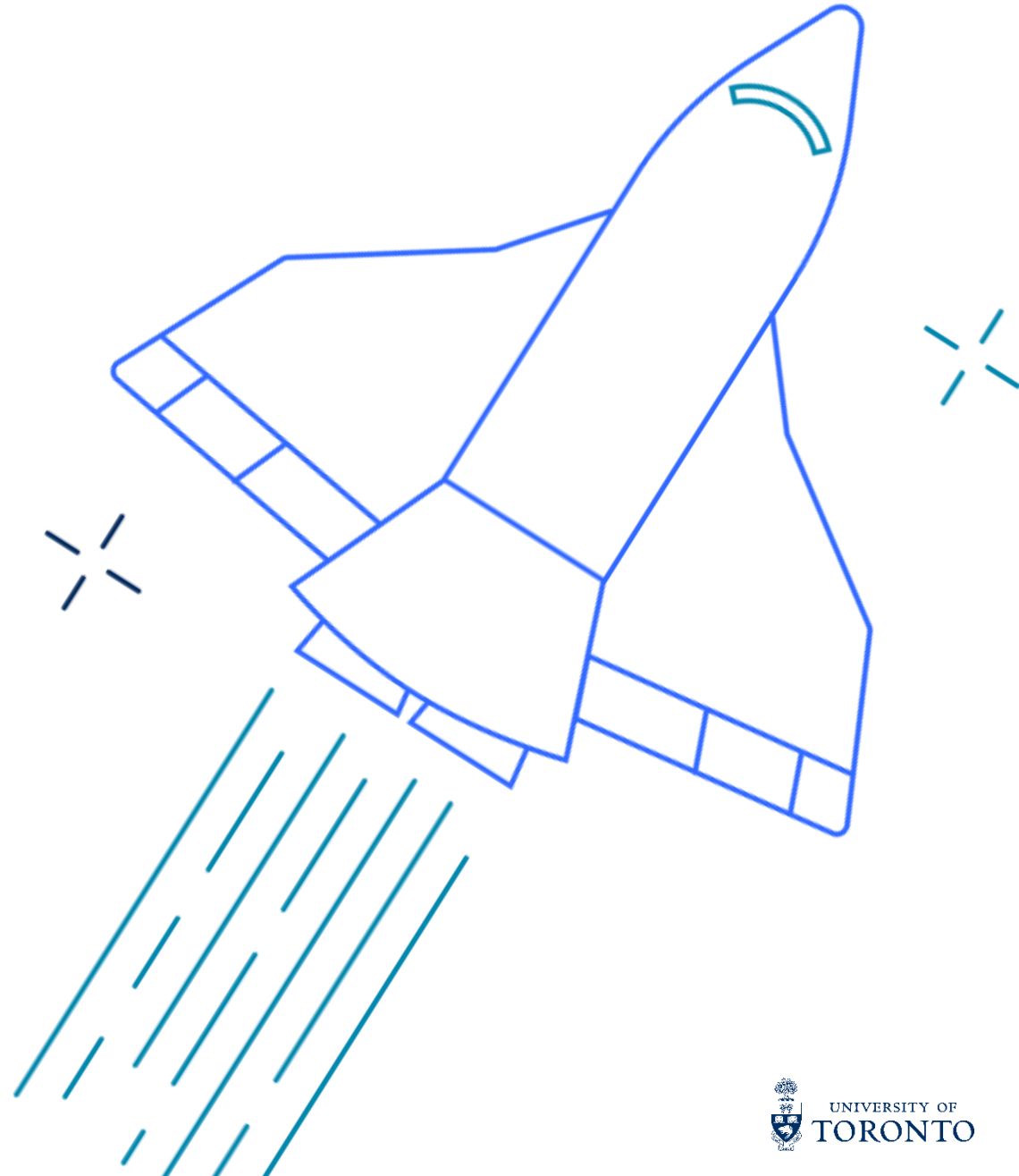


Introduction to **Inventions, Commercialization, and Entrepreneurship** at U of T

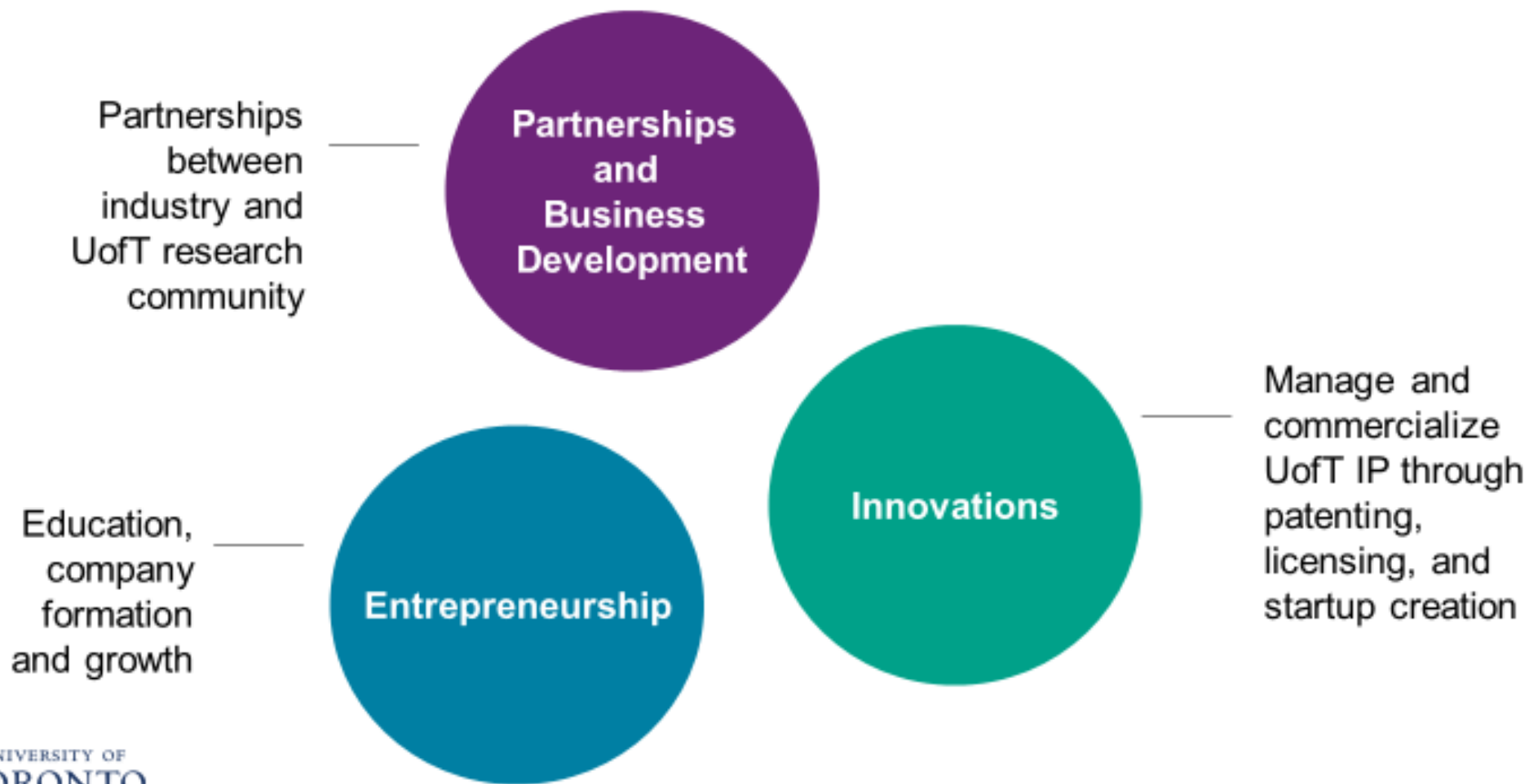
September 19, 2023

Innovations & Partnerships Office

uoft.me/inventors



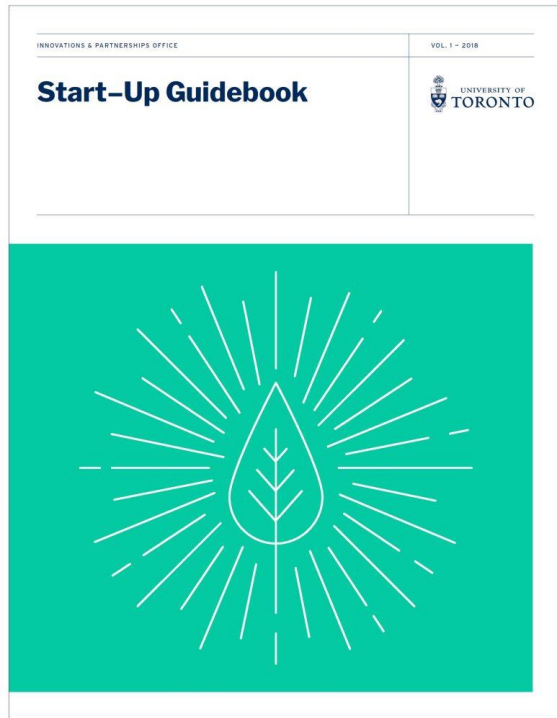
Innovations and Partnerships Office (IPO)



IPO Guidebooks

Start-Up Guidebook

- For U of T faculty, staff, and students interested in launching a start-up company based on intellectual property developed at the U of T.



Inventor's Guide to Technology Transfer

- Outlines the essential elements of technology transfer at the University of Toronto (U of T).



Researcher's Guide to Industry Partnerships

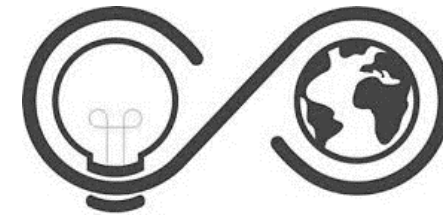
- Provides more detail on the process for engaging with an industry partner and types of partnership engagements.



The Inventions Policy

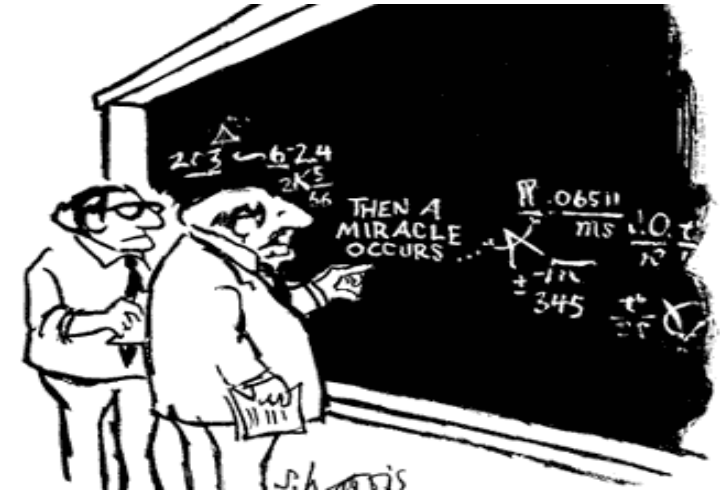
The University of Toronto **Inventions Policy** has **three** basic objectives to:

1. encourage **creativity and innovation** within the University community
2. facilitate the **translation of knowledge for the greatest possible public benefit**, including by **commercialization** through development of Inventions into commercial products or processes
3. Provide for the **equitable sharing** of potential revenues between the inventors and the University.



The UofT Inventions Policy applies if:

1. An invention has been **reduced to practice** at UofT (i.e. more than an idea, theorem or algorithm). In patent terms, it should be **new, useful and not obvious** but it does NOT need to be patentable.
2. The **Inventor** is a faculty member, staff, student, visitor or any other **member of the U of T community**.
3. The inventor made use of **university-administered funds and/or resources** in the creation of the invention.



Case study: Mark Zuckerberg (Facebook) or Larry Page (Google)

Case study: Theranos

Ownership

- U of T has a modern, flexible Invention ownership policy that is “**Inventor’s Choice.**”

An exception to joint ownership is if rights to an Invention were granted to a third party under a separate prior agreement, such as a grant, SRA, or MTA

- Once an Invention is disclosed, and third part obligations are cleared, Inventors may choose to:
 1. **Assume full ownership** and responsibility for patenting and commercialization, or,
 2. **Offer to assign** the Invention to U of T



Invention Disclosure

Identifying inventors and contributors

- Principal Investigator (PI), students, post-docs, research staff

Sponsored research

- Pre-research engagement with industry partner
- Sponsored research agreement

Inter-institutional collaboration

- UofT researchers cross-appointed, or collaborated with researchers at other institutions
- Inter-institutional agreement

Public disclosures and confidentiality

Inventor-Ownership

With ownership comes many responsibilities!

In these instances:

- ✓ Inventors independently direct the activities, pay for and pursue commercialization of their invention (including, protection, licensing, creating a company, etc.)
- ✓ Inventors to provide an annual status report to the University
- ✓ Inventors administer revenue collection and distribution, including a revenue share to the University

10% of
UofT inventions are
owned
by the inventors

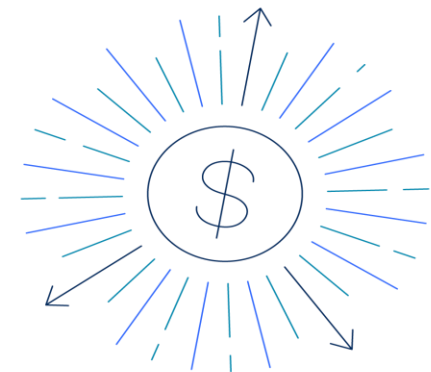
University Ownership

Inventors **may offer ownership of the invention to the University** and if accepted by the University and/or its commercialization partners take advantage of the commercialization support services they provide.

In instances of **University-ownership** of the invention:

- ✓ Inventors assign ownership to the University
(Revenue distribution amongst inventors provided)
- ✓ University and/or third party partners supports commercialization efforts
- ✓ University and/or third party partners direct protection activities and incur costs
- ✓ University supports various agreement/contract negotiations and provides legal support
- ✓ University administers revenue collection and distribution

For 15% administration fee on the LICENSE, UofT takes on the financial and business risk



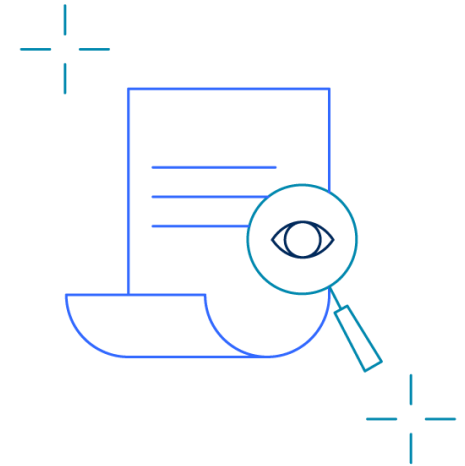
Assessment and Assignment

If Inventors offer to assign ownership to U of T, IPO conducts an assessment to examine:

- ✓ Ability to protect the invention (e.g. patent or copyright)
- ✓ Ability to use the invention (freedom to operate or “background” rights)
- ✓ Ability to market the invention, product or service, which is based on size and growth potential of the market, and potential competition
- ✓ Development risk (the amount of time, money and expertise required to commercialize the technology)

If the University accepts an assignment, IPO is responsible for managing patent expenses and associated revenues.

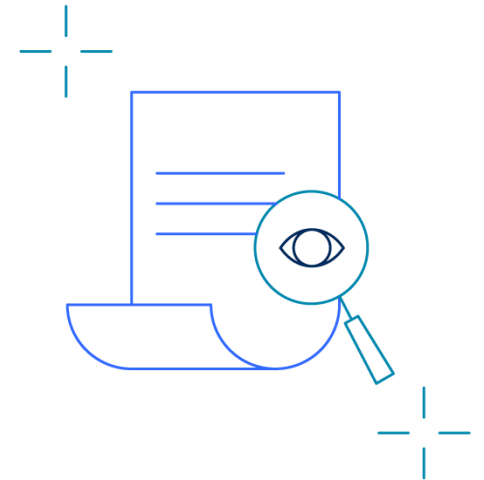
IPO staff includes technical, patent, commercialization and legal experts (PhD, MBA and licensing certifications)



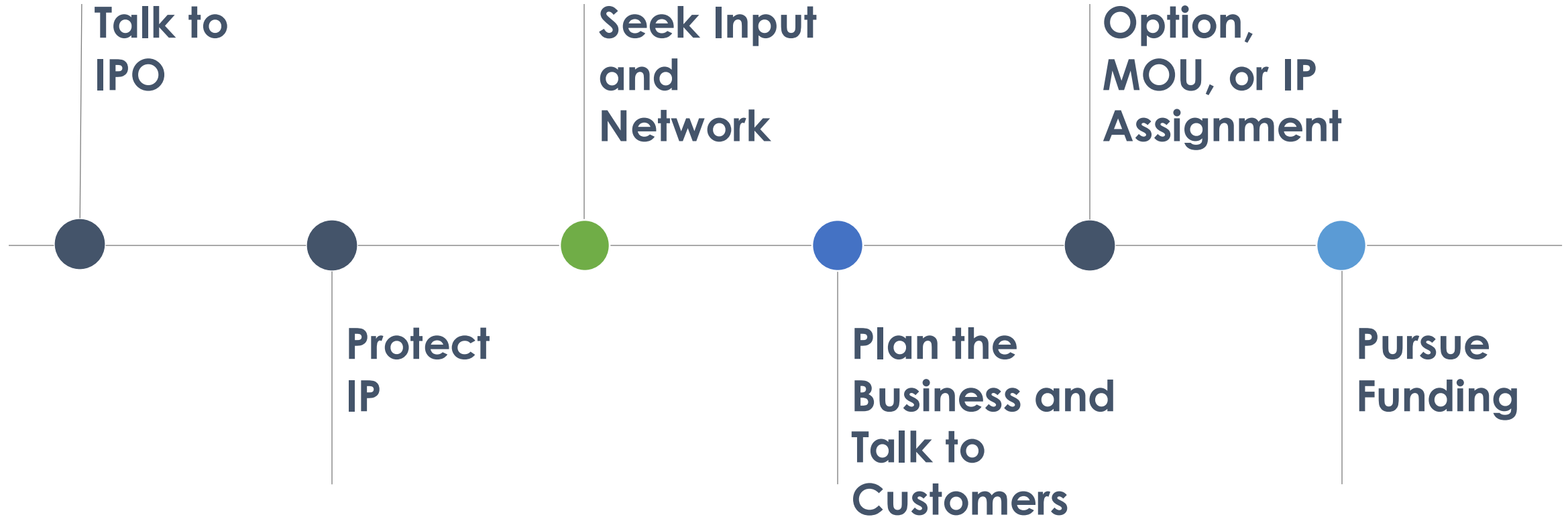
Option To License to Start-ups

Option to License:

- Option to negotiate a license agreement
- Time limited “hold” = “**Option Period**”
- Option Period obligations = “**License Triggers**”
- License Triggers:
 - **Raise investment capital (or other)**
 - **Business plan**
 - **Able to pay patent costs**



Launching a Research-based Startup



What is the Game?

- **No game**, just negotiation to ensure both parties needs are met.
- Terms will fit the business model and be based on comparable transactions.
- Consider deep tech vs. biotech vs. “hard” tech vs. service provision.



Thanks to compromise they were moving closer.

Start-ups & Equity

- Equity holders often include:
 - Scientific Lead
 - Business Lead
 - The University
 - Investors
 - offering cash at various stages
 - May include friends, family, angels, VCs, banks
- License terms are tailored to the companies financing, development and business plan. (e.g. cell lines, mouse models)

Start-up Future IP

- If a start-up doesn't use UofT resources to create new IP, it does not fall under UofT IP Policies. The company or the creator will own it.
- If the start-up using UofT resources have an agreement in place regarding use of space and/or access to IP.
- UT's involvement when a start-up is sold
 - Same rights and oversight as other common shareholders.
 - If IP is licensed from UofT, the license transfers to the new owner.

Case Study: Deep Genomics



- **\$180M Series C** in 2021
- **\$237M in funding** to date

DEEP LEARNING



GENOMICS



PRECISION MEDICINE



U OF T DEVELOPMENT PIPELINE



■ IPO

- ✓ Disclosure: 2015 by Brendan Frey
- ✓ Company creation (cap table, advisory board, IP transfer agreements)
- ✓ Source non-dilutive seed stage funding
- ✓ IP protection: 20 patent applications supported

■ UTEST

- ✓ Investment
- ✓ Incubation space
- ✓ Entrepreneurial education
- ✓ Advisory Support

■ Creative Destruction Lab

- ✓ Private seed investment
- ✓ Product development strategy
- ✓ Extensive customer, investment, advisory board network

Case Study: Structura Biotechnology



MACHINE LEARNING



SOFTWARE AS A SERVICE (SaaS)



DRUG DISCOVERY



U OF T DEVELOPMENT PIPELINE



■ IPO

- ✓ Disclosure: 2015 by David Fleet
- ✓ Cryo-EM data processing
- ✓ Company creation (cap table, advisory board, IP transfer agreements)
- ✓ Source non-dilutive funding
- ✓ Engage with early customers
- ✓ IP protection: over 15 patent applications supported

■ Connaught IA

- ✓ \$70k awarded in 2017
- ✓ Leveraged additional \$135k in funding to lab

■ UTEST

- ✓ Investment
- ✓ Incubation space
- ✓ Entrepreneurial education
- ✓ Advisory Support

■ Bootstrapping Startup

- ✓ Revenues in the Millions
- ✓ 14 employees
- ✓ Office space in ONRamp
- ✓ Female POC COO/co-founder
- ✓ Structura's Cryosparc software analyzes cryo-EM data to speed creation of COVID-19 vaccines

Case Study: Mesosil

Mesosil

• >\$500K in funding to date

DENTAL



ACTIVE RELEASE MATERIALS



U OF T DEVELOPMENT PIPELINE



■ IPO

- ✓ Disclosure: 2015 by Yoav Finer and Ben Hatton
- ✓ Market research and marketing
- ✓ Company creation (cap table, advisory board, IP transfer agreements)
- ✓ NSERC i2i
- ✓ Connaught IA
- ✓ IP protection

■ UTEST

- ✓ Incubation space
- ✓ Entrepreneurial education
- ✓ Advisory Support
- ✓ Incorporated 2018

COMPANY

- ✓ 2020 recruited a Director BD
- ✓ Partnering for manufacturing and FDA approval.

■ Creative Destruction Lab and Health Innovation Hub (h2i)

- ✓ Product development strategy
- ✓ Extensive customer, investment, advisory board network

Recent Highlights from Research-based Startups

The logo for LATYS, featuring the word "LATYS" in a bold, purple, sans-serif font with a small orange dot at the end of the "S".

LATYS: \$3M Seed

- Reconfigurable metasurfaces for wireless relays.
- Applications in indoor WiFi, 5G, and industrial IoT.
- TandemLaunch + Rhapsody Venture Partners

The logo for ODAIA, consisting of the word "ODAIA" in white, bold, sans-serif capital letters centered within a black rectangular box.

ODAIA: \$13.8M Series A

- Data analytics, process mining, and AI for predictive customer targeting, forecasting, and engagement.
- 4 of the world's top 10 pharma companies as customers
- Cap table, UTEST, Outside Advisor → CEO

The logo for OTI, featuring a stylized teal geometric icon resembling a cube or a series of connected lines to the left of the letters "OTI" in a bold, dark blue, sans-serif font.

OTI LUMIONICS: \$55M Series B

- Advanced materials design for next-gen consumer and automotive OLED displays.
- Developing enabling materials using quantum simulations, ML, and real-world testing.

Research-based Startups

fluent.ai

Fluent AI
\$5M

- Speech to intent technology. Speech recognition that can support any language or accent.
- Applications in any voice recognition device, no internet required.
- Patented in 2013, incorporated in 2015, investment of ~\$1M in 2017.
- Currently in partnership and customer acquisition phase.



Cast Connex
Customer Acquisition

- Simplify the design and enhance the performance of structures by enabling Engineers and Architects to use cast steel connections.
- International patent family, filed in 2007 (some have been granted), incorporated in 2007, licensed in 2007.
- Company continues to work with UofT investigators under SRAs.

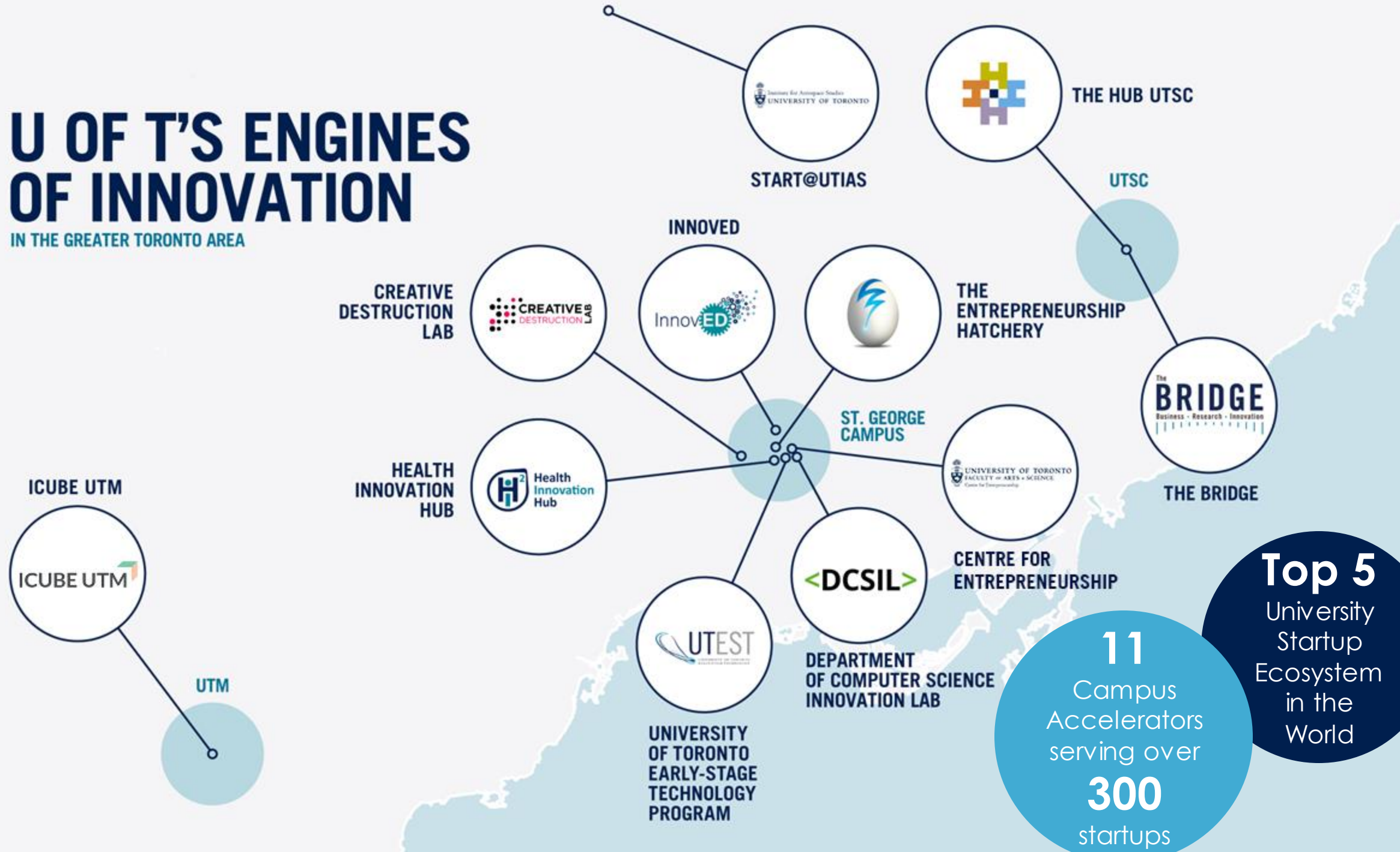


Dynamic Memory Solutions
~\$100K

- Developed by experts in the science of memory, HippoCamera can boost recall of your most important memories.
- Guided by neuroscience, backed by research and developed by experts
- Research funding support and Option for IP

U OF T'S ENGINES OF INNOVATION

IN THE GREATER TORONTO AREA



Useful U of T Links

University of Toronto Innovations & Partnerships Office	<ul style="list-style-type: none">• Invention Disclosures• Market research, Commercialization, Patents, Licensing, and Startups for U of T Inventions• Working with industry	https://uoft.me/inventors https://uoft.me/start-ups https://uoft.me/bd
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U of T Entrepreneurship	<ul style="list-style-type: none">• Courses and programs• Events• Newsletter	http://entrepreneurs.utoronto.ca/
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U of T Entrepreneurship Library	<ul style="list-style-type: none">• Market research• Events• Newsletter	https://guides.library.utoronto.ca/entrepreneurship
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IP Education	<ul style="list-style-type: none">• General Overview	https://entrepreneurs.utoronto.ca/for-entrepreneurs/ip-education/
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Other institutional policies (inventor, institution of joint ownership)		https://www.google.com/maps/d/viewer?mid=10Bg9JpID7OwD98dUBRVbmmR6Xz0&ll=45.95973074906547%2C-82.32418855387854&z=5
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