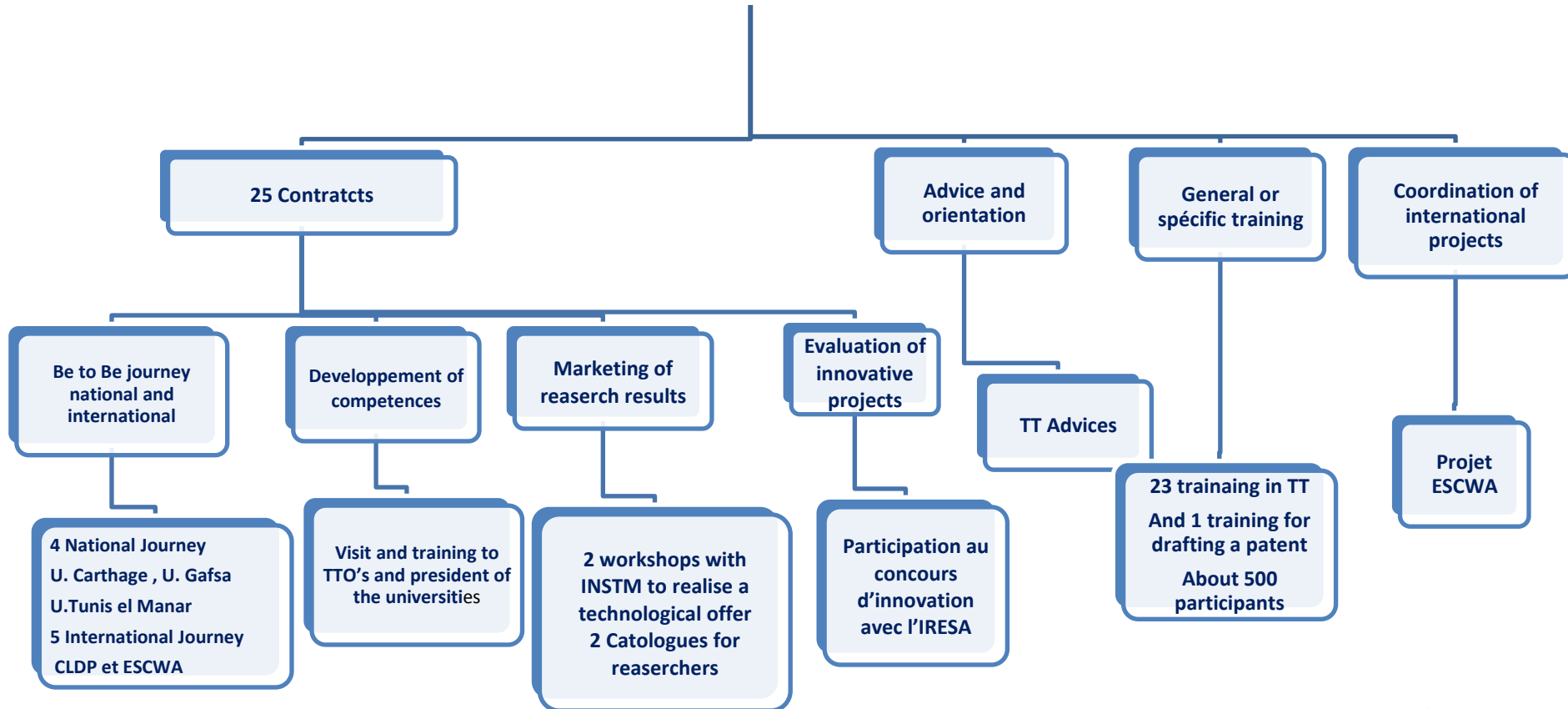


25 Conventions

Universities (11)	Reserch center and Institute (10)	Technopoles	Other structures
<ol style="list-style-type: none"> 1. Tunis University 2. Tunis El-Manar university 3. Carthage university 4. Manouba university 5. Jendouba university 6. Kairouan University 7. Sousse university 8. Monastir university 9. Sfax university 10. Gabes university 11. Gafsa university 	<ol style="list-style-type: none"> 1 . Pasteur Institute of Tunis (IPT) 2. National Institute of Reaserch and Chiminal and Physical analyses (INRAP) 3. Biotechnology Center of Sfax (CBS) 4. National center for nuclear Science and Technology (CNSTN) 5. Center of reaserch studies in telecommunications 6. Reaserch center of Water technologies 7. National Reaserch center for Materials Sciences 8. Digital Reaserch Center of sfax 9. Center of Reaserch in Microelectronics and Nanotechnologies 10. CERTE 	<ol style="list-style-type: none"> 1. Technopole of Borj Cedri 	<ol style="list-style-type: none"> 1. Institution de Recherche et de l'Enseignement Supérieur Agricole (IRESA) 2. General Direction of Technological studies (DGET) 3. International center of Environnement Technologies of Tunis (CITET)

Activities	Descriptif	Beneficiaries	Expectations	Periode	HR and matériel needs	Estimated Budget
Axis of information and Communication						
N°						
Axis of Visibility of the socio-economic environment						
N°						
Axis of Prospecting the Assets of Intellectual Property						
N°						
Axis of valorisation and Transfer of Technology						
N°						

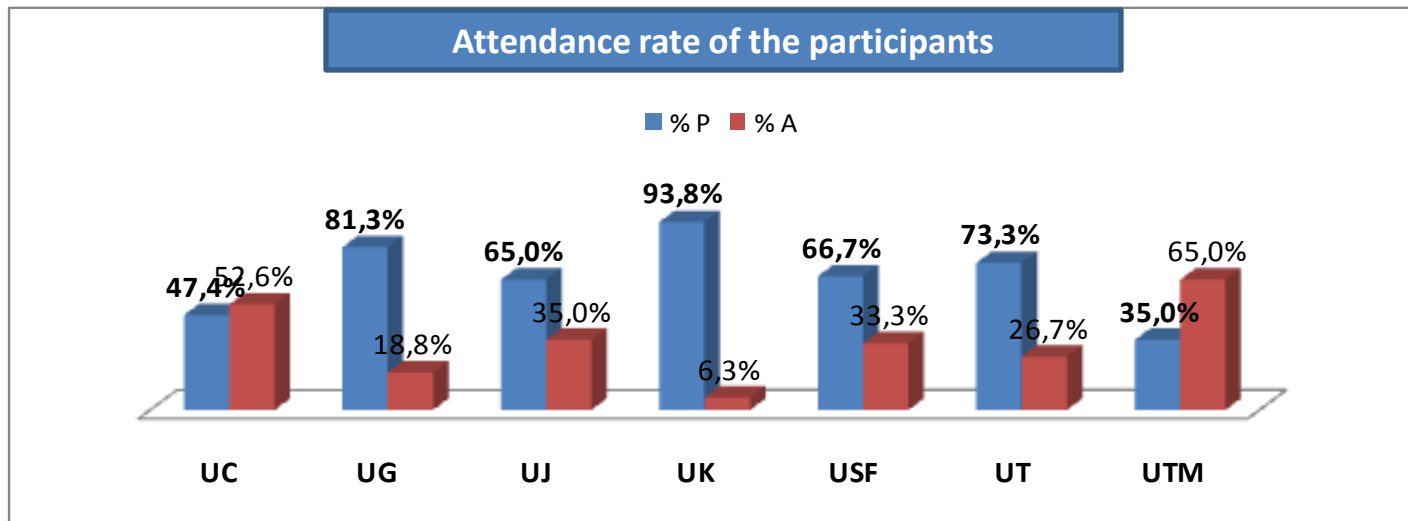
Main activities to support TTOs



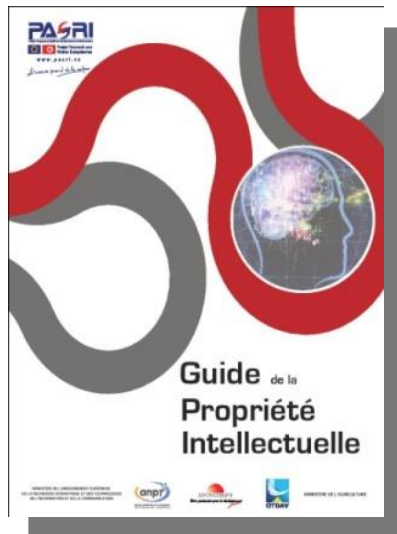
- Technical and financial assistance through annual agreements
- Annual activity plans

Training: about 30 session of training

- Introduction to technology transfer
- Intellectual property assets
- Strategies of technical research of patent Information
- How to draft a patent
- The different types of contracts R/I
- The Management of Technology Transfer



Legal Assistance in intellectual property, contractualisation, etc



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What is the Technology Transfer ?

It's to make the operational technology for the benefit of a third party through:

- IP rights and related know-how
- Implementation support (training, equipment, ...) where applicable, patent, know-how, software etc.

The operations related to the IP title:

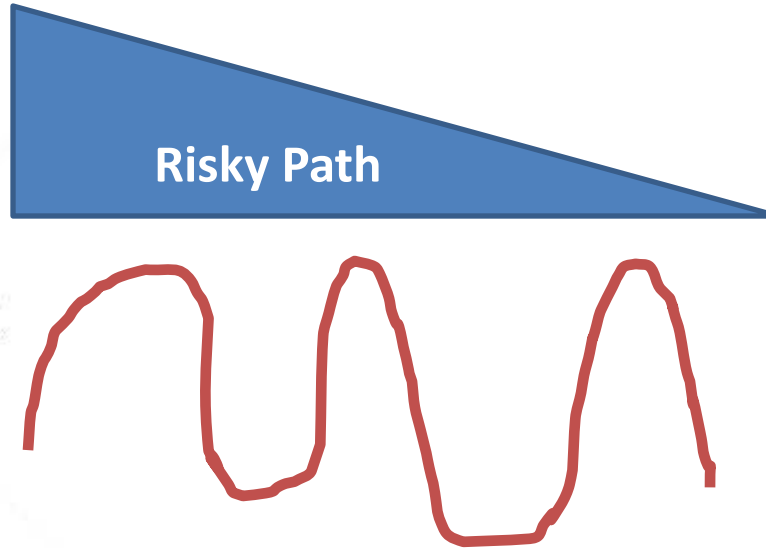
- The license
- Start-up

What is the Technology Transfer ?



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Invention



Partner search, evaluation, negotiation,
contract and transfer



Innovation

Before transformation of an invention into a marketable innovative product, a long and **risky path** is needed.

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What is the Technology Transfer ?



Invention



Innovation

I have a patent
I have a prototype
I have a know how

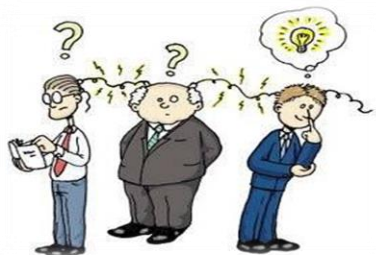
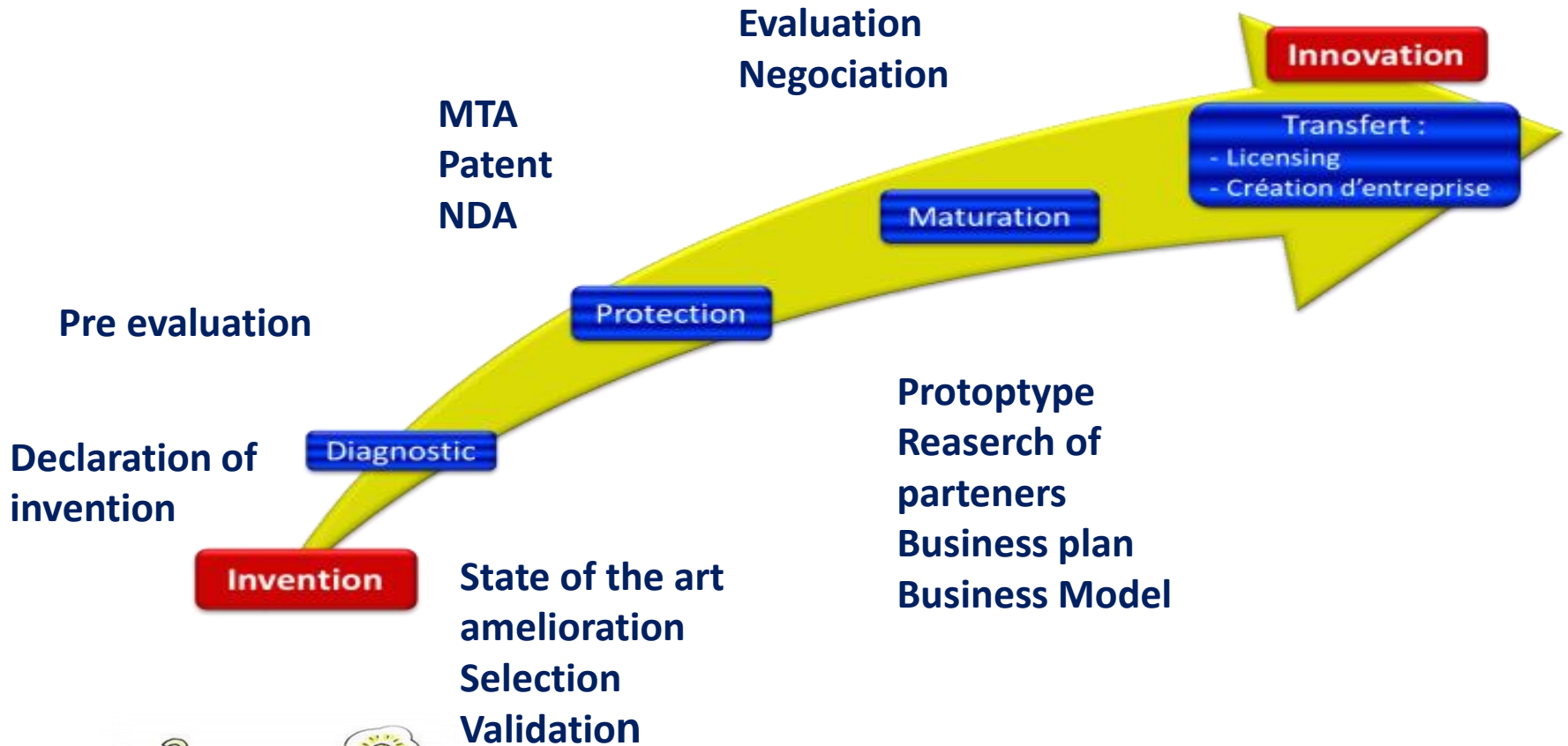
I have a developpement,
Manufacturing,
Marketing capacity

Start-up

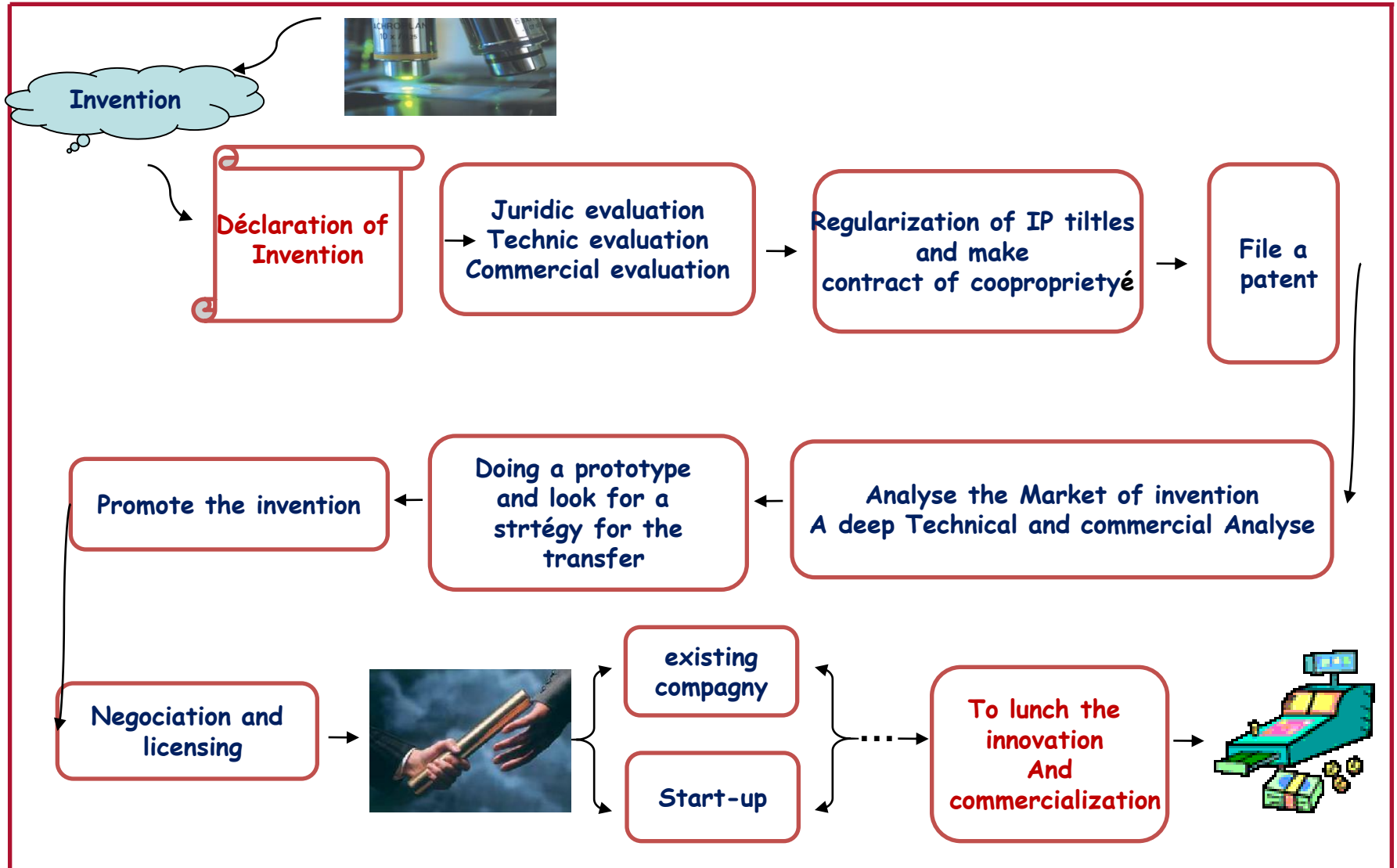


Big compagny

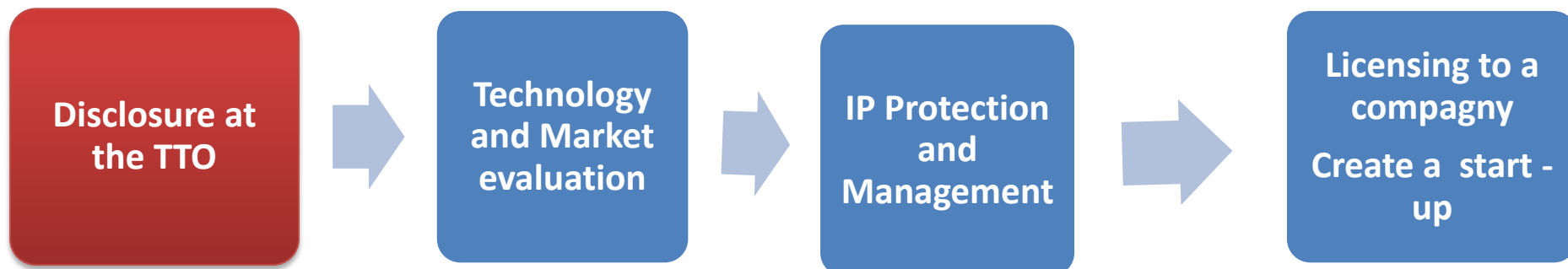
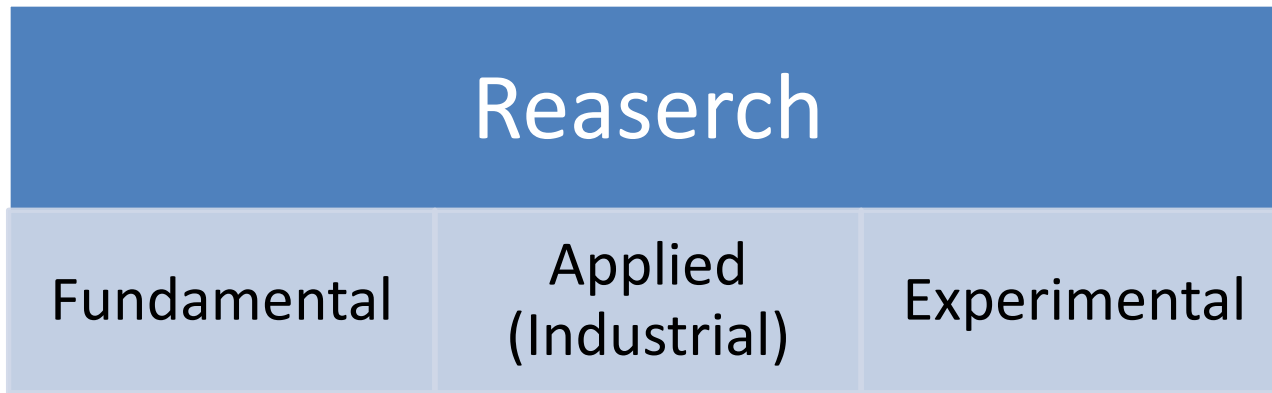
A business arrangement in which an organization gives another permission to manufacture its product or use its process / technology for a specified payment



Process of the Technology Transfer

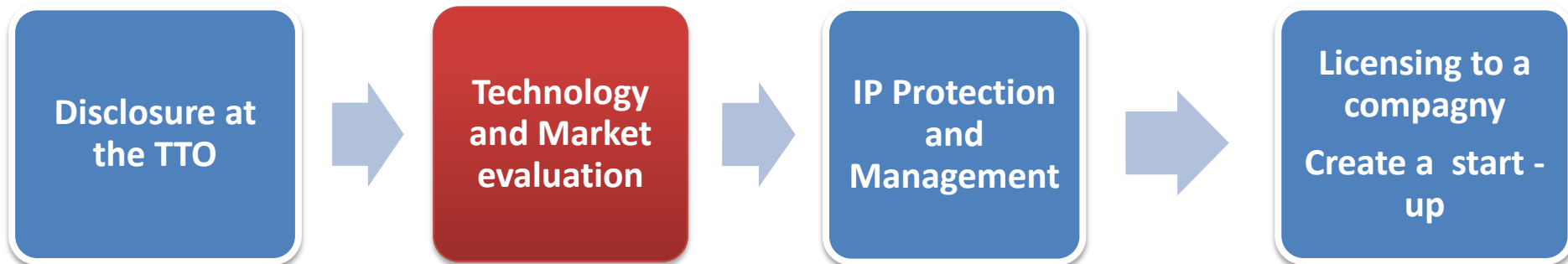
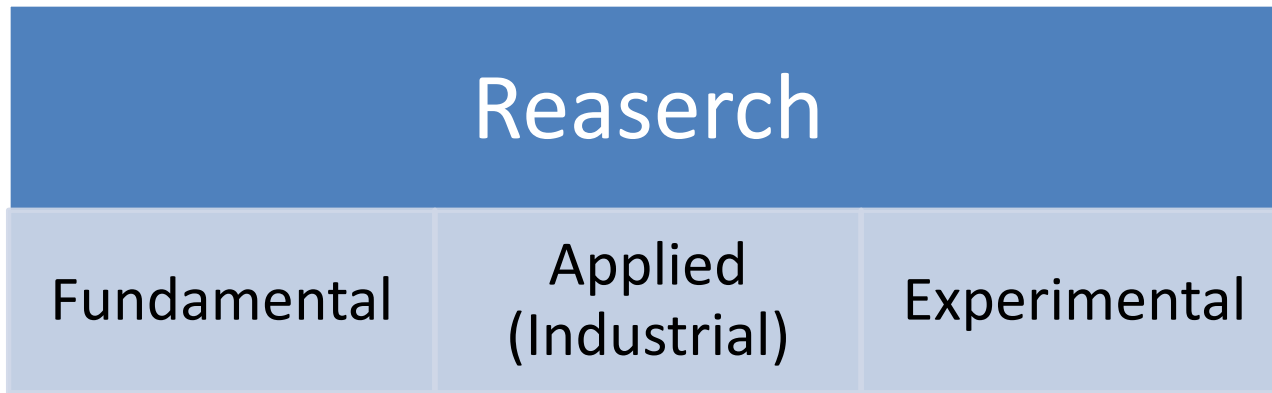


What is the rôle of the TTOs ?



What issues we need to consider ?

- Introduction - What this form is about
- Description of the Invention
- Inventors – Sponsors - Third Parties
- Dates: Publications - Design - Practice
- Commercial Potential

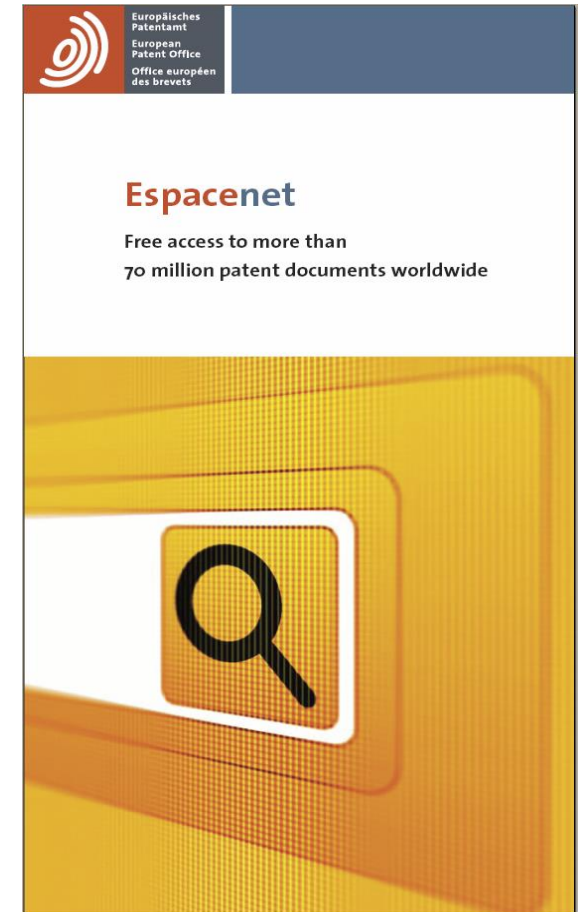


What issues we need to consider ?

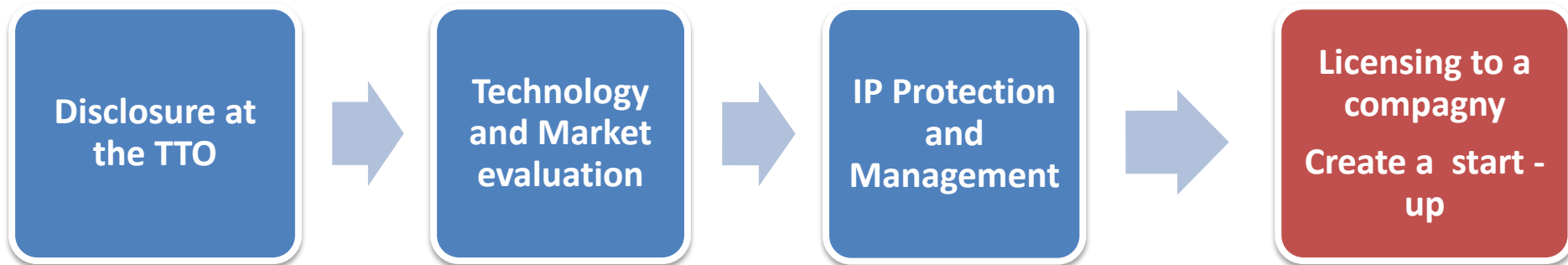
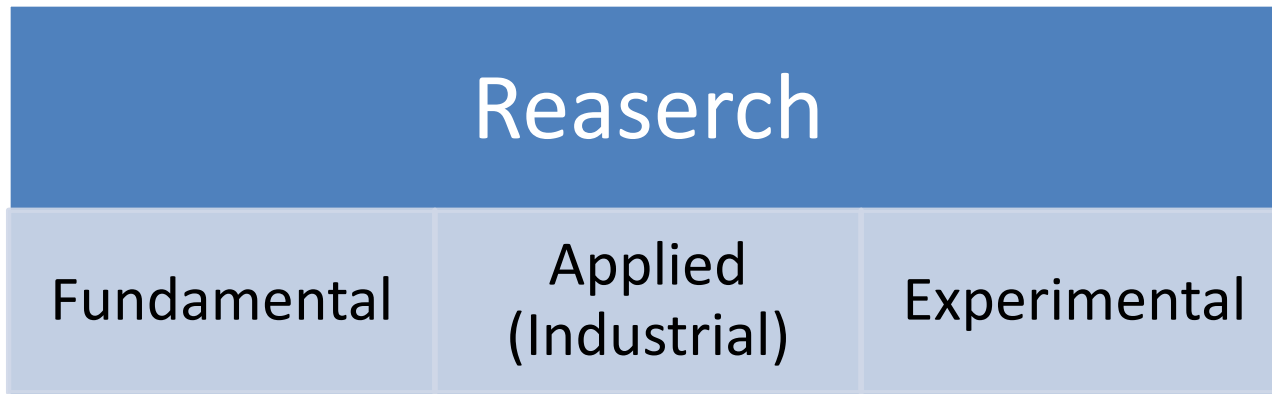
The Inventor is your First Source of Information

- Invention Novelty
- Advantage over State-of-the-Art
- Team Expertise & Commitment
- Associated Know-How

- Patent offices: online service usually is free of
- charge
- Google Patents
- Commercial database providers





- Market Need
- Market Size & Customer Segment
- Competition & Competitive Advantage
- Time to Market
- Revenue Model



Identify Potential Licensees

Result list

Select all
  Compact
  Export (CSV | XLS)
  Download covers (0)
  Print

Approximately **241** results found in the Worldwide database for:
fabric* manufact* in the title or abstract AND **H01S** as the European Classification

1 ▶

Sort by Sort order

1. **FABRICATING ELECTRONIC-PHOTONIC DEVICES HAVING AN ACTIVE LAYER WITH SPHERICAL QUANTUM DOTS**

★	Inventor: SAUER NICK [US] WEIMANN NILS [US] (+1)	Applicant: ALCATEL LUCENT USA INC [US]	EC: B82Y20/00 H01S5/227	IPC: H01S5/32	Publication info: US2011032964 (A1) 2011-02-10	Priority date: 2009-03-04
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2. **MULTIPLE WAVELENGTH LASER ARRAY FABRICATED BY FLIP-CHIP BONDING**

★	Inventor: HOFSTETTER DANIEL DUNNROWICZ CLARENCE J (+3)	Applicant: XEROX CORP	EC: B82Y20/00 H01S5/02 (+1)	IPC: H01S5/00 H01S5/02 H01S5/022 (+5)	Publication info: JP2010183120 (A) 2010-08-19	Priority date: 1998-05-06
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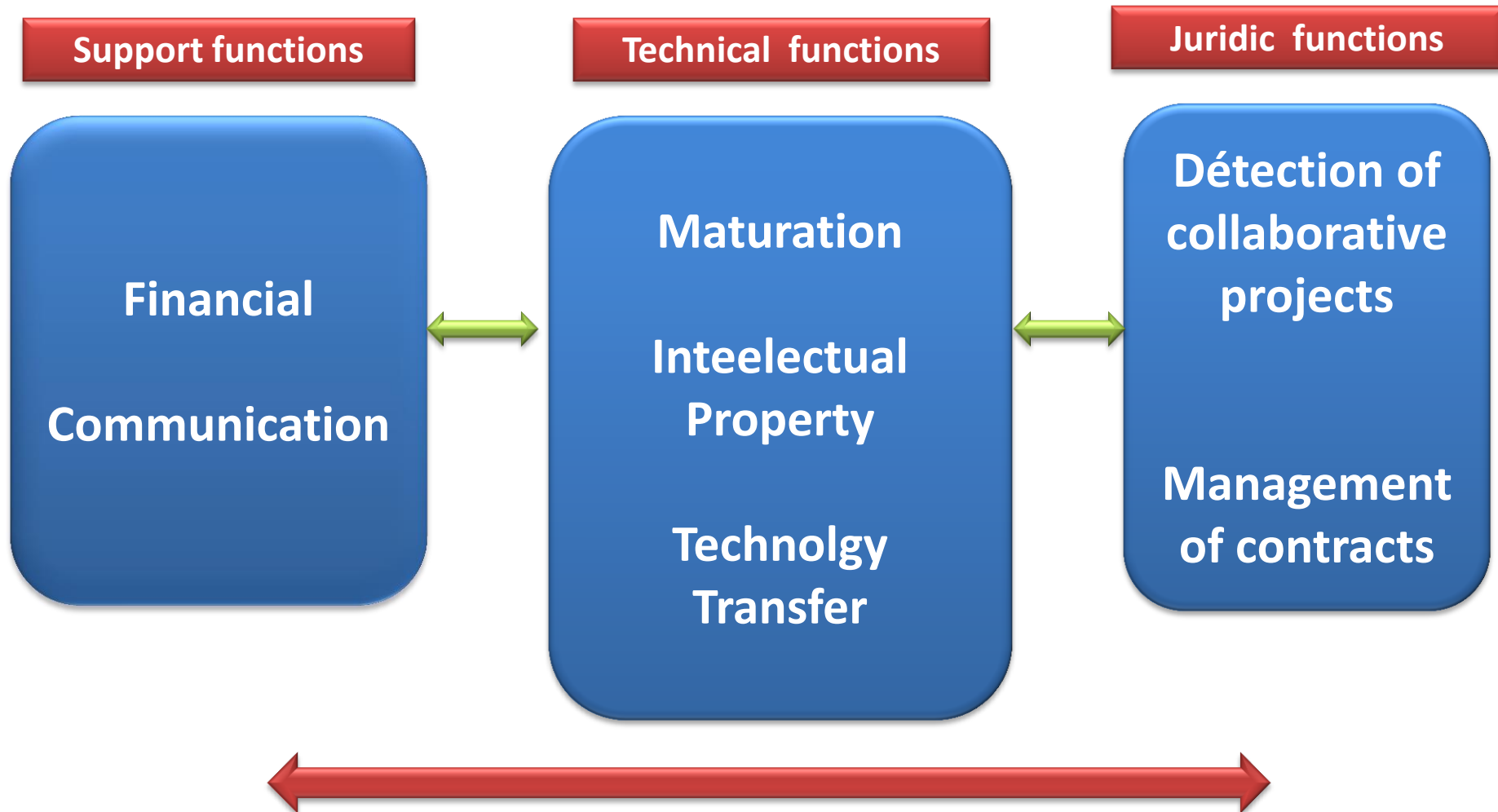
3. **DEFECT-FREE GROUP III - NITRIDE NANOSTRUCTURES AND DEVICES USING PULSED AND NON-PULSED GROWTH TECHNIQUES**

★	Inventor: VARANGIS PETROS M [US] ZHANG LEI [US]	Applicant: NANOCRYSTAL CORP [US] VARANGIS PETROS M [US] (+1)	EC: B82Y20/00 H01L21/02K4A1B1 (+11)	IPC: H01L21/20	Publication info: WO2010022064 (A1) 2010-02-25	Priority date: 2008-08-21
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4. **SELECTIVE AREA METAL BONDING SI-BASED LASER**

★	Inventor: QIN GUOGANG [CN] HONG TAO [CN] (+3)	Applicant:	EC: B82Y20/00 H01S5/022	IPC: H01L21/00 H01L21/04 H01S5/00	Publication info: US2010111128 (A1) 2010-05-06	Priority date: 2008-11-04
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3 pôles de compétence in TT





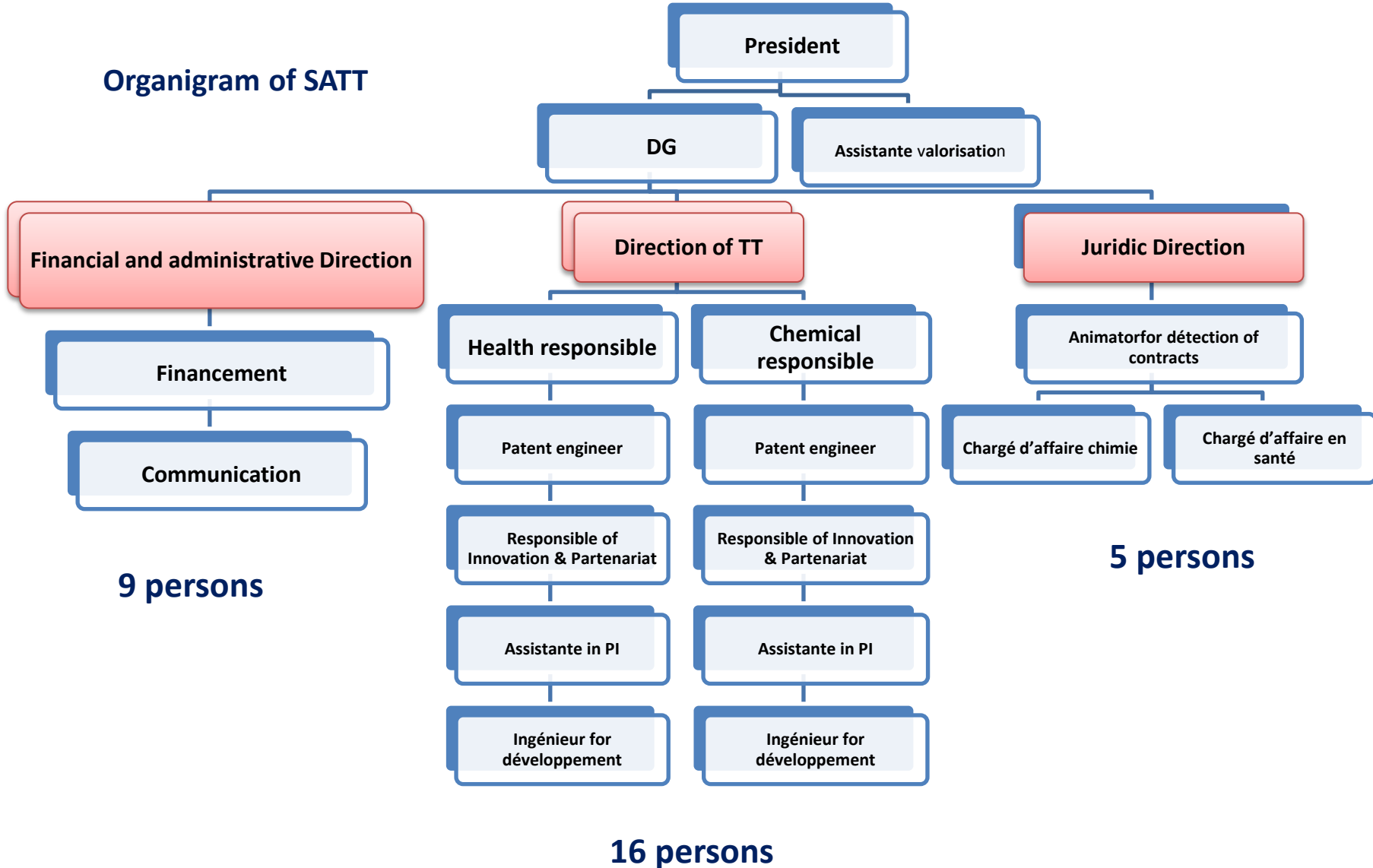
3 pôles of competence in TT: 7 features

TTO's staff skills must have a strong extra-boundary capacities, which means they have to be able to effectively relate and interact with people in a wide range of communities. The most ideal profile for the TT manager is these 7 features:

- 1. Managing Communication, Information and Networking**
- 2. Understanding IPR & Licensing**
- 3. Commercial Activities and Markets**
- 4. New Business Development**
- 5. Negotiating**
- 6. Project management**
- 7. Information analysis**

Technology Transfer is not the affair of one person

Organigram of SATT



The university :

✓ Many responsibilities and the output is always Teaching and publications

Researchers: No motivation to do TT and not all the actors knows how to manage TT

TTOs:

✓ They do TT beside their job Its an interest not an obligation.

✓ Not all the TTOs have the same ability or skills to do TT

✓ Lack of skills in management of TT

President of university:

✓ Changement of the president each 3 years

Visibility:

✓ No database about Projects in the university only publications

Patent: No writers of the patents, no financement, no knowledge about IPR and no follow about our patent with foreign laboratories

- ❑ Lack of awareness – what technologies are available to them
- ❑ Lack of knowledge – If staff of company is lacking technical knowledge, it may not be able to capitalize on the technology being offered in the transfer
- ❑ Lack of funds – company may not be able to afford the development costs of the technology being transferred
- ❑ Lack of common interests – Individuals putting the interests of their own company ahead of the alliance
- ❑ Conflict of interest – Even in collaborations on the technical level or strong, it has been found that collaborations between competing companies doesn't work.

- ❑ Lack of Trust – If little trust exists between companies, it is doomed to fail
 - ❑ Poor communications – Fail to keep each abreast on everything relevant to the collaboration, activities, thoughts, processes, goals, direction of venture
 - ❑ Lack of infrastructure – company may lack equipment and facility in infrastructure to take on the transfer
- Over-committed – The company may be over-committed on current projects and simply lacks the time needed for success.

- ❑ Technical Problems – which are generally overcome, but which add time and money and frustration
 - ❑ Resource Limitation – Poor budget control
 - ❑ Change in Project's Structure – Loss of key members or loss of partner
- Organizational Problems – due to a partner losing or changing interest in the technological side.

- A concrete government initiative for the TT
- Establishment of appropriate institutions
- HR development from primary, secondary and university
- Minimize Gap between planning and implementation
- Important decision for choosing national priorities
- Concrete Policy for TT: Objectives, Vision
- Boosting Business: Close Collaboration with Businesses
- What are the technologies to adopt to advance the Tunisian economy?
- Diagnosis of the recoverable potential
- Project Mapping
- R & D programs
- Clear action plans

MANY THANKS FOR YOUR ATTENTION

