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Intellectual Property and Tech Transfer

INVENTIONS, SOFTWARE, LICENSING, ENTREPRENEURSHIP, COMMERCIALIZATION

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IP Development, Discovery to Impact

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Bringing Research Discoveries to the World

The Role of Tech Transfer Offices

To bring research discoveries to the marketplace to impact the world

Why?

- Benefit society – products on the market, job creation, industry/academia collaboration, train future leaders
- Comply with research agreements
- Comply with laws (*e.g.*, Bayh-Dole Act)
- Yes, license revenue, but mainly to perpetuate the TTO's ability to bring the best ideas to the world

Who does it?

Tech transfer professionals

Tend to be curious, motivated, passionate about technology and science, good at storytelling and relationship building, with knowledge of business, law, and science

Professional organizations:

Association of University Technology Managers (AUTM)
Licensing Executives Society (LES)

A recent presentation from MIT on *The Role of Technology Transfer*: https://www.youtube.com/watch?v=BtnDins-U4g (43 min)

Some careers in IP

- Inventor – a working knowledge of IP is useful in many fields
- Patent Examiner with the USPTO (requires a BA/BS in science or engineering, starts at GS7-9)
- Patent Agent (requires a BA/BS in science or engineering, but not a law degree, “just” pass the patent bar exam)
- IP Attorney (you need a JD, and to pass the patent bar exam)
  - Works in patent prosecution, or patent litigation, copyrights, trademarks, etc
  - Can be with a law firm, or in-house counsel for a company
- Tech transfer professional (usually has an advanced technical degree, MBA, or JD)
  - in academia: Tech Analyst > IP, BusDev, or Licensing Specialist > Sr. Specialist > Director > Assoc Vice Pres
  - in industry: Corporate licensing jobs, can be outbound or inbound or both
- Corporate IP Manager
- Entrepreneur / CEO / CTO – you’ll need a working knowledge of IP, or will need to hire someone who does

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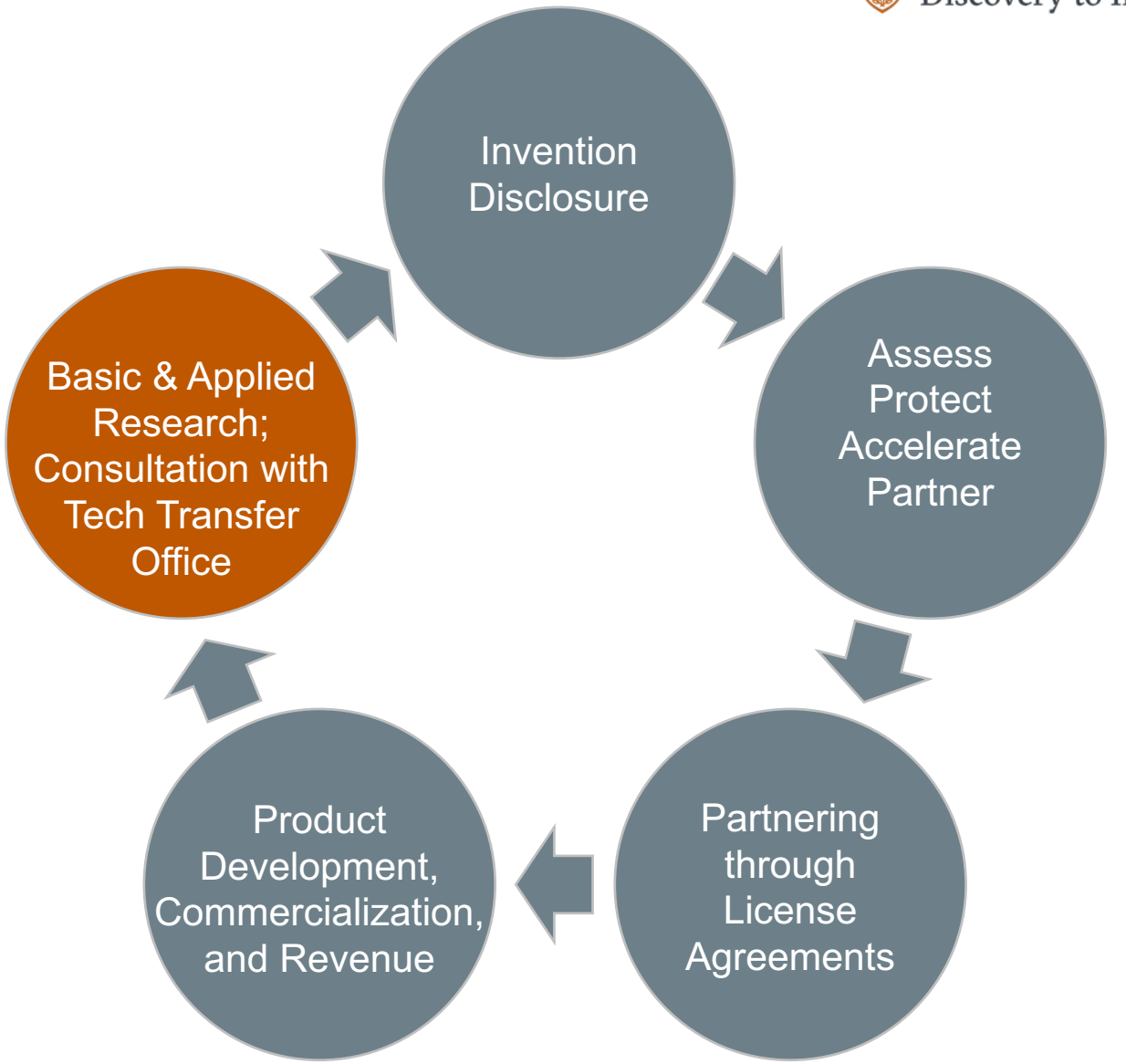
Commercialization Process in Academia



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Types of Intellectual Property

- Patents
- Copyrights (including software)
- Data rights
- Tangible property
  (*e.g.*, cell lines, animal models, embedded software, etc.)
- Trademarks (*e.g.*, logos, brand names)
- Trade secrets (*e.g.*, software source code)
- Know-how

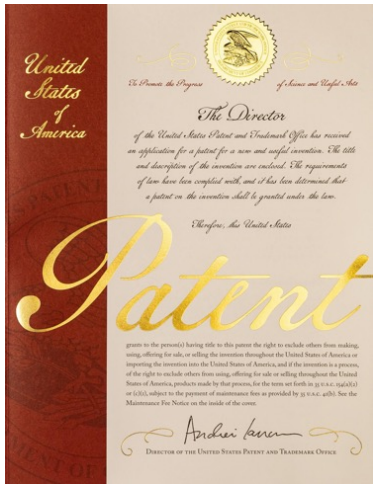
image from easy-peasy.ai

U.S. Patent

The legal basis (also for copyright)

- U.S. Constitution, Article I, Section 8, Clause 8
  "*[The Congress shall have power…] To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;*"

- Federal patent law: U.S. Code, Title 35



A patent is a legal monopoly offered by the Government

- A patent is a defensive right to exclusivity for a period of time.
  - The holder of patent rights can prevent others from practicing the patent (making, using or selling the invention), but…
  - it does not give the holder of the rights to ability to practice their own invention (Freedom to Operate)
- In exchange for disclosing your invention to the public, if it's truly new, you can prevent anyone else from using it for 20 years from the date of first filing the application

Why Patent?

- Patents convey a right granted by the US government, covering a novel, useful, and non-obvious process, machine, article of manufacture, or composition of matter
- Protect your valuable work
- Drive innovation and future research opportunities
- Licensing opportunities
- It is **NOT** a right for you to make, use, or sell anything

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Types of Utility Patent Applications

First… Utility Patent vs Design Patent – structure/function vs aesthetics

Provisional Patent Application

- Not published
- Fewer formal requirements
- Not examined
- Easy to file
- Reserves an early filing date (priority date)

Non-Provisional Patent Application

- Published 18 months after the priority date
- Requires formal drawings, specification, and claims
- Examined (eventually) by the USPTO
- Begins the negotiation process with the examiner

Patent Cooperation Treaty (PCT) Patent Application

- Published 18 months after the priority date
- Requires formal drawings, specification, and claims
- Examined by the International Searching Authority
- Facilitates international entry (e.g., European Patent Office)

IP Timeline

Licensing on the timeline

- Any time after the filing of a provisional application
- Licensees may pay for patent prosecution costs
- PCT filings can drive License value

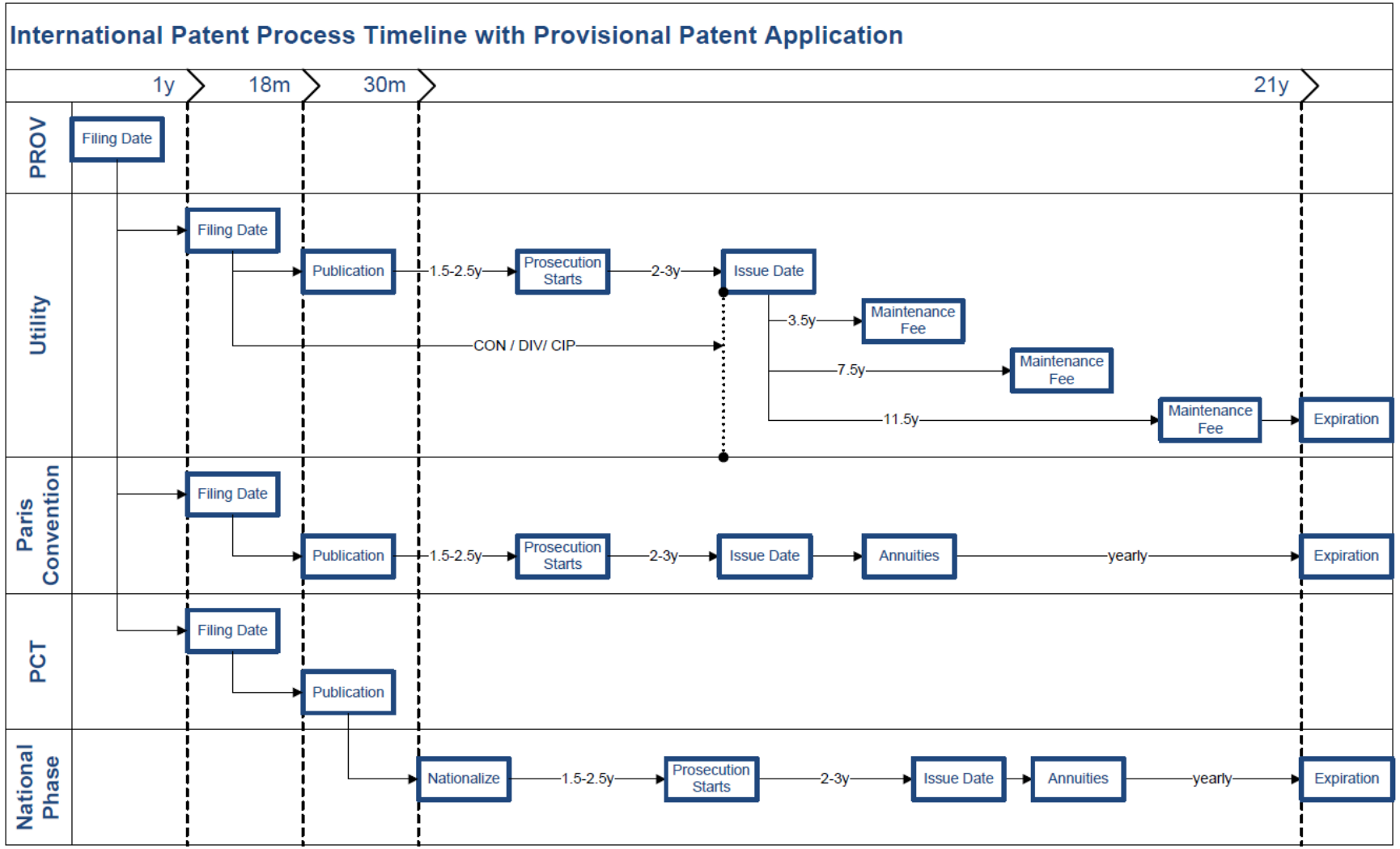
Practical Effects

In the United States:

1-year grace period for public disclosures made by the same inventor or group of inventors

Internationally:

Absolute novelty requirement. In many jurisdictions (e.g., Europe), your own public disclosure will be cited against you.



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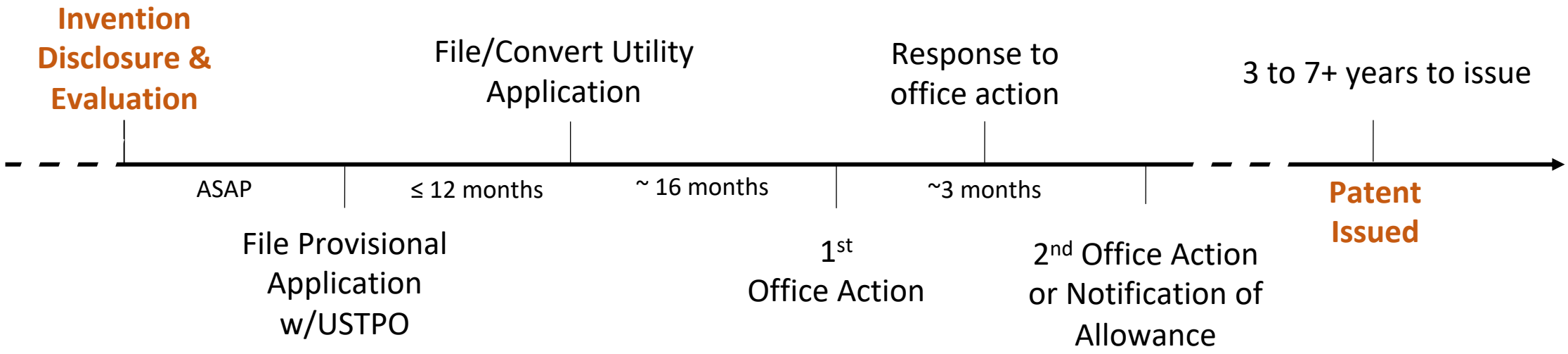
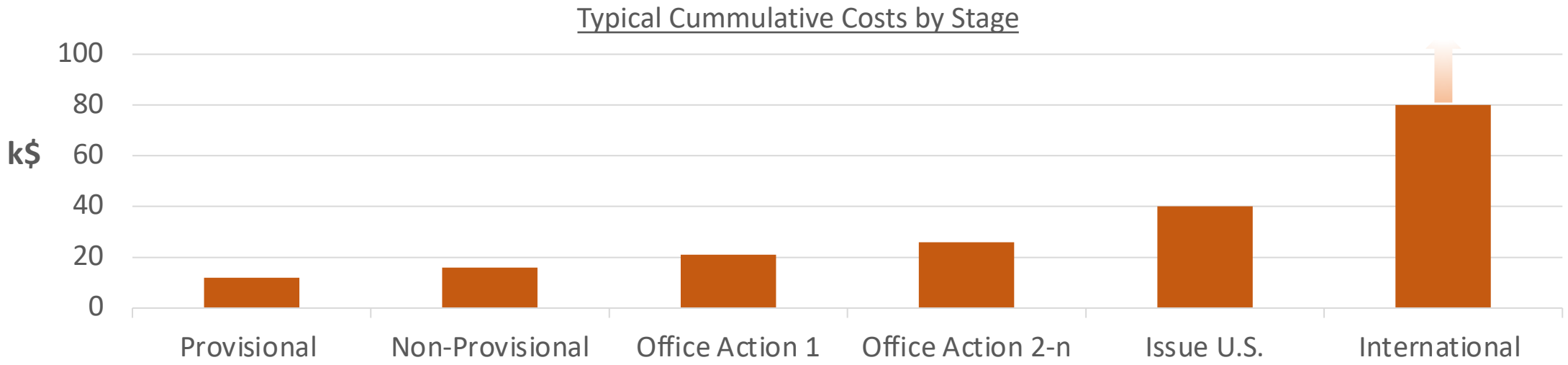
Timeline of Approximate Patent Application Costs





Patent applications – 5 key hurdles

easier

more difficult

Invention must have **Utility** (35 U.S.C. §101)

- Specific, credible, real-world use
  (*e.g.*, not fantasy or perpetual motion)

Must be **Patentable subject matter** (35 U.S.C. §101)

- Must be a:
  process, machine, article of manufacture, or composition of matter
- Must not be: an abstract idea, or a law of nature or natural phenomenon (*e.g.*, unmodified genes)

The application must **Enable** others to reproduce it (35 U.S.C. §112)

- Clear, concise, exact written description, including "best mode"
- "enable others" = any person skilled in the art to which it pertains

Invention must be **Novel** (35 U.S.C. §102)

- Not previously invented or disclosed to the public
- (Exception: 1-year grace period, only in U.S., if the inventor publicly disclosed)

Invention must be **Non-obvious** (35 U.S.C. §103)

- Using a combination of references, could someone having "ordinary skill in the art" come to the same conclusion

Public disclosures can affect patentability

Conference activities

- Published abstracts
- Poster presentations
- Oral presentations

Pre-print manuscript submissions

- *e.g.*, preprint servers like arXiv and bioRxiv

References to inventions in printed publications

- *e.g.*, a single paragraph in an unrelated patent application
- *e.g.*, a concluding paragraph in a printed publication

- Your own websites, blogs, press releases
- ChatGPT (*i.e.*, don't teach it your unpublished secrets)
- Open software release on GitHub, GitLab, BitBucket, etc.
- Scientific journal publications

Our goal is to:

- evaluate your disclosure,
- make a filing decision,
- hire a patent attorney,
- prepare a patent application,
- and file it…

all before the first public disclosure

The key is to start early!

When you're ready to start writing, you likely have all the info you need to send an invention disclosure then.

Be aware that some funding comes with significant strings attached

- Bill and Melinda Gates Foundation
- Semiconductor Research Corporation
- Some corporate gift letters
- CPRIT
- Chan Zuckerberg Initiative
- Master Research Agreements
- some industry-sponsored NSF grants
- and more…

Check with the IP Development team to check terms which may affect ownership or licensing of inventions created through funds

Some onerous terms may pull in and grant licenses to other similar inventions not developed through funds

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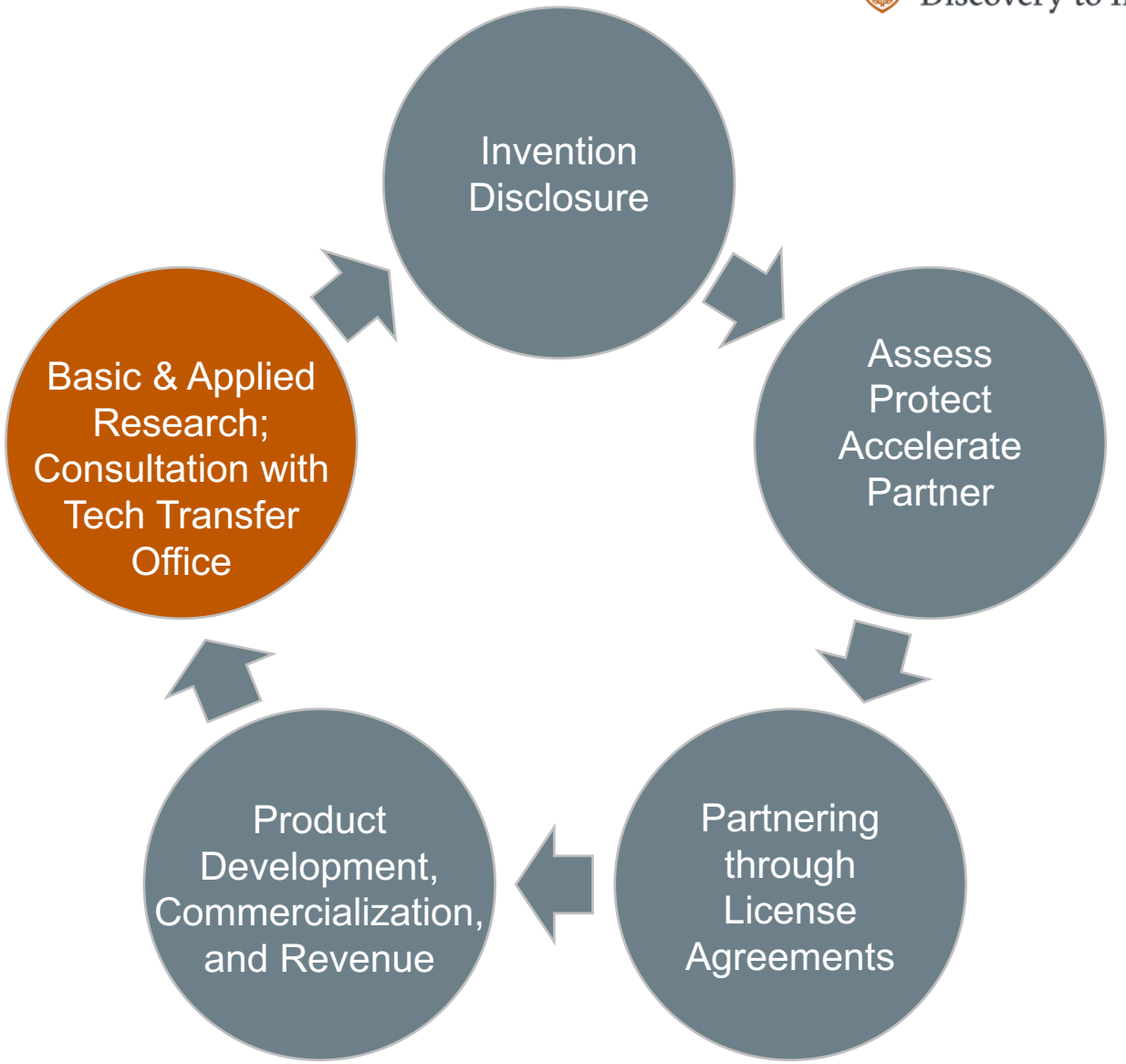
Commercialization Process in Academia



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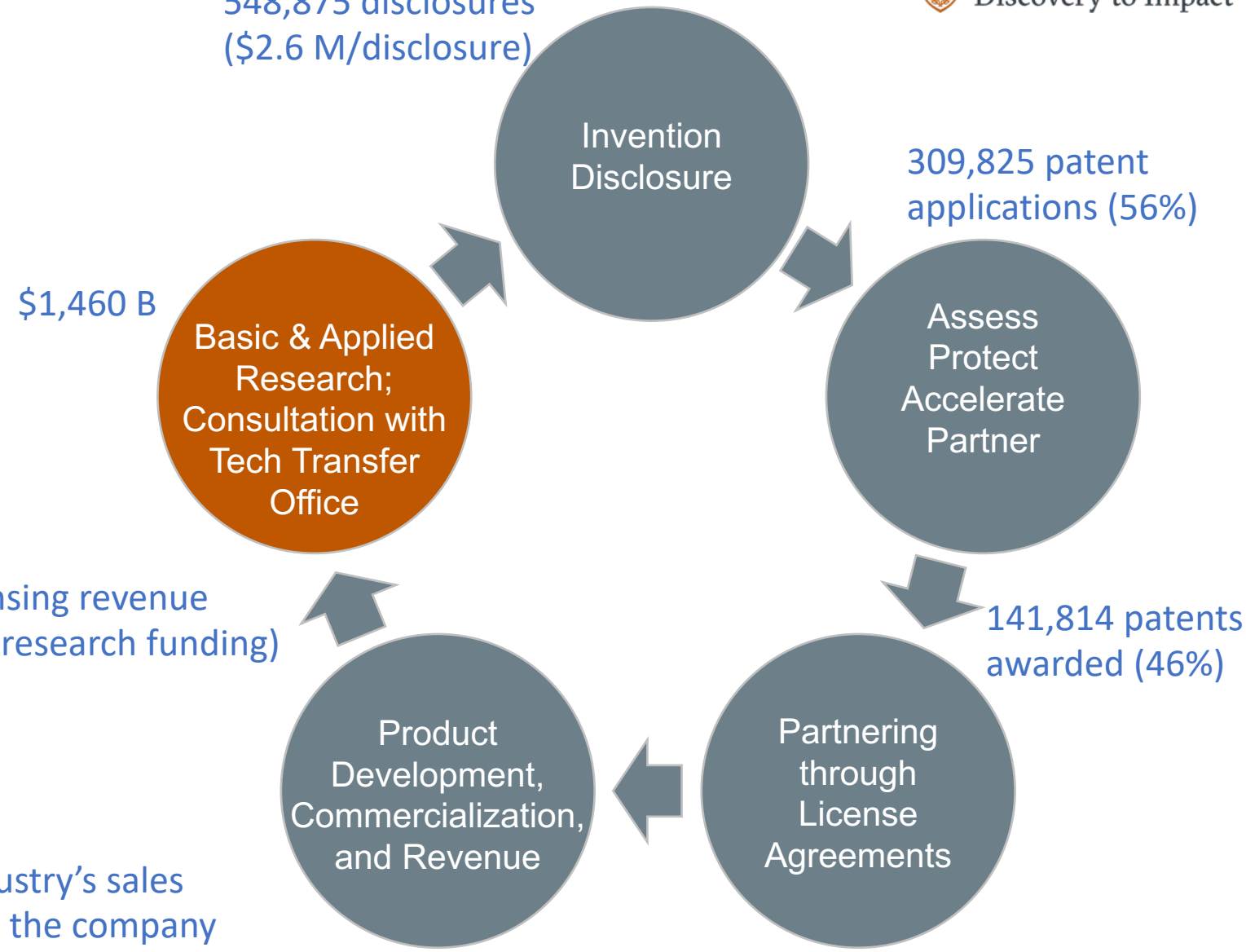
Commercialization Outcomes in Academia

Aggregate data from AUTM surveys
of 150-200 Universities
from 1991-2022
compiled by MIT (video link)



- Reported license revenue is a small % of industry's sales
- The license stimulates outside investment in the company
- Only ~14% of TTOs cover their operating costs
- For universities, it's about impact, not maximizing licensing revenue

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Why Commercialize? – Licensing Outcomes

- Advance your research into the marketplace
- Products and services on the market to improve lives
- Strengthen industry-academia partnerships
- Licensing provides net revenue that is shared between the university, the inventors/authors, and their college/school

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Legal Strategies

Program Development

Operations

Intellectual Property Development	Business Development	Licensing and Collaborative Research	Life Sciences Tech Development	Texas Innovation Center	Investment Programs	Austin Technology Incubator
Evaluates new discoveries for commercial potential and protects IP	Cultivates relationships with private sector for product development & private sector research	Manages licensing of IP and contracting for corporate sponsored research	Commercially advances biopharma and medical-device assets	Provides resources to transform new ideas and discoveries into startup companies	Runs the Longhorn Angel Network and UT Seed Fund	Incubates mid- to late-stage deep tech startups; manages I-Corps, TEXVMS, TEXGHS

UT Austin disclosure form: discoveries.utexas.edu/for-campus-inventors-entrepreneurs/

Website: discoveries.utexas.edu

Questions: ip@discoveries.utexas.edu

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Submitting CSENND Invention Disclosures

UT Austin disclosure form:	discoveries.utexas.edu/for-campus-inventors-entrepreneurs/
Website:	discoveries.utexas.edu
Questions:	ip@discoveries.utexas.edu
Indiana University:	https://research.iu.edu/innovation-commercialization/iu-innovators/disclosure.html
Texas A&M University:	https://innovation.tamus.edu/inventors/disclose/
Temple University:	https://research.temple.edu/innovation/resources-inventors/invention-submission

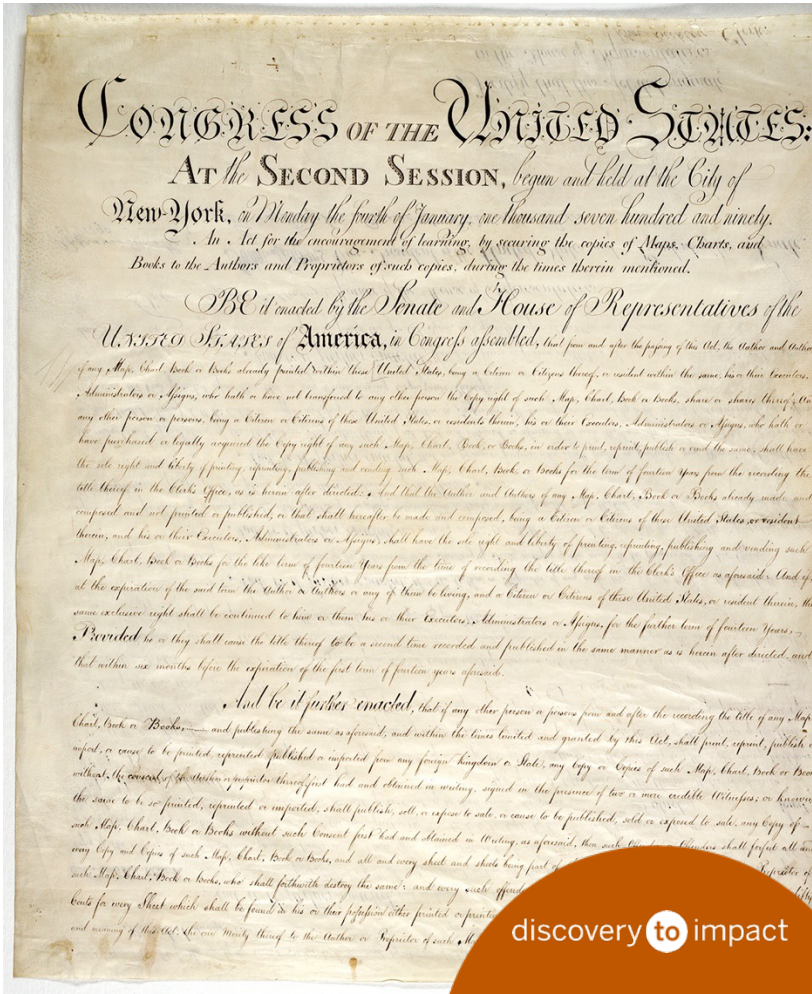
Copyright basics

- Federally granted property right to protects original works of authorship

- Works can include literary, dramatic, musical and artistic works, books, plays, music, lyrics, paintings, sculptures, video games, movies, sound recordings, software, etc.

- Copyright does not extend to ideas, processes, methods, concepts, discoveries, or principles

- Registration is not required for copyright to exist. Owner has exclusive rights to (or authorize others to):
  - Reproduce/Copy
  - Adapt
  - Distribute
  - Publicly perform
  - Publicly display


CONGRESS OF THE UNITED STATES:
AT the SECOND SESSION, begun and held at the City of
New-York, on Monday the fourth of January, one thousand seven hundred and ninety.
An Act for the encouragement of learning, by securing the copies of Maps, Charts, and
Books to the Authors and Proprietors of such copies, during the times therein mentioned.
BE it enacted by the Senate and House of Representatives of the
UNITED STATES of America, in Congress assembled, That from and after the passing of this Act, the Author and Author

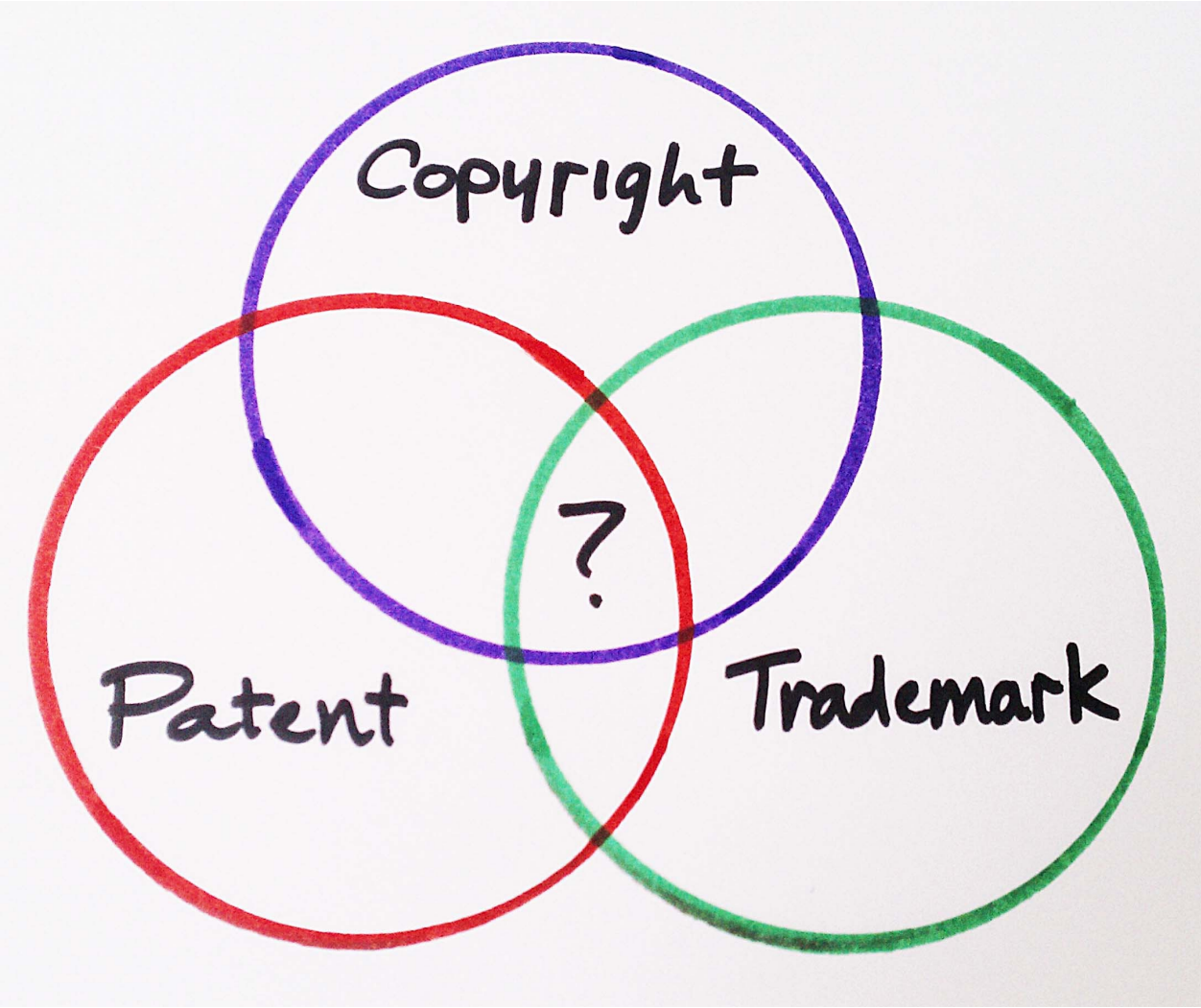


Image: Business Sarah

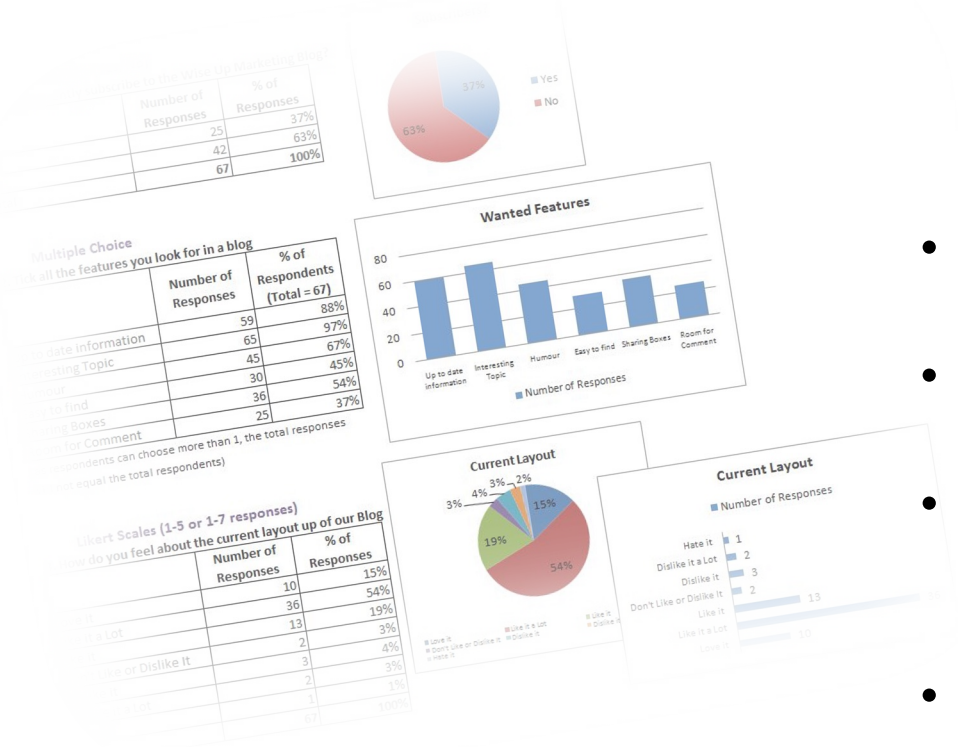
Software

Can be protected by patent or copyright, depending on the nature of the software

The copyright exists automatically as soon as software is created and fixed in a tangible form

Tech transfer offices can help developers navigate compatibility with inbound license requirements (open source, SDK, API, etc.), and can license software for commercial purposes

Research Data as IP



- Data is FACTUAL
  - Facts are discovered, not invented
  - Not copyrightable
- Data is owned by the discoverer
- Owner may control its use
- A Database is a collection of data that may include some creative aspects that are copyrightable.
- Copyright law can govern the use of databases and some data content, but contract law, trademarks, and other mechanisms are necessary to regulate factual data.

Resources for learning and doing more

UT AUSTIN

- discoveries.utexas.edu – Discovery to Impact
- navigator.research.utexas.edu – The Navigator (a directory of UT Austin resources)

PATENT SEARCHING

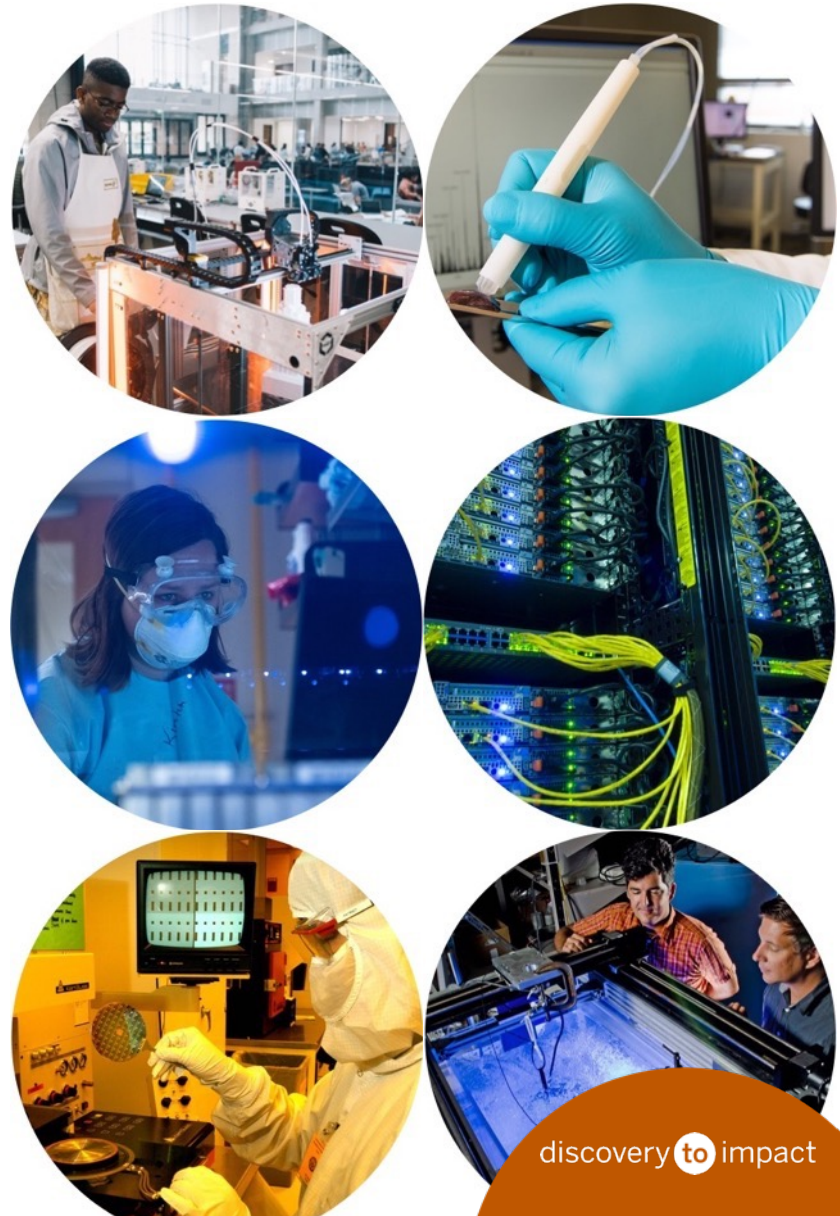
- patents.google.com – easy patent searching
- USPTO.gov – United States Patent and Trademark Office
- patentcenter.uspto.gov – find info on published patent applications
- worldwide.espacenet.com – European Patent Office

SOFTWARE LICENSES, COPYRIGHTS, TRADEMARKS

- tldrlegal.com and opensource.org – open-source licenses
- copyright.gov – register a copyright, search copyrights
- tmsearch.uspto.gov – "TESS," search trademarks

LEARN MORE ABOUT INTELLECTUAL PROPERTY

- IPBasics.org – learn the basics of IP
- 4iPcouncil.com – a European perspective on IP



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