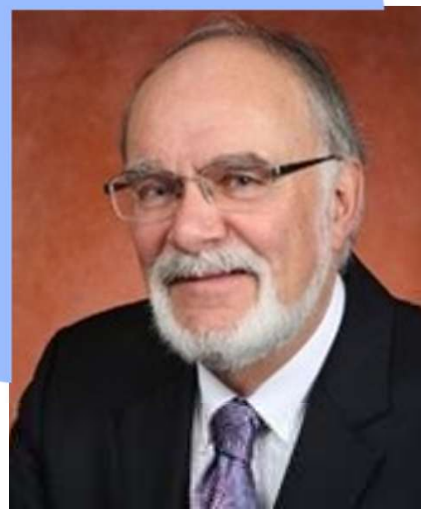
Session 17 :
Understanding the activities of a TTO

Building awareness, Effective communication, Relationship with inventors, Effective IP protection and management

John Fraser, Premnath V

Who's Speaking



John Fraser

CLP, RTTP

John is a global expert in technology transfer and knowledge exchange, with extensive experience in maximizing innovation impact. Having led four technology transfer offices across two countries, he understands the complexities of translating research into market-ready products. As a former AUTM President, he has advised global technology transfer professionals on country-specific challenges. Through Burnside Development, he consults for WIPO, Chilean institutions, Serbia's Innovation Foundation, and India's Department of Biotechnology.

Affiliation

- Past President Association of University Technology Managers, USA(AUTM)
- President, Burnside Development & Associates LLC
- Head of Tech Transfer for Florida State University & Simon Fraser University

Who's Speaking

Premnath Venugopalan

PhD, RTTP, FSTEM

Dr. Premnath, Director of Venture Center and Head of NCL Innovations, is a leader in technology transfer, IP commercialization, and venture creation. He has shaped national policies and established award-winning innovation management initiatives, fostering technology commercialization, startups, and deep-tech incubation across India through CSIR-NCL and Venture Center.

Affiliation

- Director, Venture Center, Pune

John Fraser slides

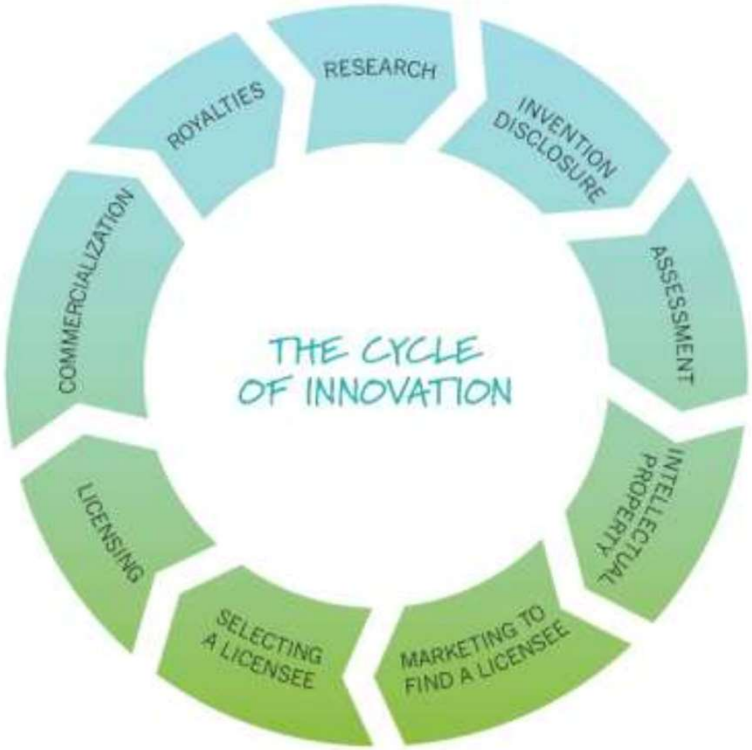
Understanding the activities of a TTO

- Building awareness
- Effective Communication
- Relationships with Inventors
- Building pipeline
- Effective IP Protection and Management

Building awareness

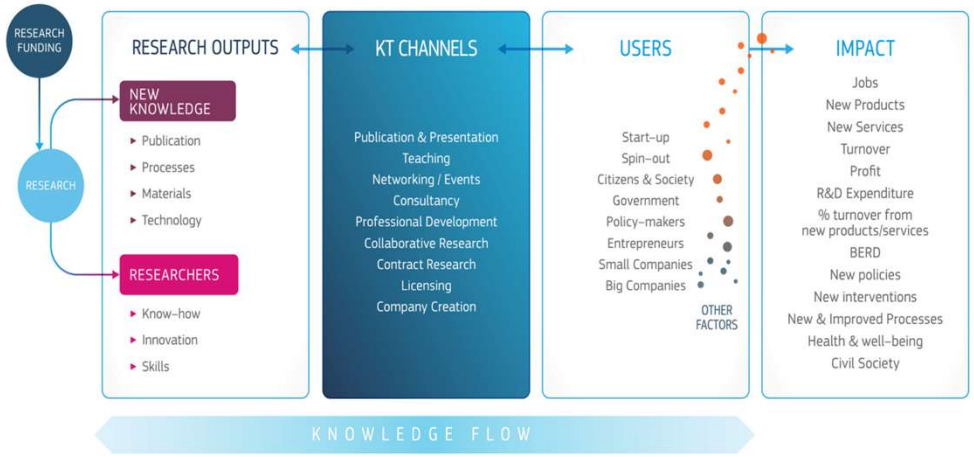
- Create a program of regular OUTREACH activities – departmental visits, an on-campus showcase; Newsletter with project summaries, etc.;
- Showcase faculty TT achievements;
- Some large US U's pay a small retainer to faculty in large STEM Departments to serve as TT scouts (retainer paid with purchases of research consumables);
- Some large US U's set up office hours in STEM buildings on a monthly basis.
- TTOs are increasingly assisting faculty with SHAPE projects from non-STEM departments. The UK is a leader in this area.

Effective Communication TOOLS



"KNOWLEDGE TRANSFER METRICS" Towards a European–wide set of Harmonised indicators. Alison Campbell, Chair

Figure 1: Knowledge Transfer: from research to impact



1 There are several terms in use to describe the processes of knowledge valorisation. Knowledge Transfer (KT) and Knowledge & Technology Transfer (KTT) are often interchangeable. Technology Transfer (TT) tends to refer to research commercialisation and may be considered a subset of KT. This report will use the KT terminology.

2 Publicly Funded Research Organisations (PROs) includes universities, colleges and other governmentally research institutions. The term PRO is used in this report.

3 Available at: http://www.innovationbycollaboration.se/wp-content/uploads/2015/09/Kevin-Cullen.pdf

FUTURES CASHFLOW in Agreements

Faculty	Title	Licensee	FY 2015		
			15 Royalties	15 Grants	15 Other
Connor	Assessment 2 Instructions software	Rubicon Partners, LLC	25,000		
Rodgers	software	LECO Corporation	beta test license		
Foorman	software	Lexia Learning, Inc.			253,934.44
Bhide	ADHD therepeutic	Avekshan, LLC	not a license	345,344	
Megraw	CDK5RAP2 antibody	Millipore Corporation	$ 100.00		
Hurt and Rizkallah	Cell Stage Identifier Antibodies	Millipore Corporation	$ 200.00		
Tang	Assay and treatment technologies for Hepatitis C virus	BioFront Technologies			
Roux	Various nut allergens	BioFront Technologies			
Roux	Human IgE Protein	KeraFAST	$ 200.00		
Kumar, S.	Live Tissue Preservation Chamber	KeraFAST	$ -		
Lee, C.	Circadian Rhythm antibodies	KeraFAST	$ -		
Blaber, M.	HGF-1 Protein; Mouse KLK-1 Recombinant	KeraFAST	$ 200.00		
Blaber, M.	Human Growth Factor research	Trefoil, E&B	15,000		Option fee
Lemmon	software	Nidus	not a license		
Chatterjee, J	Analyte diagnostic device	G5 Engineering Solutions	not a license		
Olcese	Preterm birth technologies	KynderMed, LLC	not a license		
Zhang, J.	Chemotherapy regimen selection	Innomedicine, LLC	not a license		
Zhang, J.	Data mining technology	Insilicom, LLC	not a license		

FSU Product Pipeline 2005

260 Invention Disclosed; 320 Provisional/Utility Patent Apps; 143 US Patents since FY 1995
75 CDA's completed; 22 Deal Opportunities*

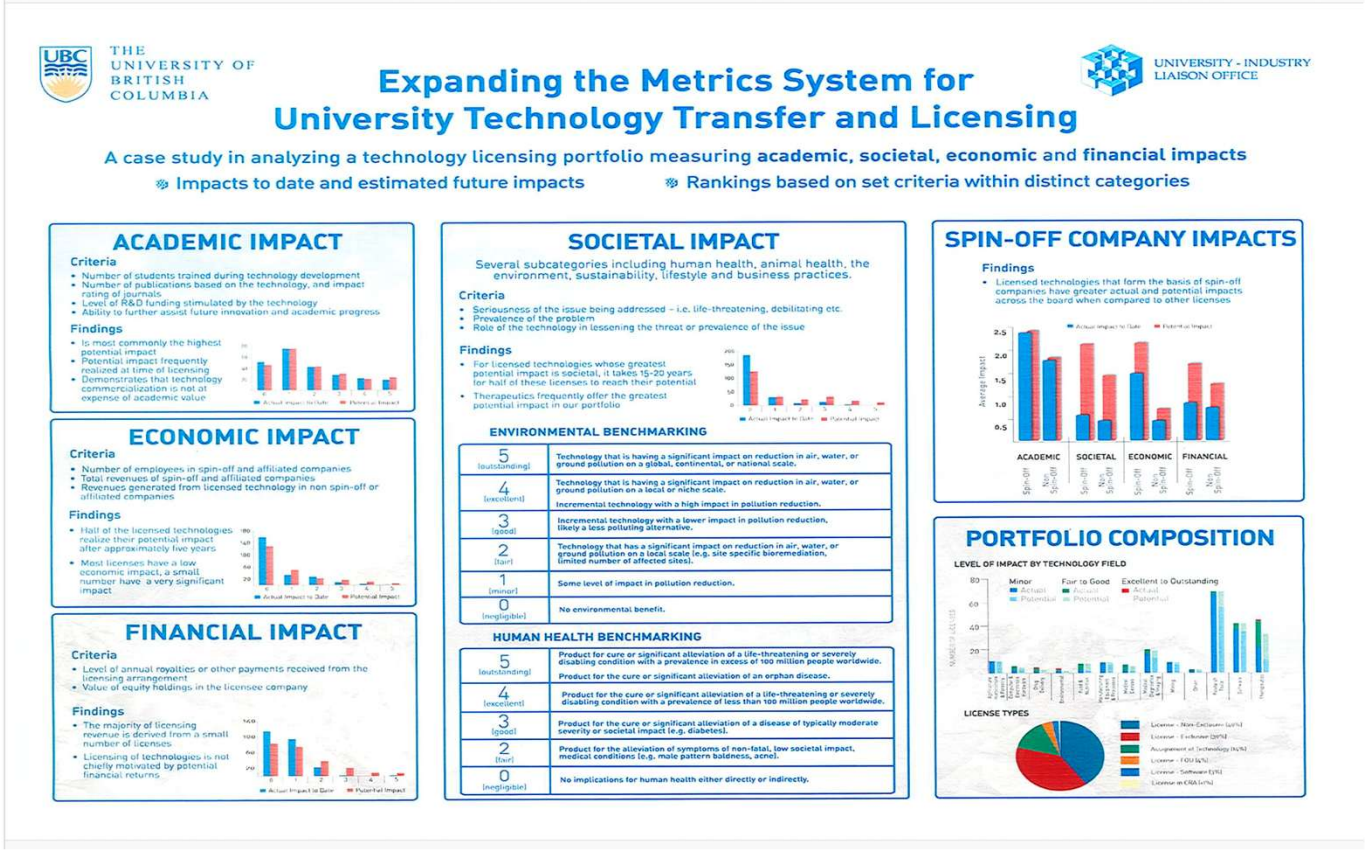
PRODUCT	LICENSEE	APPLICATION	PRE-LICENSE	LICENSED TO CORPORATIONS		
				Product Development	In Market	Terminated
EDUCATION						
Job Skills Education Program (JSE	NCS Pearson Publishing	basic job skills army training				
WebPath	FSU	medical pathology				
FI Center Academic Advisory Serv	State of Florida	high school - university				
Partners for Healthy Baby Books	FSU	early child care				
Womens' Self Esteem Book	FSU	consumers				
Science Tobacco & You	TSI	grade 4 - 8 science education				
MagLab Alpha	Sempco Inc.	grade 4 - 8				
Ethics Course	LearnSomething.com	state government				
PHARMACEUTICAL						
synthetic-Human Growth Factor	GAP Funding	tissue growth				
Taxol analogs	Taxolog (S)	cancer				
Metronidazole	SDR Pharma	antibiotic - vs ulcers				
Metronidazole	SDR Pharma	Xray radiosensitizer				
Taxol production method	Bristol-Myers Squibb	cancer				
MEDICAL DEVICES						
Mad Cow Disease Diagnostic	GAP Funding	Food Industry				
magnetic separations of proteins	Nanomagnetics & Biotech Inc (S)	heart attack confirmation				
tree nut allergens	BioMay	allergy diagnostic				
Pacifier Activated Lullaby	GE Medical/Ohmeda	neonatal units-Hospitals				
INFORMATION TECHNOLOGIES						
Face Recognition Systems	GAP Funding	Security				
DQS queing software	Genias/SUN	software				
Career Portfolio	UCSD; Georgia Tech; Goldwater	student career advice				
Superensemble Forecasting	WP Inc.	weather forecasting				
Florist Software	FSU	Security, Flowershop				
FSU Smart Card	Cybermark	Security, Identification				
OTHER						
Neural network	SUTI	data mining				
Seminole Fight Song Sheet Music	Arrangers Publishing	School Spirit				
StratoSequence Robot	Nanostrata (S)	Research Tool				
PAUP Software	Sinauer Publishing	Research Tool				
FT-CRT	FSU	Petroleum analysis				
T.E.S.T.	TITAN Inc.	Tabletop Exercise Simulation				
Disaster Housing Resource On-Lin	FEMA	Disaster housing dbase				
Electron resonance spin device	Kyo-Spin (S)	ERS device components				
	Software AG	webenabling CICS legacy dbases				
Diagnostic Camera System	Integrated Design Tools (S)	Research Tool				
Cocktail Neck Ties	Stonehenge	Clothing				

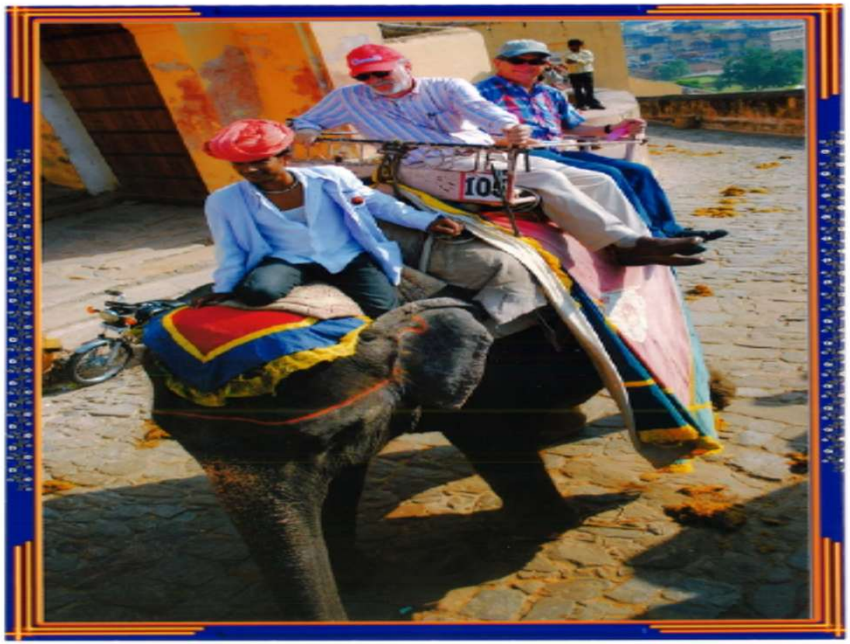
(S) = FSU start-Up company	- company started based on FSU technology, expertise
Internal FSU Development	- disclosure, IP protected, GAP Funding to define commercial collaboration in place
External Develoment	- disclosure, IP protected, developed by industry/ Not GAP Funding
Product Development	- licensed, company working on product development
In Market	- product in marketplace
Terminated	- no longer being sold in market

* Includes status 3 (prospect identified) and status 4 (deal outstanding) from OIPDC Summary Sheets

last updated - 1/23/2006

The above categories/definitions cover all types of research: Social Sciences, Humanities, Arts Economics SHARE), and STEM and other non-STEM areas in the U.K.





Relationships with Inventors

- At some point it is usually worthwhile creating an interactive database for all projects, accessible to all staff and for faculty to access their own projects. This allows busy Inventors to access the latest progress on their technology when they want, perhaps in the middle of the night.
- Touch base with each Inventor on a somewhat regular basis to determine how the relationship is working (or not working). Take Action !
- Satisfied Inventors will encourage other researchers to disclose.

Building pipeline

- In the US, there is an obligation is disclose possible inventions arising from federal grants, but no consequence for nondisclosure.
- Researchers will be forthcoming with discussions about disclosures, if they believe that the TTO can advance their research careers in an effective manner and help achieve results.
- Most IP Policies pay $500 to the Inventor group upon a US Patent filing, pay for commercialization activities, and share the Royalty compensation (if any) typically on a 1/3 (inventor); 1/3 (administrative unit); 1/3 (institution) share. FSU is 40%/60% for Patents and 50/50 for Copyright licenses.

Effective IP Protection and Management

- This is a straightforward process, familiar to most in the audience, so I will not spend a lot of time on it.
- At FSU, we had a Policy to:
  - Submit Provisional Patent applications 80% of the time.
  - Convert the provisional to a regular Patent application, 70% of the time , or 80% X 70% = 50% patent applications/disclosures.
  - Opportunities were marketed upon submitting Provisionals.
  - Lita Nelson of MIT and Kathy Ku of Stanford held the view that most disclosures were 5 years ahead of Industry's ability to use them.
  - Most US TTOs filed in the US and foreign PCT initial phase occasionally if a start-up company was being considered. Full foreign filings happened only if the Licensee paid.
  - Many TTOs continue to pay for the granted Patent until 7.5 years after the grant at which point there is a USPTO Maintenance fee to be paid. If no Licensee interest by that time, many TTOs do not pay the 7.5 year Fee.

THANK YOU for LISTENING !

John Fraser, President
Burnside Development & Assoc LLC

Moab , Utah, USA

Premnath V slides

Effective IP Protection & Management

Proactively filing patents: Why?

Proactively identifying inventions and filing patents -- The motivation:

- Credit of being the originator
- Creating property (ownership, ability to exclude others, transactable)
- Ability to guide/ control the future development of the invention
- Ability to attract resources/ talent for further development of invention
- Indicator of inventive potential
- Rankings, recognitions, etc

Alert:

Most researchers who pursue technology commercialization pursue it to see their **ideas reach fruition**, **realize their own full potential** and **get satisfaction**.

Most institutions who promote technology commercialization do it to meet their **socio-economic mandate** of the organization and to demonstrate **significant diffusional impact**. Ex – Boston/SV area institutions

Direct financial returns to people or institutions is rarely the goal. It is an occasional happy by-product.

NIRF Innovation: Parameter 7

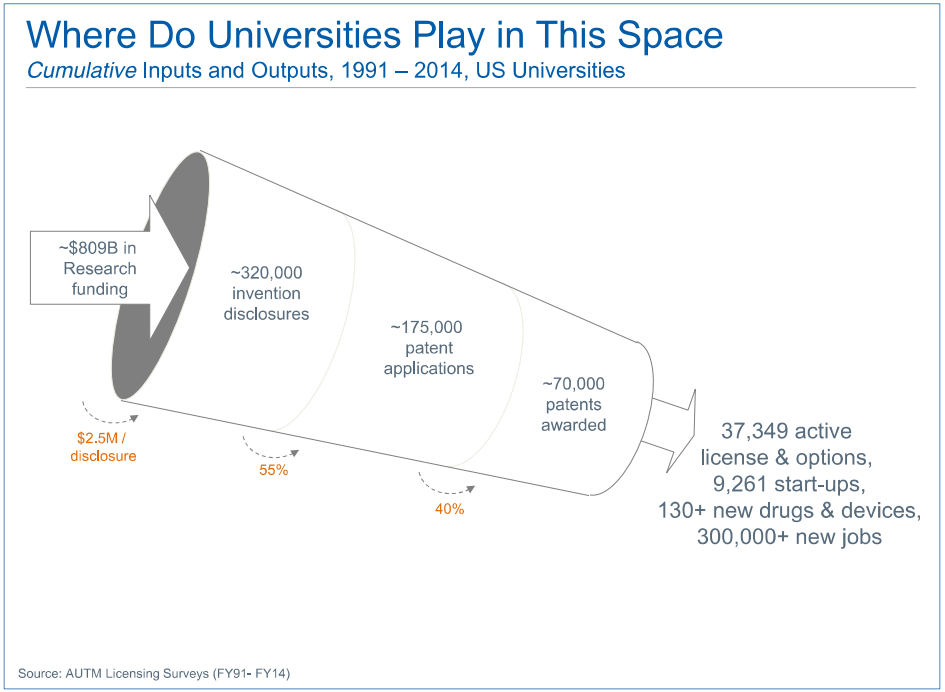
nirf-Innovation
National Institutional Ranking Framework for Innovation
Ministry of Education, Government of India

NIRF Innovation Ranking Framework: 7 Parameters & 22 Key Indiacators		Weightage	%
Parameter 7: Intellectual Property (IP), Generation and Commercialization (Annual Calendar 2020 & 2021):		0.25	100
7.1	Number of Copyrights/Designs Obtained during the Annual Calendar Year 2020 & 2021		15
7.2	Number of Patents Filed during the Annual Calendar Year 2020 & 2021		15
7.3	Number of Patents Published during the Annual Calendar Year 2020 & 2021		20
7.4	Number of Patents Granted during the Annual Calendar Year:2020 & 2021		25
7.5	Number of Technologies (Patents/Non-Patents) Commercialized/Transferred during the Financial Year 2020-21 and 2021-22		25
Total		1.00	700.00

Lesson: Innovation is a portfolio activity. It is difficult to pick winners upfront!

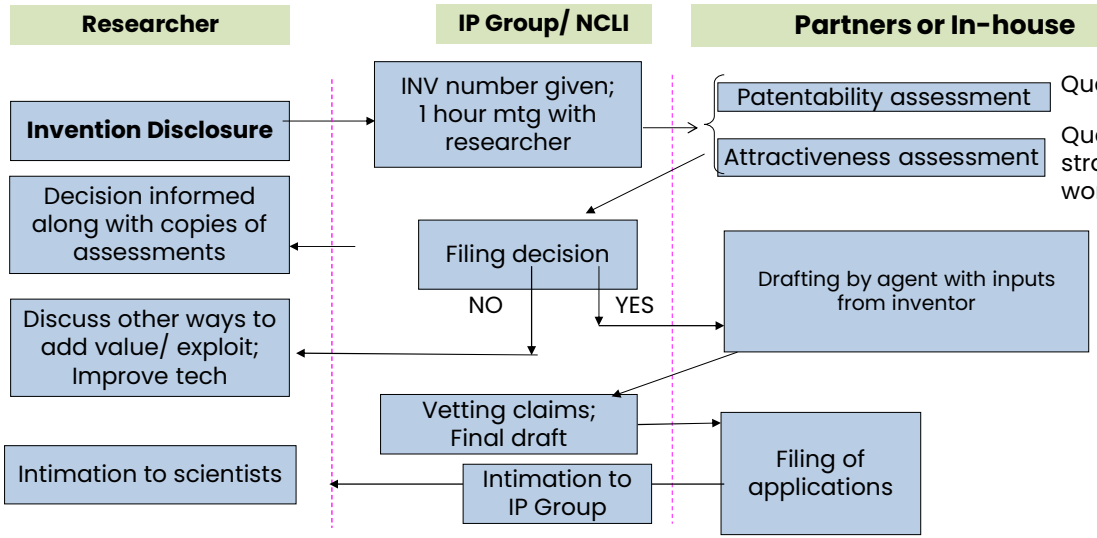
- Example: Google
- Example: Tesla
- Example: Ather

Investment in innovation should not be treated as an investment in a production process. It is like an investment in a defense forces. It is done to create “options”.



Invention disclosure process

Example: NCL's patent document flow and decision points



Example: JHU Tech Ventures

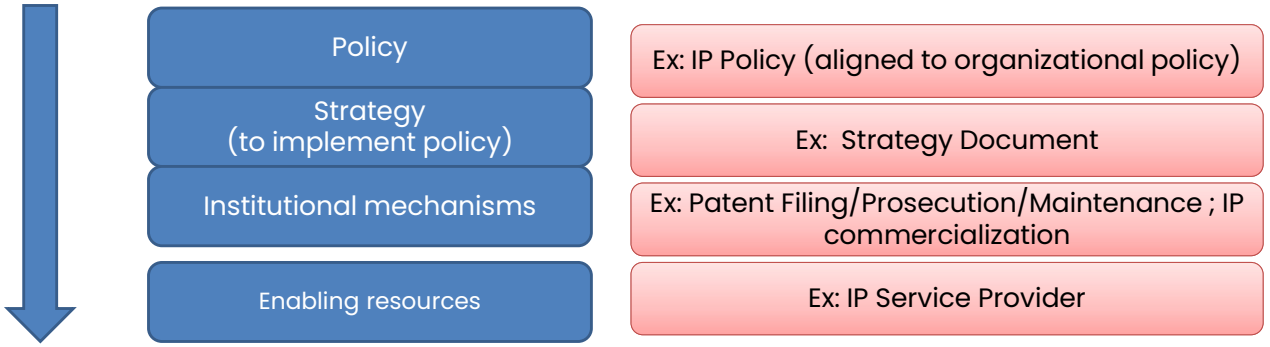
https://ventures.jhu.edu/technology-transfer/reports-of-invention/

Our Commitment to Service: 2-2-2

2 Days	2 Weeks	2 Months
JHTV will contact you within **2 business days** of receiving your disclosure.	JHTV will confer with you regarding your disclosure within **2 weeks** of receiving your disclosure.	JHTV will provide a written determination within **2 months** about the commercialization plan.

For innovation managers: When researchers do not disclose inventions proactively, what can you do?

Building lasting organizations and systems: Policies are the keystones



How to increase submissions of invention disclosures – basic needs:

- Do not ask inventors to find their own funds for patenting costs
- Reduce time spent by inventors on drafting, answering queries/ clarifications etc
- Reduce barriers/delays to publications/ presentations to minimum (**very important**)
- Reduce bureaucracy, paperwork, delays in decision making (committees and hierarchy), empowering inventors
- Awareness, remove fear of the unknown, remove myths
- High level support – commitment, carrot and stick
- Inventors should not have to deal with IP jargon and legal processes
- Sincere and authoritative efforts for licensing/ commercialization

Two approaches

Basic:

- Responding to interest from scientists to file patents: Awareness and efficient systems; ensuring funding
- Getting rid of myths (ex: patent filing is seen negatively by journal editors) and ideological barriers (ex: knowledge should be free).
- Visible technology licensing results – actual products/ services, awards/ recognitions, revenue

Proactive:

- Level 1: Visits to various groups; talks/ seminars etc; scanning publications
- Level 2: IP landscaping and evolving integrated technology programs
- Level 3: Drive with research funding and other resource allocations; Facilitate collaborative funding proposals around themes and calls.

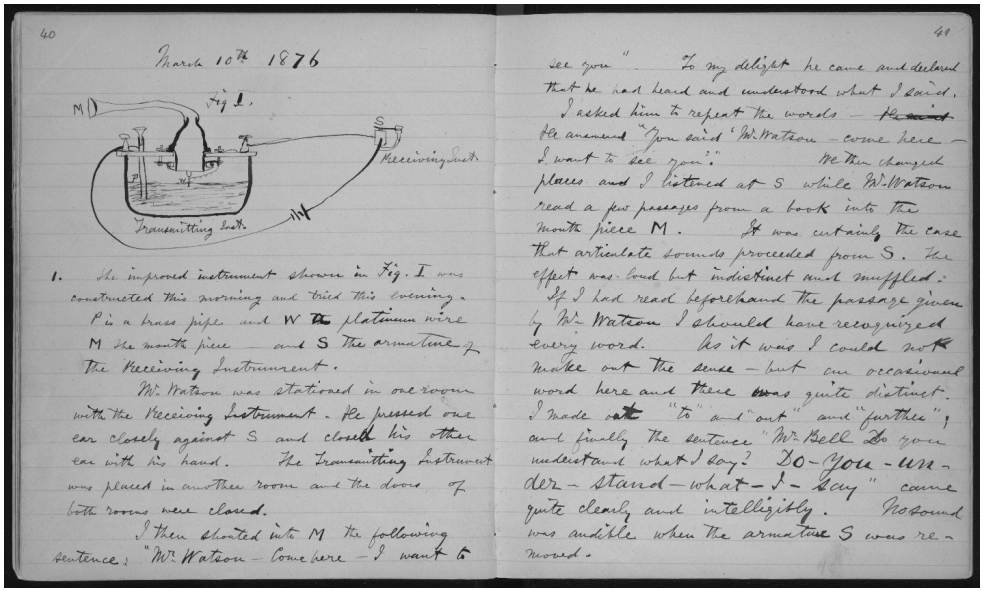
Myths to destroy:

- One cannot file a patent and publish an article on the same topic
- Journal editors look down on publications where previously a patent has been filed
- Patent filing can delay your publication
- Patents are not valued in CVs when research careers are involved
- One needs to show mechanistic data (and show how things work) in a patent

Ideas:

- IP Orientation Session when an employee joins the organization
- Making IP part of Orientation/ induction course for new PhD students
- Observership for students at IP/ Patent Group/Cell
- Sit in research seminars
- Scan all posters in Internal Poster Sessions
- Scan project proposals
- Scan your organization for research capabilities and knowhow. You might find patenting opportunities.
- Wall of Inventors; Most Prolific Inventor Badge
- Annual Inventors Day and honors
- Scan lab note books
- Scan conference presentations
- Scan publications

Invention Spotting in Lab notebooks



March 10th 1876

Fig 1.

M

S

Receiving Instr.

Transmitting Instr.

1. The improved instrument shown in Fig. I was constructed this morning and tried this evening. P is a brass pipe and W the platinum wire M the mouth piece — and S the armature of the Receiving Instrument.

Mr Watson was stationed in one room with the Receiving Instrument. He pressed one ear closely against S and closed his other ear with his hand. The transmitting instrument was placed in another room and the doors of both rooms were closed.

I then shouted into M the following sentence: "Mr Watson — Come here — I want to see you". To my delight he came and declared that he had heard and understood what I said. I asked him to repeat the words — He said He answered "You said 'Mr Watson — come here — I want to see you'". We then changed places and I listened at S while Mr Watson read a few passages from a book into the mouth piece M. It was certainly the case that articulate sounds proceeded from S. The effect was loud but indistinct and muffled. If I had read beforehand the passage given by Mr Watson I should have recognized every word. As it was I could not make out the sense — but an occasional word here and there was quite distinct. I made out "to" and "out" and "further", and finally the sentence "Mr Bell Do you understand what I say? DO-YOU-UN-DER-STAND-WHAT-I-SAY" came quite clearly and intelligibly. No sound was audible when the armature S was removed.

Pages 40-1 of Alexander Graham Bell's unpublished laboratory notebook (1875-76), describing first successful experiment with the telephone.

https://en.wikipedia.org/wiki/Lab_notebook#/media/File:AGBell_Notebook.jpg

Invention Spotting in Publications

Carbon Nanotube Flow Sensors

Shankar Ghosh,[1] A. K. Sood,[1]* N. Kumar[2]

We report that the flow of a liquid on single-walled carbon nanotube bundles induces a voltage in the sample along the direction of the flow. The voltage that was produced fit a logarithmic velocity dependence over nearly six decades of velocity. The magnitude of the voltage depended sensitively on the ionic conductivity and on the polar nature of the liquid. Our measurements suggest that the dominant mechanism responsible for this highly nonlinear response involves a direct forcing of the free charge carriers in the nanotubes by the fluctuating Coulombic field of the liquid flowing past the nanotubes. We propose an explanation based on pulsating asymmetric ratchets. Our work highlights the device potential for nanotubes as sensitive flow sensors and for energy conversion.

http://repository.ias.ac.in/50270/1/83_aut.pdf

Carbon Nanotube Flow Sensors

SHANKAR GHOSH, **A. K. SOOD**, AND N. KUMAR

SCIENCE
16 Jan 2003
Vol 299, Issue 5609
pp. 1042-1044

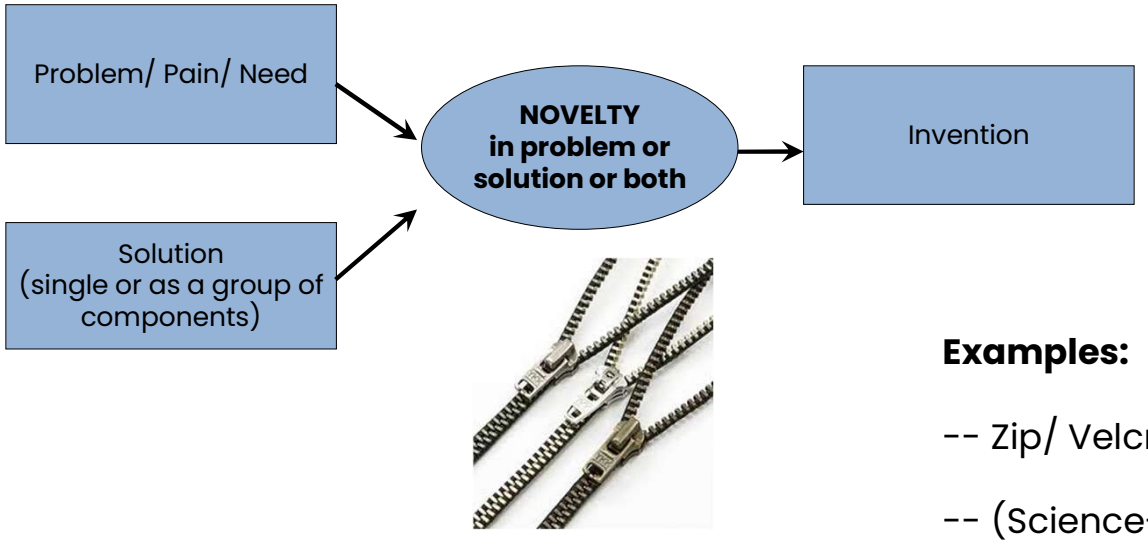
DOI: 10.1126/science.1079080

For inventors:
You do not think you have an invention for patent filing, what should you do?

Typical questions/ doubts/ concerns of inventors:

- Is this an invention at all? I have just done an experiment and learnt something. What is the invention in this?
- Is this really novel?
- Is it worthy of a patent? Don't inventions have to be disruptive?
- Do I enough data to file a patent? Should I not file after getting all the data together?

Invention



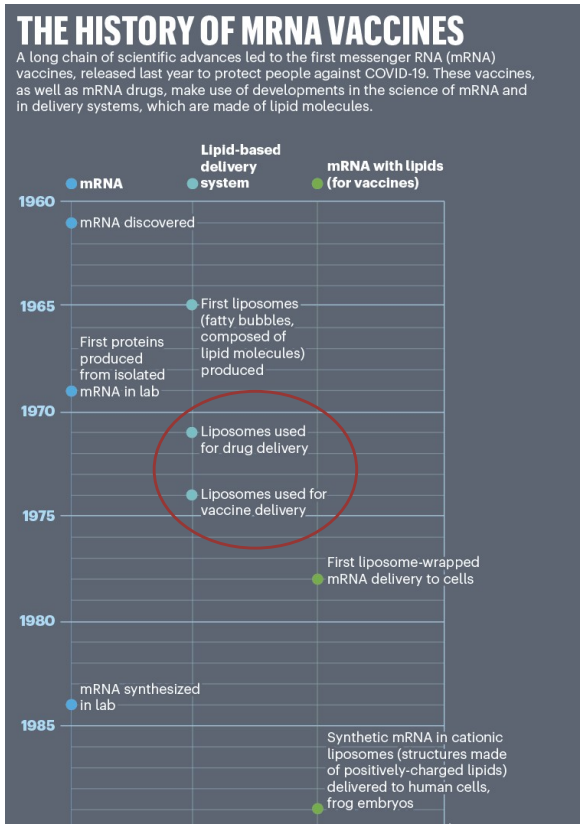
Examples:

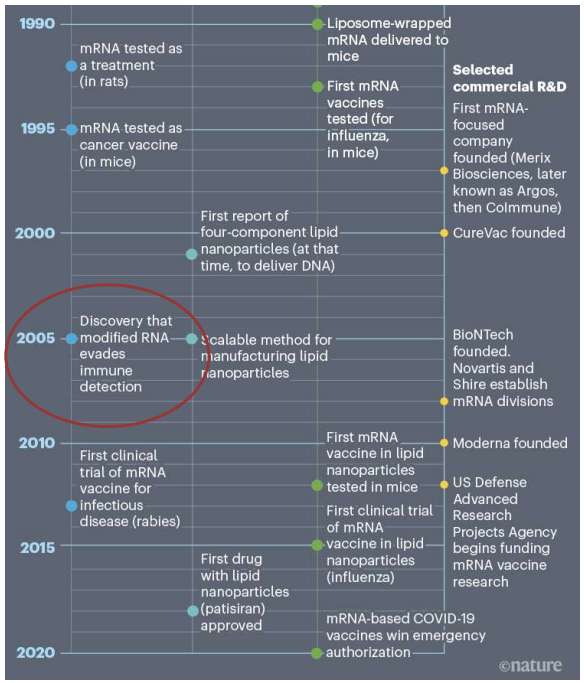
-- Zip/ Velcro/ Bundling tie

-- (Science-led) Vaccines, drugs

mRNA Vaccine

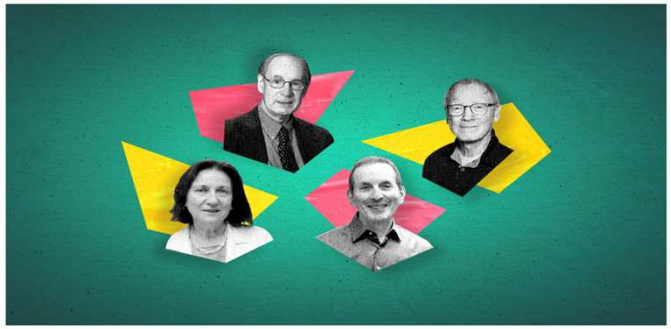
Source: https://www.nature.com/articles/d41586-021-02483-w





Seeking satiety: From signals to solutions

Source: Tschöp and Friedman, Sci. Transl. Med. (2023)
https://www.science.org/doi/10.1126/scitranslmed.adh4453



Early insights into GLP-1's structure and function were generated by (from left to right) Svetlana Mojsov, Joel Habener, and Dan Drucker of Massachusetts General Hospital and Jens Juul Holst at the University of Copenhagen.

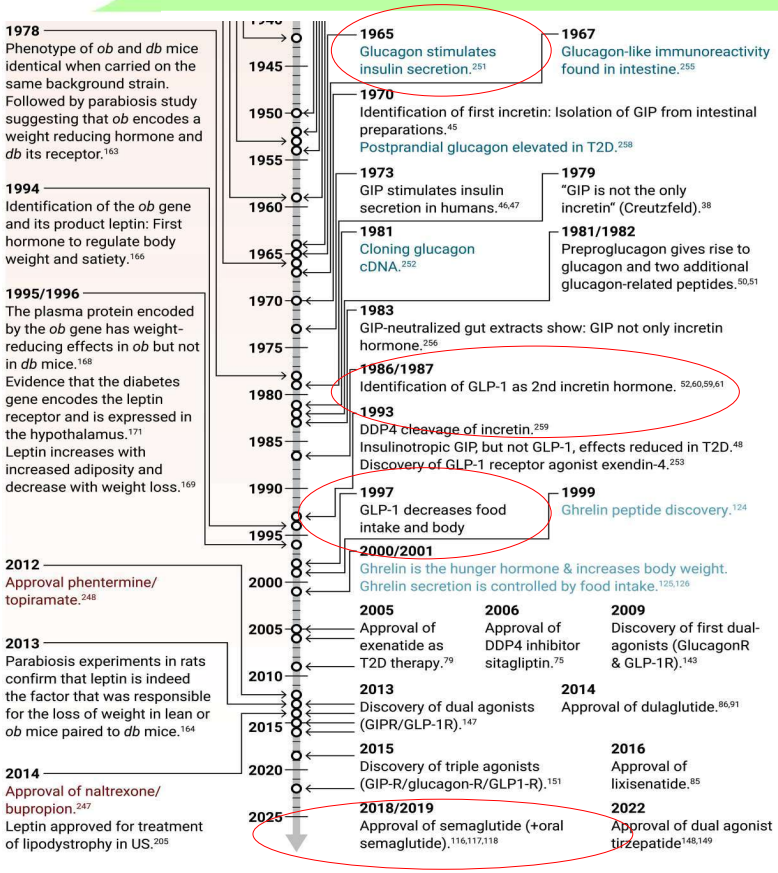


Fig. 1. Timeline of advances leading to the identification of short- and long-term satiety signals and their therapeutic applications. GI, gastrointestinal; IV, intravenous; RIA, radioimmunoassay; ob, obese; db, diabetic; R, receptor.

What can you protect?

- Composition (ex: membrane, catalyst)
- Method or process (ex: method of manufacturing membrane, method of coating catalyst)
- Product (ex: MEA, fuel cell stack)
- System (ex: FC based electricity generation system)
- Method of use (ex: FC in a drone for long distance delivery; drug delivered as an aerosol for asthma treatment)

Mini- Exercise

Mini exercise: Locate the invention

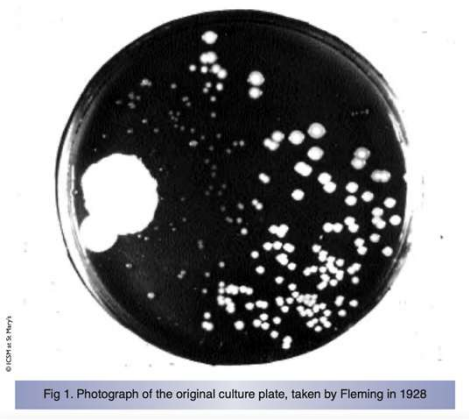


Fig 1. Photograph of the original culture plate, taken by Fleming in 1928

On 1 September 1928 Alexander Fleming became Professor of Bacteriology at St Mary's Hospital Medical School in London. He was an acknowledged expert on the staphylococcus and was following up a 1927 report by Bigger et al. describing changes in colour, texture and cohesion of Staphylococcus aureus colonies over time when left at room temperature. On 3 September 1928 he returned to London from his home in Suffolk, having been on holiday during August with his family. Before leaving for Suffolk, he had stacked all his S. aureus culture plates in one corner of his bench, out of the sun light, so that his new, young research scholar, Stuart Craddock, could work on his bench while he was away.

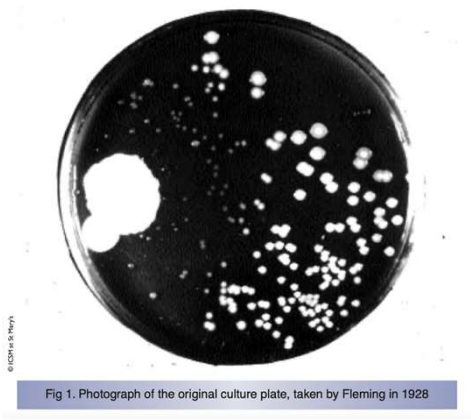
As Fleming started to examine his culture plates, his former assistant, Dr Merlin Pryce, walked into the laboratory and Fleming picked up the top plate, lifted the cover and said: "That's funny." Near the edge of the culture was a mould about 20 mm in diameter with a smaller satellite attached to it (Figure 1). Around it was a clear area in which organisms apparently had been lysed; further away were degenerate colonies, while still further away were normal colonies of S. aureus. Pryce looked and said: "That's how you discovered lysozyme."

Pryce left and thought nothing further of it. In February 1928 Pryce had decided to give up bacteriology and transferred to the Morbid Anatomy Department, leaving Fleming to continue the research by himself. Fortunately, this meant that he was the first person to see the penicillin effect and follow it up.

Mould contamination on culture plates had been seen by Fleming and many others before but he realised that here was something important. He subcultured the mould and kept it going in nutrient broth for further research. He found that the mould grew as a "thick, corrugated, felted mass and after a few days an intense yellow colour developed in the underlying clear fluid." He showed that after eight-days' growth at room temperature the culture fluid gave complete inhibition of staphylococci at a dilution of 1 in 500. For some months the culture fluid was known as 'mould juice' but on 7 March 1929 Fleming named the antibiotic 'penicillin'. On 10 May 1929 he submitted his first report on penicillin to the British Journal of Experimental Pathology.

https://www.fleming.gr/impact/fleming-museum https://www2.samford.edu/~djohnso2/44962w/london/PenicillinTrue.pdf

Mini exercise: Locate the invention



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https://www.fleming.gr/impact/fleming-museum https://www2.samford.edu/~djohnso2/44962w/london/PenicillinTrue.pdf

Tech Assessment and Strategy

FLA

Outline:

- C1. General information
- C2. Inventor's description of the invention/ technology and related inputs (based on interview with inventor)
- C3. Case manager's description of the invention/ technology in a problem-solution approach and comparison with alternative solutions
- C4. Translation to end-products and assessment of technology
- C5. Inputs from interviews with peer experts/ industry professionals/ potential customers/ licensees/ KOLs
- C6. Summary assessment and recommendations

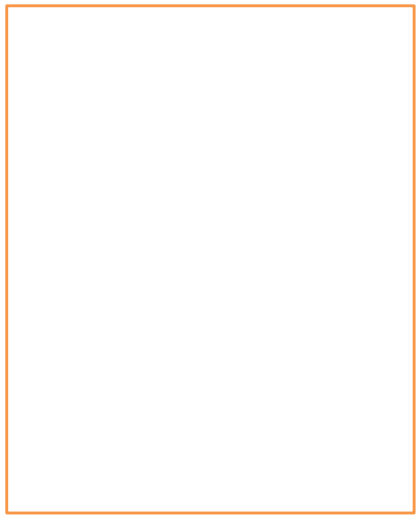
Problem, Solution, Novelty

Problem Definition

A way to do what?	
For whom	
To achieve what outcome	
Currently available ways/ approaches to deal with the problem	
Short comings of current alternative approaches	

Potential Customer Segments and End-Products

Customer Offering



Product visualization

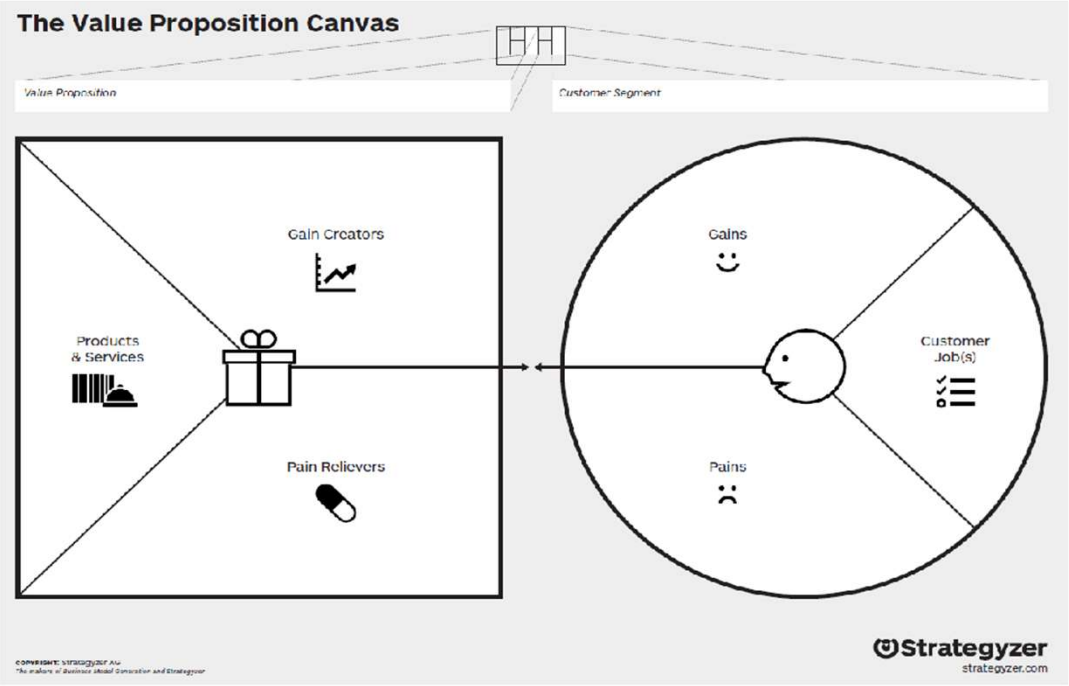
Customer offering will consist of	
Features	
Price	

Value Proposition

What is Value Proposition?

Source: Anonymous. Internet

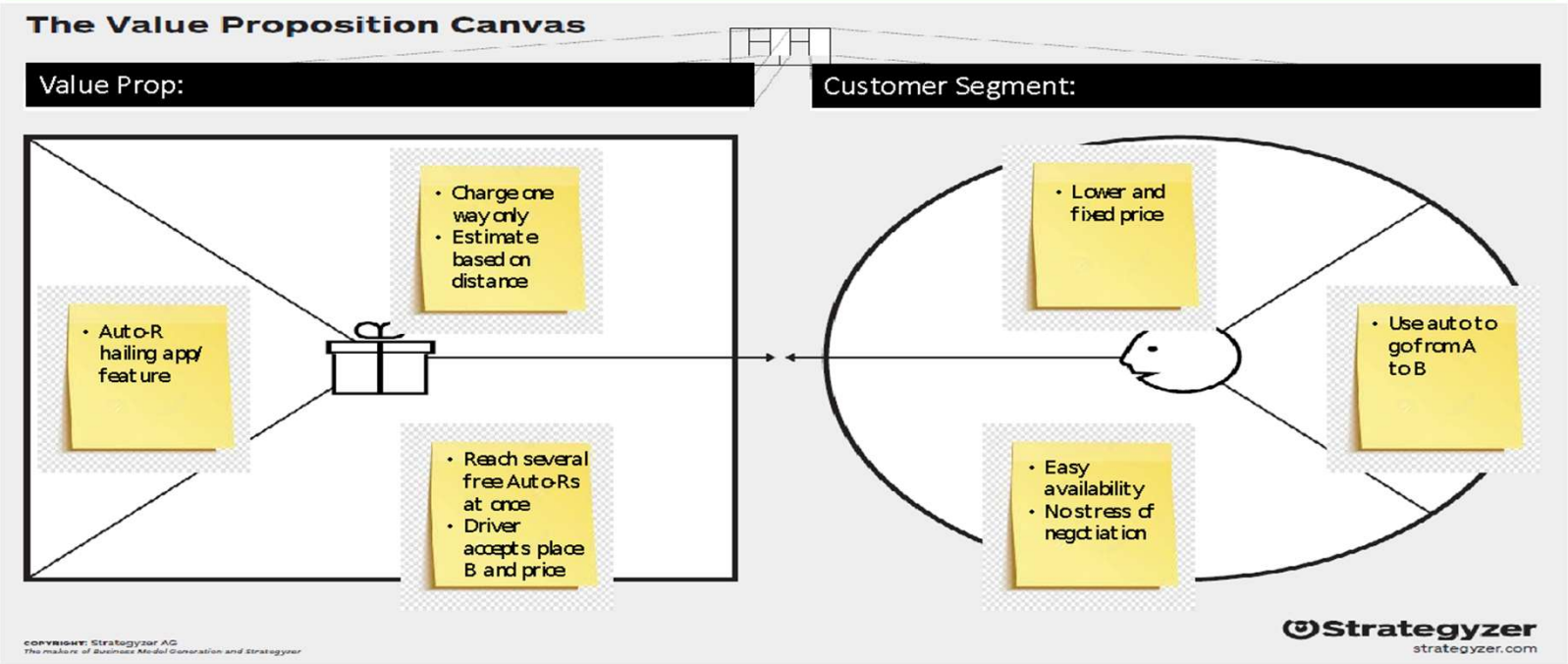
A FRAMEWORK TO DESIGN VALUE PROPOSITION



- You can start either side of the canvas; but starting with Customer Jobs (Customer Journeys) makes it easier
- Know the Customer's functional, emotional and social needs.
- Try to be as quantitative as possible
- Focus on one User Persona in each canvas-- (N = 1) approach
- User – Customer mapping is essential
- Don't confuse jobs (=activities, processes) and outcomes (=results)
- Keep unit economics in context

Courtesy: Sundara Nagarajan, IndusAge

AN EXAMPLE OF VALUE PROPOSITION MAP: AUTO-RICKSHAW HAILING APP



Courtesy: Sundara Nagarajan, IndusAge

Strengthening Value Proposition

- Take one customer category at a time
- List benefits for that customer category from all product offerings in that category including yours; be careful in selecting the alternatives. They have to the right ones, relevant and important ones that the customer segment can recognize as currently available.
- What does the product do? - Product vs. Technology, Key value vs. added values
- Compare the benefits (not “features” or “properties” but benefits; You can have a column of features that make the benefits possible)
- Where do you really stand out? Is it important for your customer?
- Where are you unsure? What are uncertain? What experiments do you need to do to illustrate superior benefits to customer? Features, data sheets, price points to demonstrate your claims (DE-RISKING STUDIES!)
- What will be acceptable to the customer as reliable evidence of superior benefits?

Value Proposition

3. Customer offering/ product	7. Gain creators (Features)	8. Gains	1. Customer segment
4. Alternatives/ competing products	6. Pain reliever (Features)	5. Pains	2. Desired customer outcomes

Ref: Based on Value Proposition Canvas by Strategyzer.com

Comparison

Alternatives -> Benefits (Gains/ Pains) | V			

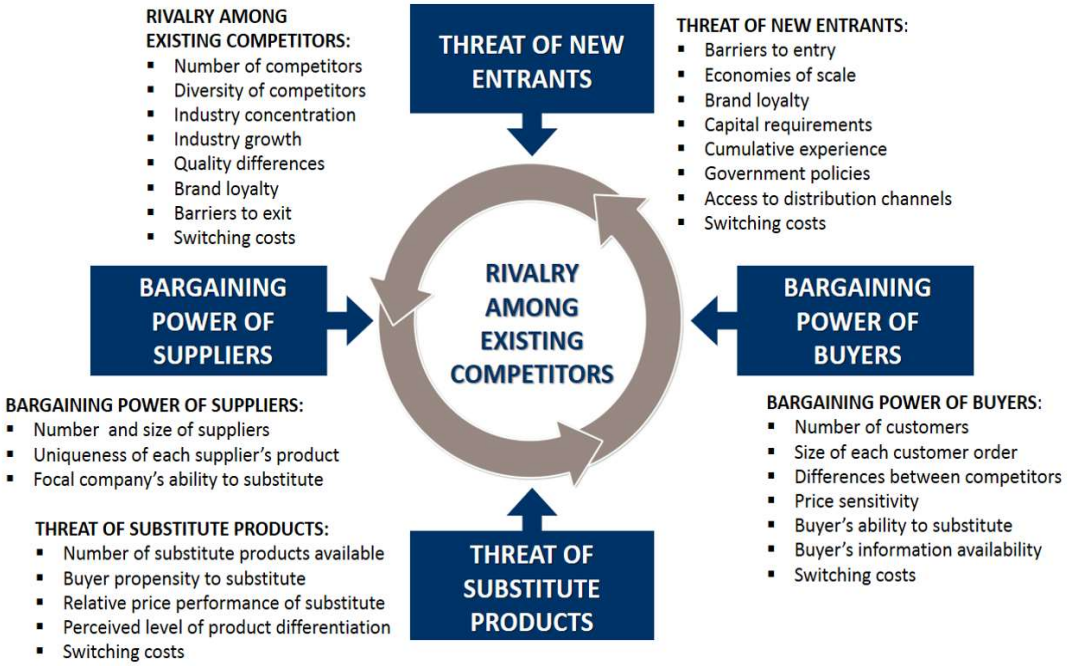
The opportunity

Opportunity analysis

- Existing market
  - Market Research (Secondary, Primary)
- Emerging market
  - Project a scenario of the future and project market opportunities; KOL opinions
- Strategic opportunities: Have options available (ex: Fuel cells R&D at NCL; vaccines during C19)
- Tactical opportunities: Place on the negotiation table, negotiate prices
- Funding/ investment opportunities: Ex – having multiple pieces of knowhow and IP in those spaces – say, mRNA modification, LNP; say, applications of CRISPR

Risks, uncertainties, competition

Competition



https://www.business-to-you.com/porters-five-forces/

https://hbr.org/2008/01/the-five-competitive-forces-that-shape-strategy

https://hbr.org/video/3590615226001/the-explainer-porters-five-forces

Selected Risks/ Uncertainties

Key risks to usage/ commercialization

- Technical/ scale-up/ manufacturability risks
- Freedom to operate/ IP risks
- Regulatory/ standards/legal hurdles
- Market risks
- Industry/ competition risks
- Financial/ scale of investment barriers

Status/strength of the technology and IP

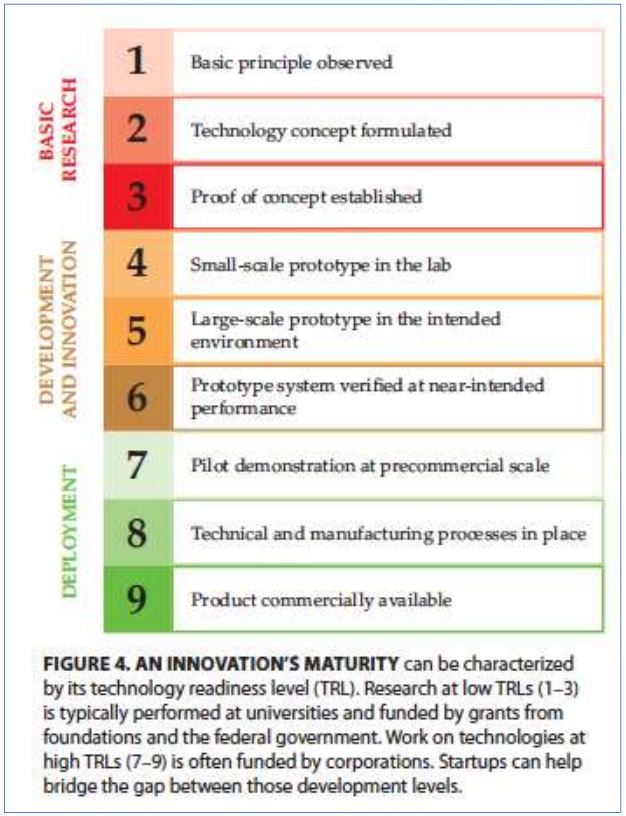
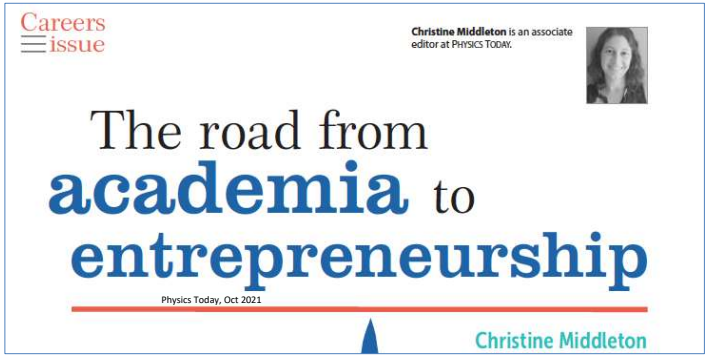


FIGURE 4. AN INNOVATION'S MATURITY can be characterized by its technology readiness level (TRL). Research at low TRLs (1–3) is typically performed at universities and funded by grants from foundations and the federal government. Work on technologies at high TRLs (7–9) is often funded by corporations. Startups can help bridge the gap between those development levels.



Physics Today, Oct 2021

BIRAC TRL Scale

- Website: https://www.birac.nic.in/desc_new.php?id=443
- Scales:
  - -- Drugs (including Drug Delivery)
  - -- Vaccines
  - -- Biosimilars
  - -- Regenerative Medicine
  - -- Medical Devices and Diagnosis
  - -- Artificial Intelligence, Big Data Analysis, IoT's,
  - Software Development & Bioinformatics
  - -- Industrial Biotechnology (including secondary agriculture)
  - -- Agriculture
  - -- Aqua Culture and Fisheries
  - -- Veterinary

Status of IP

- Provisional → Complete → Grant
- Age
- Strength of claims
  - Type of claim
  - Patentability; ISR
- Wide scope of claims
- Geographical coverage
- Oppositions
- Citations by others

What KOLs/experts have to say

KOL Opinion

- Some things that KOL can comment on:

- Is the need/ problem being solved genuine and undisputed?
- How big/ pressing is the need?
- What are the alternative available today? What are the issues?
- Will the proposed solution solve the problem?
- What data would users/ buyers want to see to convince them?
- What should be the price point?
- How does the value chain work? What are the channels?
- Who might be interested in licensing?
- etc

Thinking through path ahead and strategy

Decision framework

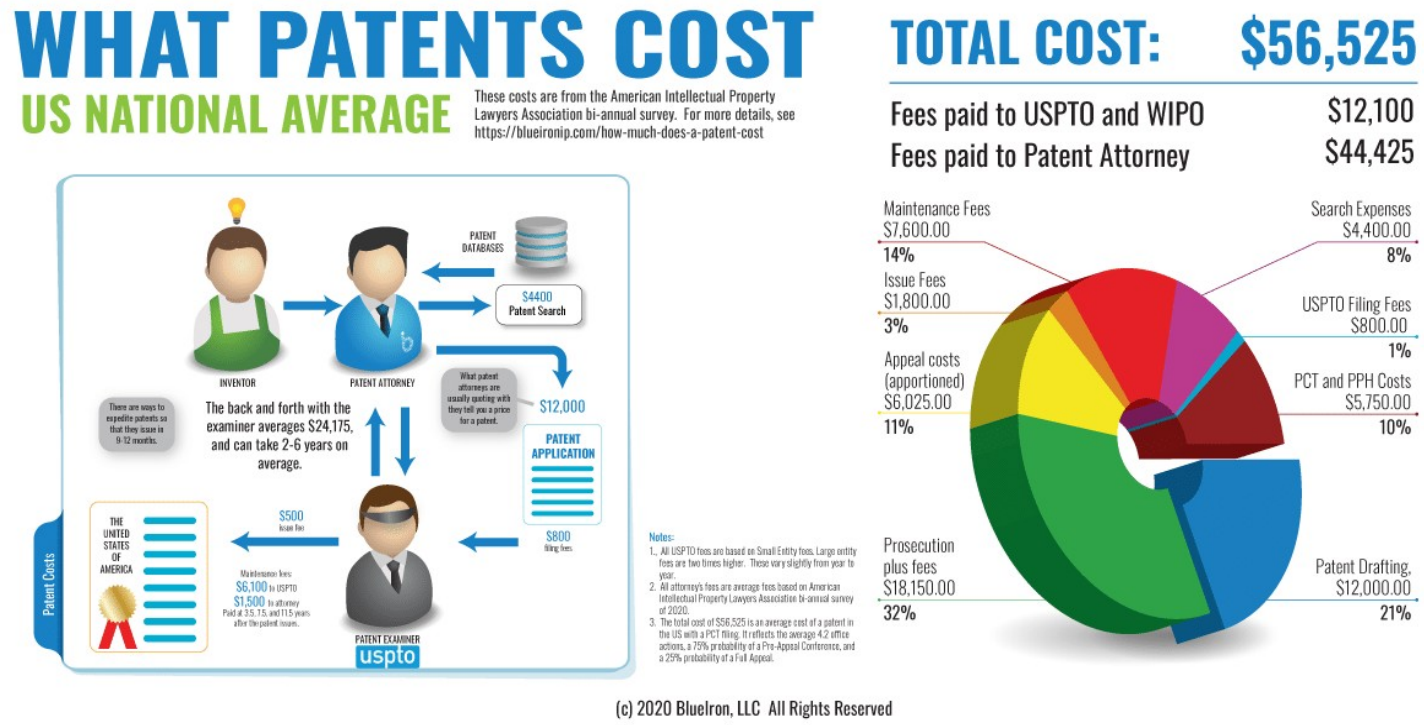
- What is the potential benefit?
  - Keep doors open; hold some cards to influence tech journey ("create options" for yourself, organization, country)
  - Attract resources/ funders/ investors for further development
  - Attract licensors/ assignees *(sometimes this is overemphasized in academia!)*
  - Attract development/ co-development projects
  - Have a voice on the table
  - Exclude others
  - Credit/ recognition
  - Indicator of inventive potential

- What is the potential cost and risks?
  - Funds for patent protection
  - Funds for advancing the technology
  - Time
  - Law suits

IP COSTS

- Drafting, filing, prosecution services/ IP attorney cost
- Statutory fees for filing, examination etc
- Others like translation costs
- Maintenance fees

- Note: There is no such thing as an “international patent”. You have to protect individually in each region/ country
- Note: Applicant can file directly on their own. But if they use the help of attorneys/ agents, they usually need attorneys/ agents from that region/ country.



https://blueironip.com/average-patent-cost/

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