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Lecture 1 Introduction to Startups in the Medical Sciences

Who I am...

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Startups in the Medical Sciences

The Bridge Between Lab and Industry

What is a Startup?

Textbook Definition:

The term startup refers to a company in the first stages of operations. Startups are founded by one or more entrepreneurs who want to develop a product or service for which they believe there is demand

- Early-Stage Business
- Lean structure, focus on growth
- High risk, High reward
- Driven through Innovation and Research



Key Characteristics of Startups

- Scalable business model
- Fast-paced growth potential
- Emphasizes customer needs
- Operates in uncertainty
- Flexible organizational structure



Startups in the Life Sciences

- Focus on biotechnology and biopharmaceuticals
 - Cutting edge research in drug discovery, digital health, pathology, etc.
- Regulated, ethical considerations
 - Health Canada, FDA approval
- Capital-intensive, time-consuming
 - Remember the term cash “**burn rate**” we will revisit this!
- Potential for wide social impact
- Often **collaboration with academia**



UofT has a rich Startup Culture...



Role of Academia

- Source of foundational research
- Talent pipeline for startups
- Collaboration in intellectual property
- Translation of knowledge to business
- Bridging gap between theory, industry



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Government Support

The government is very critical for driving innovation within its academic sector

- Government-subsidized funding programs
- Incubators and mentorship opportunities

Why do they do it?

- Innovation creates upwards trends in the economy
- Create more jobs and opportunity for citizens
- Increased countries social status



Spinning Out of Lab (Spin Off's)

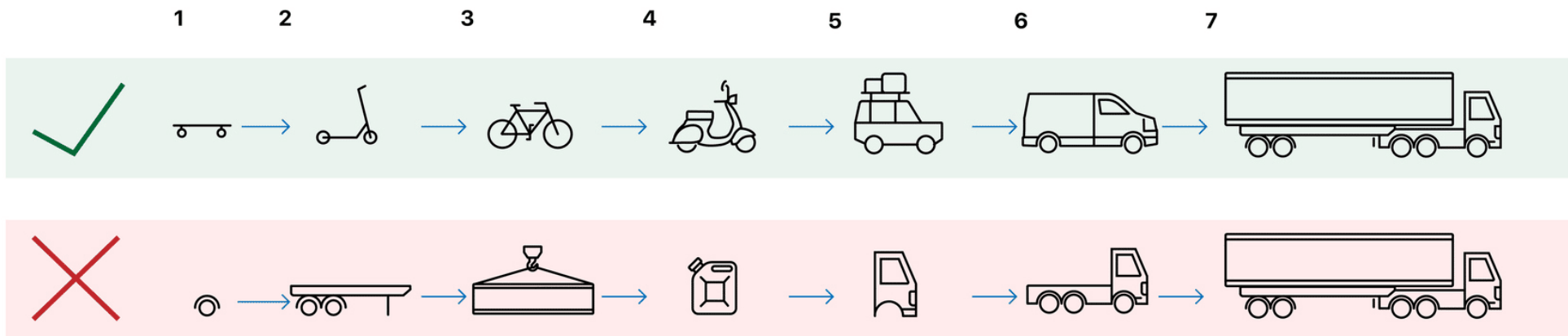
- (1) Evaluate Commercial Potential:** Assess research for market viability.
- (2) Secure Intellectual Property:** Protect inventions through patents or licenses.
- (3) Develop a Business Plan:** Outline goals, strategies, and financial projections.
- (4) Assemble a Team:** Recruit professionals with the skills needed for the venture.
- (5) Seek Funding:** Pitch to investors, apply for grants, or explore other financing options.



MVP – Minimal Viable Product

Version of your product / service with just enough (minimal) features to be used by early customers

- Allows for early feedback
- Demonstrate its value to key customers
- Create a feedback loop (VnV)



Critical Factor of Success: IP

IP – Intellectual Property

- Form of protection against the copying / misuse of your invention
- Four major types of IP
 - **Patents**
 - Trade Secrets
 - Copyright
 - Trademark

Patents are the literal "lifeline" of pharmaceutical drugs

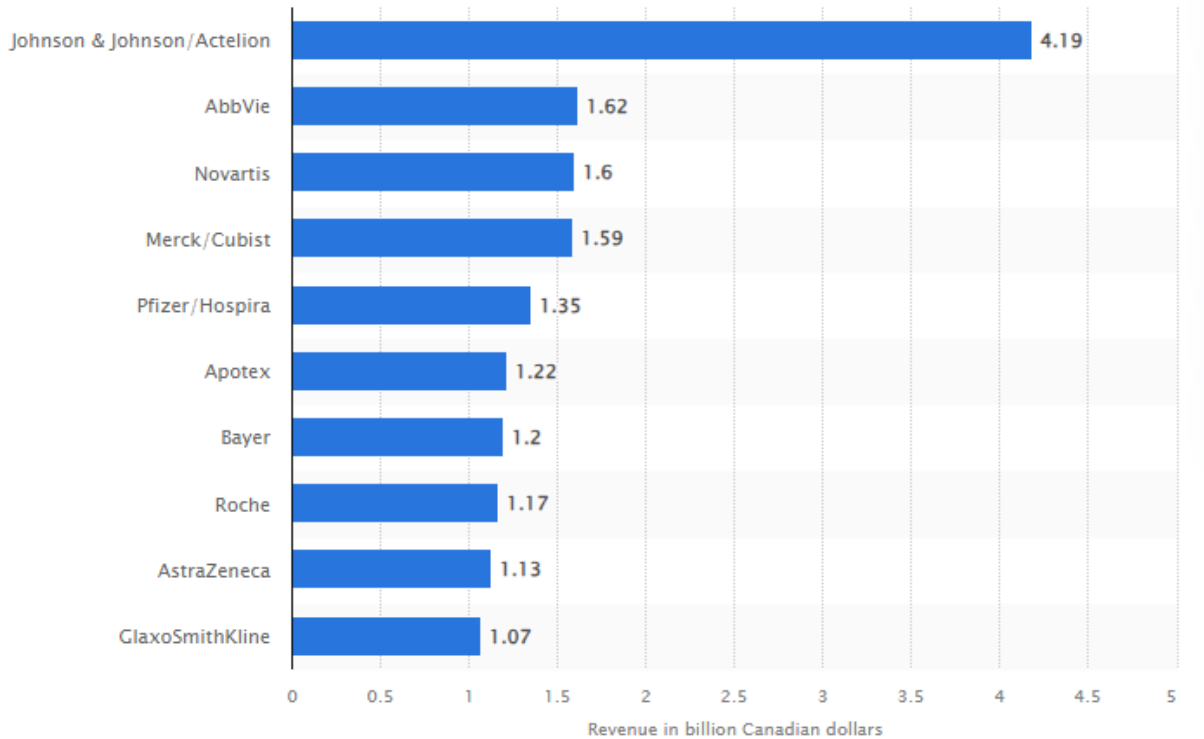
- Once the patent expires...other competitors can sell generic drugs with the same chemical formula



Challenges within Life Sciences

- Navigating complex regulations
- Limited access to funding
- Rapid technological advancements
- **Highly competitive landscape**





Founders Traits

What's a synonymous trait among these founders?



Founders Traits

Vision and innovation

Willingness to take risks

Resilience to failure

Ability to collaborate

Creating your
Leadership profile



Adaptability and Resilience



Founded in 2006 by Anne Wojcicki to commercialize personal genomics.

What was Anne's early goals for 23andMe

- Simple Goal: Give people direct access to their medical data
- Change regulation surrounding medical data
 - Give power to the patient



Adaptability and Resilience



The Company in its Early Stages faced many hurdles:

- Regulatory Challenges
 - FDA raised concerns about its precision
 - Suspended their operations in 2013
- Scientific Skepticism
- Consumer Education and Trust
 - Concerns with privacy and data security

Tech

FDA bans 23andme personal genetic tests

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Adaptability and Resilience



23andMe and Anna never gave up!

- Refined scientific validation process and worked with regulatory bodies
- Removed stigma surrounding skepticism around genetic testing
- Merger with **SPAC** to increase company stability
 - We will learn about the importance of M&A later in the course...



Resilience as a Founder

- Essential to embrace change
- Learn and grow from failure
- Persistence through adversity
- Flexible approach to strategy
- **Maintain emotional intelligence**





End of Lecture 1

Next up Lecture 2: The Value Proposition