UNIVERSITY POLICY AND INTELLECTUAL PROPERTY FOR COMMERCIALIZATION OF UNIVERSITY RESEARCH

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Presentation Overview

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II. University Intellectual Property (IP) Policy

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I. Introduction

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U.S. universities are leading in innovation development and commercialization

"Possibly the most inspired piece of legislation to be enacted in America over the past half-century was the Bayh-Dole act of 1980."

"Innovation's Golden Goose"
The Economist
12 December 2002

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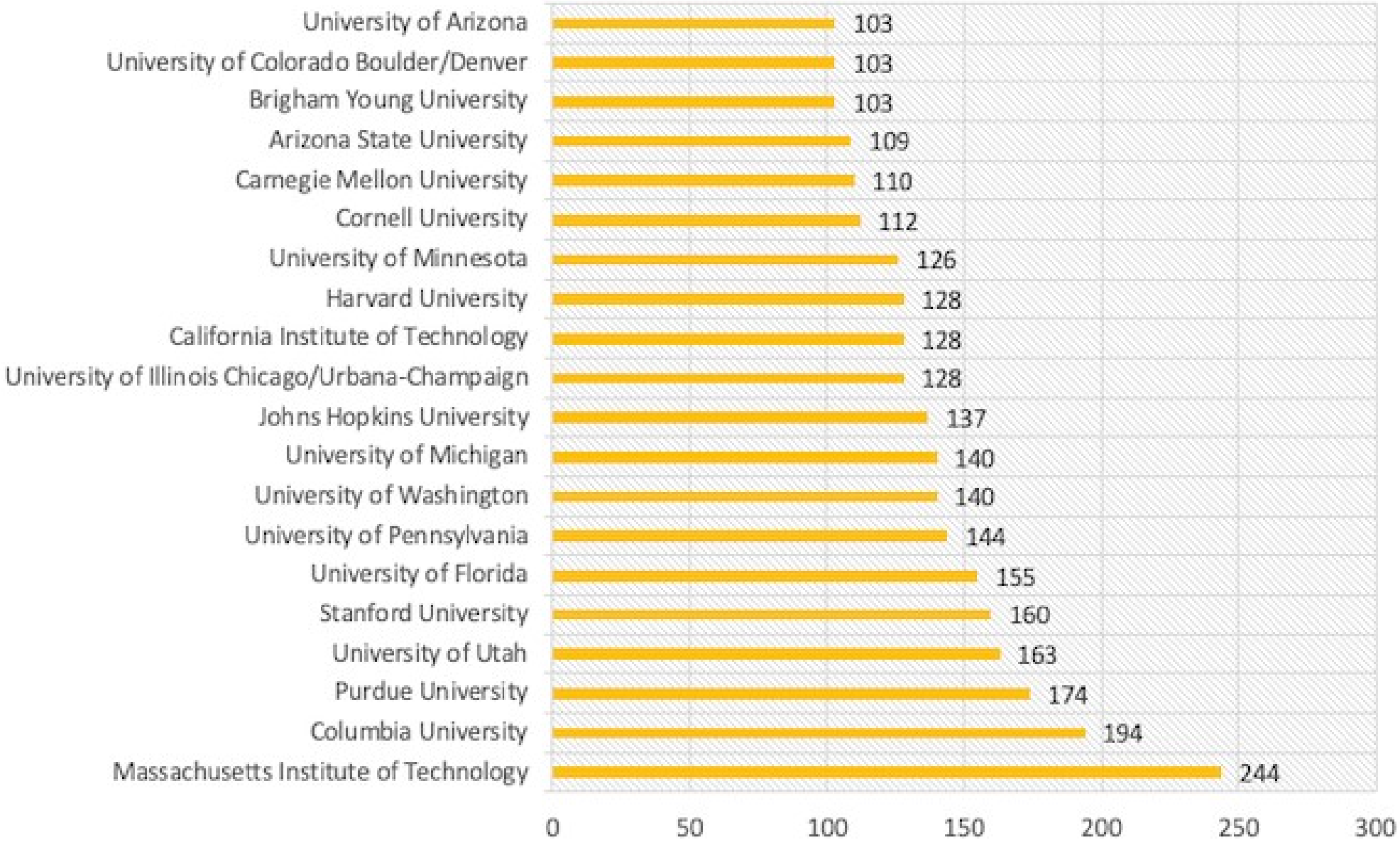
Patenting power

US-based institutions took first and second place by patents filed in 2020, with Chinese universities making up the other top five universities.

		Institution	2019	2020
1		University of California	470	559
2		Massachussetts Institute of Technology	230	269
3		Shenzhen University	247	252
4		Tsinghua University	265	231
5		Zhejiang University	69	209
6		University of Texas system	161	184
7		Dalian University of Technology	141	159
8		South China University of Technology	165	157
9		Stanford University	132	154
10		University of Tokyo	119	149

Source: WIPO

Top 20 Universities with most Initiated Startups 2008-2018



II. University Intellectual Property Policy

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Important documents regulating education, research and innovation

- **National strategies and laws**

✓ Strategies and laws regulating education, science, innovation and IP

- **University policy documents**

✓ Strategy for University development

✓ IP policy

✓ Strategy for innovation, TT and commercialization

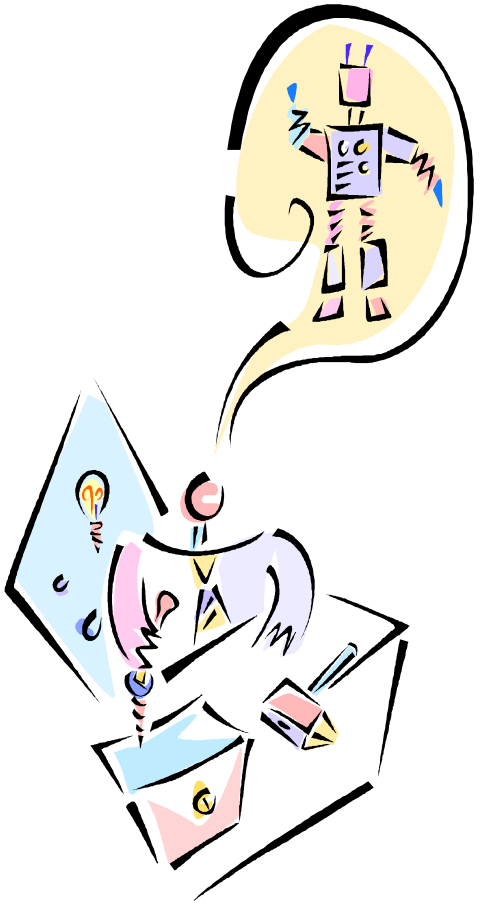
IP Strategy

- Very important document; it should be aligned with the University Development Strategy
- Platform for development and innovation protection
- Intellectual property (new methods, new process, patents – technology transfer and commercialization
- Defines University's TT and Commercialization model

III. Protection of Intellectual Property

Intellectual property

- Involves creativity
  - Invention
  - Art work
  - Symbol, name, design, photo
- IP can be protected by
  - Patent
  - Copyright ©
  - Trademarks ® ™
  - Trade secret



IV. Patents (National and International)

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University mission and patents

- **University primary missions:**
  - Education, research and knowledge transfer

- **Patents at University** :
  - Embryonic – require market and value research (feasibility/market unknown)
  - Further development requires investment which is of high risk for industry

- **Intellectual property (IP)**- could be used as the incentive for Investor (high risk investment)

What is a Patent?

- A legal protection which gives an inventor the right to exclude others from performing certain activity in the country of issuance
- Sanctioned monopoly for a set number of years in exchange for disclosure to the public
- Does not give the inventor the right to make, use or sell the patented invention

Why Patent an Invention?

- Source of recognition for the inventor(s)
- Incentive to develop a commercial product
  - License to an existing company
  - Start up a new company
- Protection against imitators and competitors

What Can Be Patented?

- **Must be:**
  - Novel: not previously known or used by others
  - Useful: have a known use or produce a concrete and tangible results

- **Can not be:**
  - Idea
  - Law of Nature
  - Scientific Principle

Types of Patents

- **Utility Patent (functional)**
  - Any new and useful **process, machine, manufacture, or composition of matter** (or any new and useful improvements thereof)
  - One invention can be protected through multiple legal categories e.g. a chemical invention
    - Compound
    - Pharmaceutical formulation
- **Design Patent (ornamental)**
  - Any new, original, and ornamental design for an article of manufacture
- **Plant Patent**
  - Any new and distinct, invented or discovered asexually reproduced plants

Patent protection is specially important in biotechnology and pharmaceutical industry

- Long development
- High financial investment
- Complexity of clinical testing
- High risk of failure

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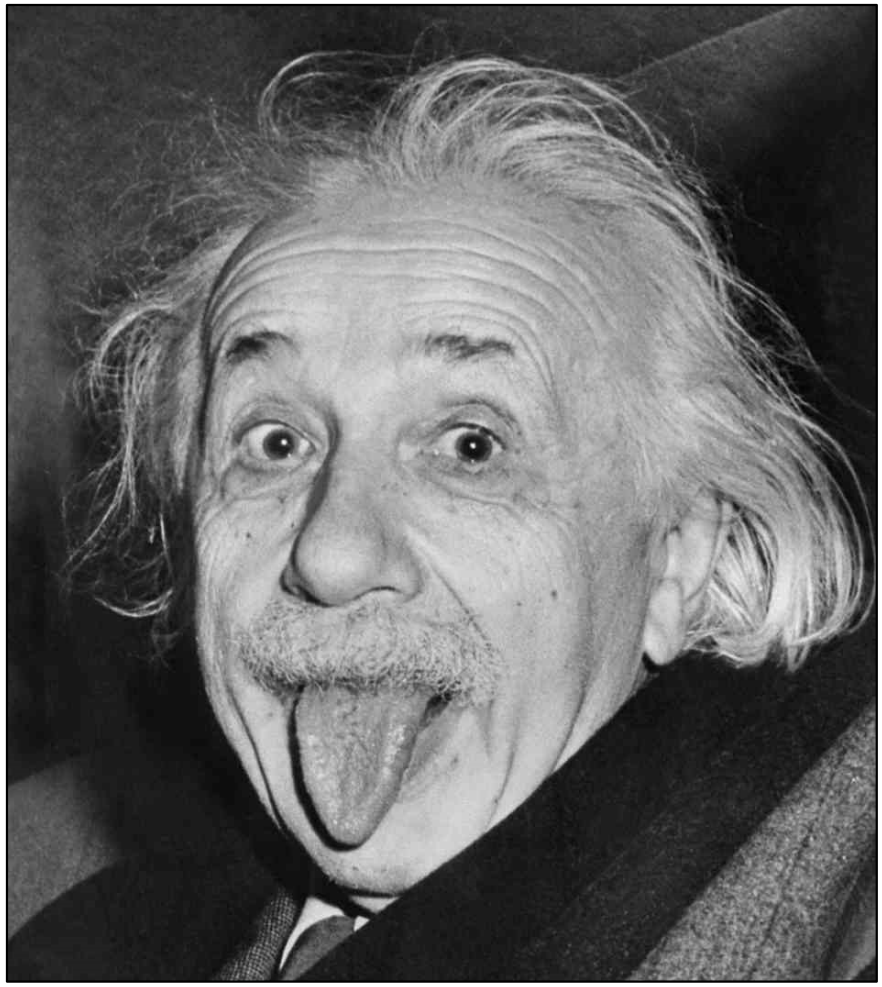
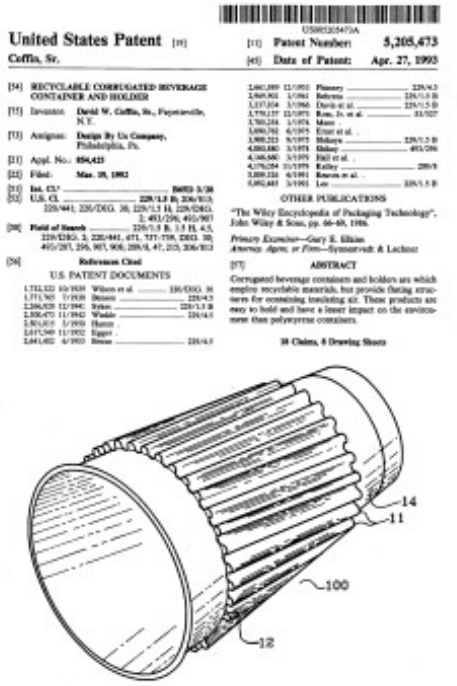
Unpatentable Subject Matter

- Laws of Nature
- Physical phenomena
- Abstract ideas
- Inventions solely used in atomic weapons
- Information in the public domain*



What are the Parts of a Patent?

- Abstract
- Background of the Invention
- Summary of the Invention
- Figures with brief descriptions
- Detailed description or “specification”
  - Fully discloses what the invention is
  - How it is made?
  - How it can be used?
- Claim(s): sets the legal boundaries of protection
  - Independent
  - Dependent


United States Patent [19]
Coffin, Sr.

[11] Patent Number: 5,205,473
[45] Date of Patent: Apr. 27, 1993

[54] RECYCLABLE CORRUGATED BEVERAGE CONTAINER AND HOLDER

OTHER PUBLICATIONS

"The Wiley Encyclopedia of Packaging Technology", John Wiley & Sons, pp. 66-69, 1986.

ABSTRACT

14
11
100
12

What rights does a patent provide?

- A patent provides exclusionary rights
  - The **right to exclude others** from making, using, selling, or importing the patented invention for a limited time (limited monopoly)
  - The rights are granted in exchange for **full disclosure** of the details of the invention
  - The rights are **NOT affirmative**

- Term is 20 years from the filing date

Patents use

- **Patent strategy may be:**
  - Defensive - no intention of developing the invention, main interest: preventing others from doing so.
  - Dominating - plan to use the technology,
  - Licensing purposes (in/out/cross)- individuals/institutions that do not intend to manufacture the invention themselves, transfer the rights for development and production to a third party
  - Other purposes (profit centers, aggregators, “trolls”)

V. Patenting Process

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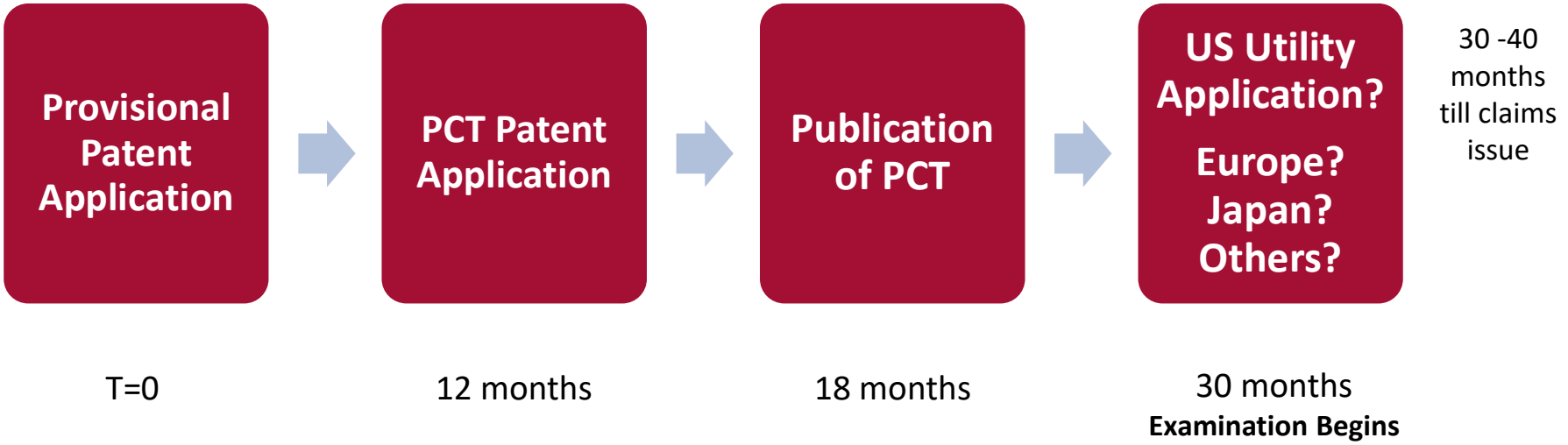
The Patenting Process

- Once Report of Invention (ROI) filed, TTO will work with inventor to asses
  - Patentability (including enablement, prior art, public disclosures)
  - Market and commercial potential
  - Ability to license (to existing company or start up)
  - Ability to detect infringement and/or enforce patent

- Typically filling path…



Patentability Hurdles and Prior Art

- Prior art – Knowledge or information existing (and publicly available at the time of invention)
- Claims may not cover what is found in the prior art
- Prior art includes…
  - Presentations
  - Publications
  - Databases in public domain
  - Website content (including tweets, videos, etc.)
  - Theses
  - Patents
  - Sales/Offers for sale

Public Disclosures

- **U.S. Patent by Inventor Danica Ramljak**
- **Methods and compositions for treating cancer**
- **Patent number:** 7371776
- **Filed:** January 29, 2005
- **Issued:** May 13, 2008
- **Inventors:** Danica Ramljak, Leo J. Romanczyk, Jr., Robert B. Dickson
- **Methods and compositions for treating cancer**
- **Application number:** 20050171029
- **Filed:** January 29, 2005
- **Issued:** August 4, 2005

MOLECULAR CANCER THERAPEUTICS

Article

Pentameric procyanidin from *Theobroma cacao* selectively inhibits growth of human breast cancer cells

Danica Ramljak, Leo J. Romanczyk, Linda J. Metheny-Barlow, Nicole Thompson, Vladimir Knezevic, Mikhail Galperin, Arun Ramesh, and Robert B. Dickson

DOI: 10.1158/1535-7163.MCT-04-0286 Published April 2005

April 2005
Volume 4, Issue 4
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Abstract

VI. University Technology Transfer

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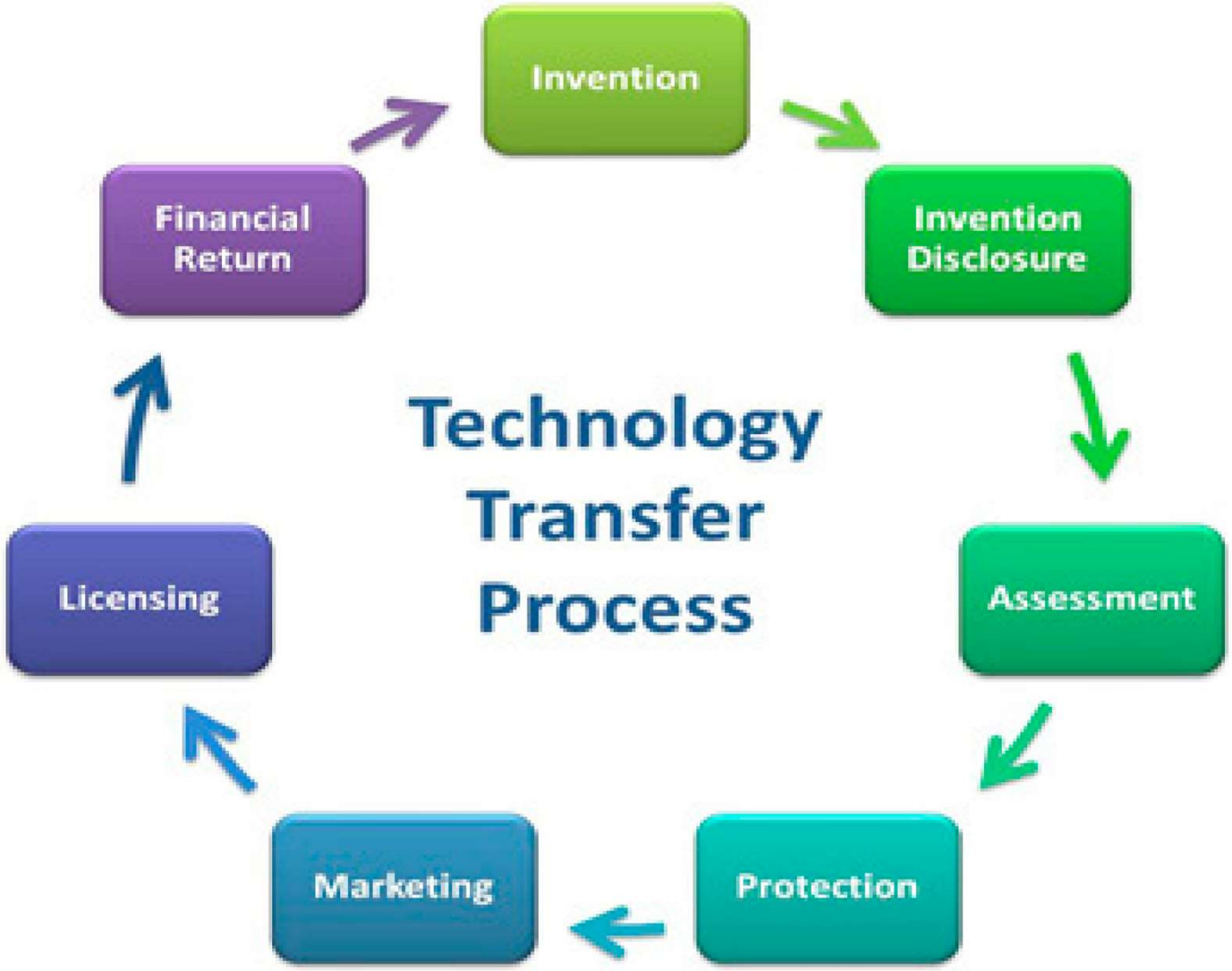
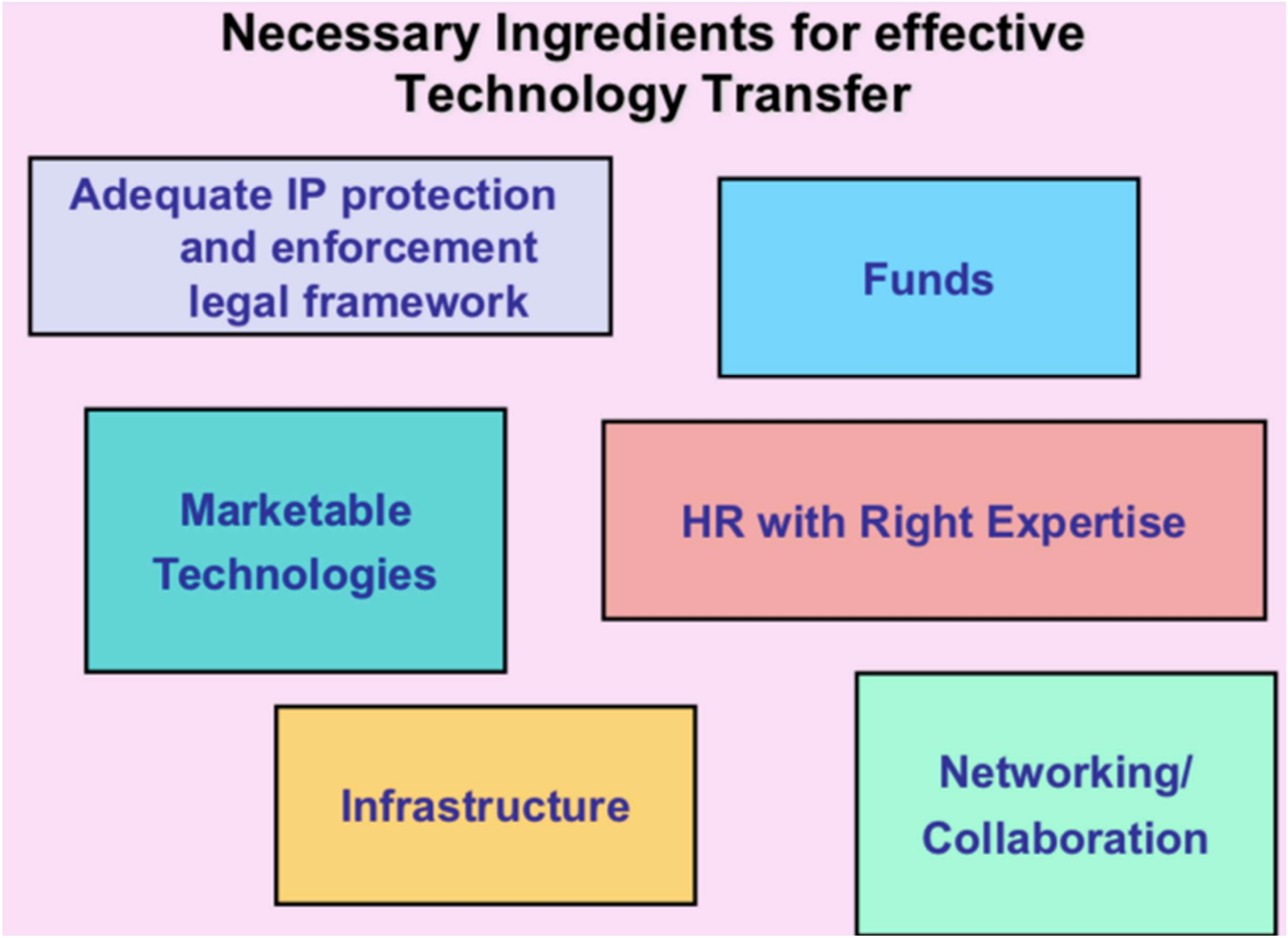
University technology transfer office



Necessary Ingredients for effective Technology Transfer



Purpose of University Technology Transfer

- Participate in innovation process
- Facilitate the commercialization of research results for the public good
- Retain and recruit researchers
- Create closer ties to industry
- Generate income for further research and education
- Promote economic growth
- Social responsibility

VII. Commercialization of IP

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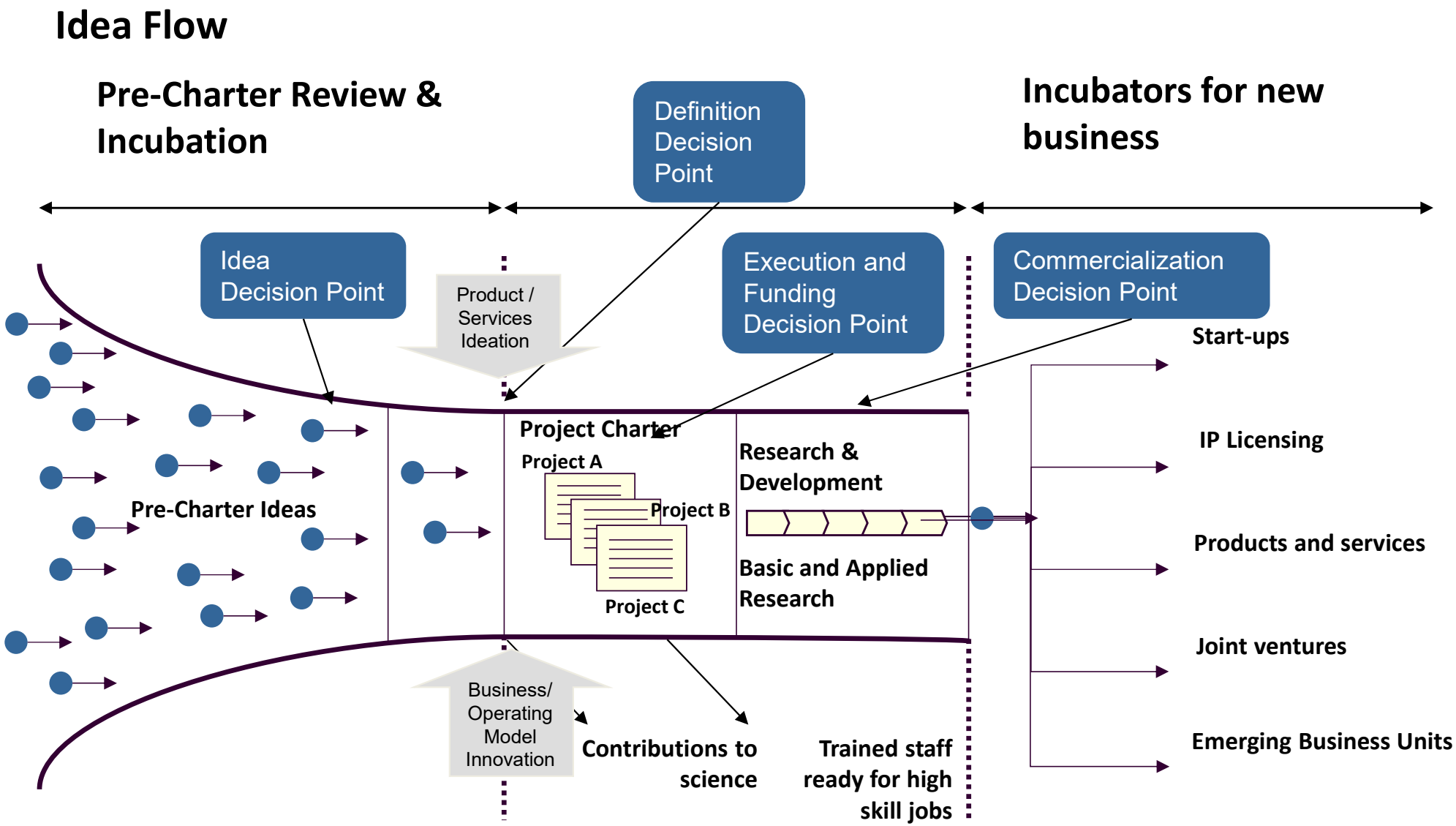
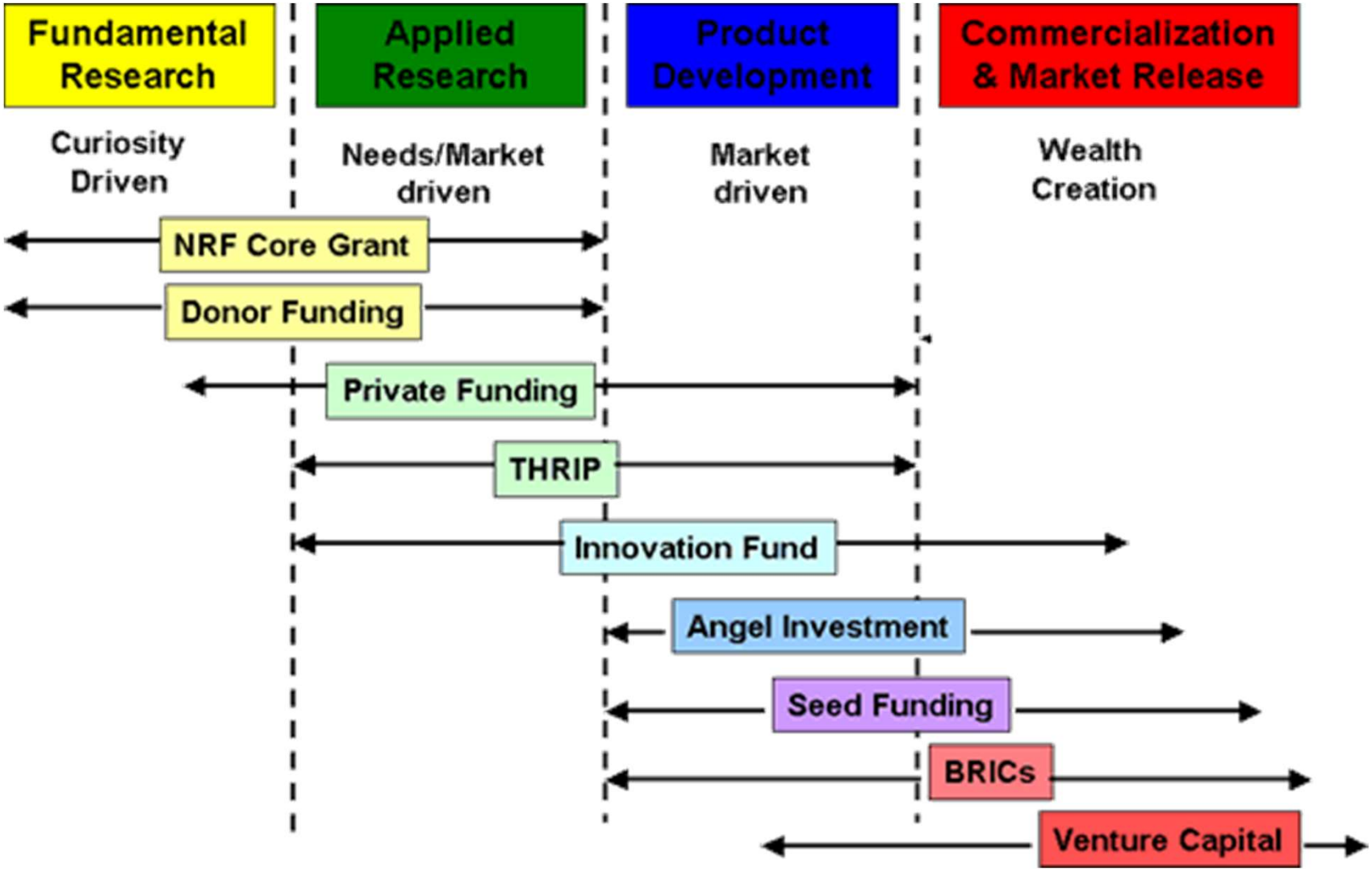
Ten Simple Rules To Commercialize Scientific Research

1. What drives science does not drive business
2. There is no single path to commercialization
3. You must know your rights and those of colleagues
4. Consider the implications of going from public to private
5. Decide how much of yourself you want to give
6. Separate R and D and be realistic
7. The market might not exist at the outset
8. Consider the “want” versus the “need”
9. Make it comprehensible
10. Customers are ultimate peer review

From idea to commercialization



Funding channels apply to the commercialization process (international practice)



THANK YOU!

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