



## Technology Commercialization -- PhD/MESc Engineering June 1-July 6, 2021

---

### **INSTRUCTOR**

|        |   |                  |  |
|--------|---|------------------|--|
| Name:  | Albert Behr   | Office Location: | TBD  |
| Phone: | (416) 893-0747  | Office Hours:    | TBD  |
| Fax:   | TBD   | Class Time:      | June 1 <sup>st</sup> – July 6 <sup>th</sup> , Tuesdays<br>and Thursdays 12:00-1:30<br>pm |
| Email: | <a href="mailto:abehr@behrassociates.com">abehr@behrassociates.com</a> / <a href="mailto:abehr3@uwo.ca">abehr3@uwo.ca</a> |                  |  |

### **COURSE DESCRIPTION:**

Welcome to the Western Engineering Experiential -- Technology Commercialization course! This course focuses on the very specialized and specific issues and requirements for successfully launching technology-based products into the global market.

We will examine real-world tested strategies and tactics to assist you in competing successfully in the fast-moving world-stage market.

Using tested strategies and tactics, this class will help students take an existing product concept or patent, to live market validation or termination, company formation, strategic go-to-market planning, market introduction, Intellectual Property protection, corporate growth, and ultimate exit. Further, this course has been designed to assist Engineering students form a series of Go-NoGo checkpoints/gates that need to be considered as their innovation goes through the commercialization process.

This class is designed to move from analysis of a technology venture to actual potential implementation and commercialization. This Technology Commercialization course is very interactive and is focused on helping entrepreneurs launch real companies from real technologies.

In this class, you will develop a sound Go-to-Market strategy that involves reaching out to leading global firms for licensing / joint-ventures / strategic partnership / distribution and you will determine whether your venture/company should move forward in the “real world”, be modified based upon your active investigations, or terminated. The class will consist of lectures, interviews with technology

executives, and an operating plan/modified business plan/termination plan that you will present to the class.

If you are an aspiring Technology CEO, CTO, VP of New Product Introduction, or VP of Product Management, this very informative and exciting real-world course is for you!

### **COURSE OBJECTIVES:**

The objectives of this course are to develop the business skills that are required to be a successful Technology Entrepreneur on the world stage. Students will learn the requisite skills to do a proper worldwide “market map”, determine their unique and sustainable technology advantage, how to value their innovation, how to protect their innovation, how to approach strategic partners for mutual success, and how to capitalize these activities when you have no money.

Students will need to demonstrate these skills through the development of a Worldwide Business/Go-to-Market 12 month Operating Plan. Should you find that upon detailed examination that the proposed product/service should not be brought to market, you would be expected to present a detailed Business Opportunity Assessment on the market, the players, the trends, and why you feel that you should not proceed with full product commercialization and rollout.

The following list details some of the specific aspects to be covered.

- 1. Introduction: What is Technology Commercialization:** Introduction to the phases of technology commercialization and the implications/traps in each phase.
- 2. Base Principles of Technology Commercialization:** Introduction and detailed discussion about the “Technology Adoption Curve”, “the 80% / 20% Rules” and Technology Partnering. Implications for your product in the market will be deeply discussed here.
- 3. Detailed Review on Each Phase of Technology Commercialization:**
  - a. **“Science Experiment” and IP Formation Phase.** Top-down vs. Bottom up analysis on tech formation. Market sizing exercise. IP and Patent protection examination. When to leave the “Bench” review
  - b. **Market Validation Phase.** How to measure market validation. Strategic partners analysis. Product Verification and Certification discussion.
  - c. **Company Formation Phase.** Initial company formation options and funding alternatives examination.
  - d. **Market Acceleration and Leadership Phase.** What is Market Acceleration and Leadership? How to become the “defacto” standard

in a market. How to create market tension between major players. Intellectual Property acceleration examination. Funding options discussion.

- e. **Market Exit Phase.** “Canadian History” and timing discussion. Strategic options review. Valuation consideration.

### **TEXTBOOKS:**

#### **Required Textbooks:**

No textbooks are required for this course although the following books are strongly suggested reading materials.

- 1) Geoffrey A. Moore, *Crossing The Chasm, 3rd Edition: Marketing and Selling Disruptive Products to Mainstream Customers.* HarperCollins Publishers, 2014
- 2) Peter Thiel, *Zero to One: Notes on Startups, or How to Build the Future.* Crown Business, 2014
- 3) Eric Ries, *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses.* Crown Business, 2011
- 4) Bill Aulet, *Disciplined Entrepreneurship: 24 Steps to a Successful Startup.* John Wiley & Sons, 2013

As an Experiential Learning course, students are expected to take their innovative ideas and apply to this their own real-life and career experiences, and that of their team and classmates, to create viable solutions.

### **COURSE ASSESSMENT:**

#### **The course is pass/fail model, and the mark will be based on:**

##### Grade Components:

###### Participation:

- Instructor Evaluation of participation 15%
- Written Go-to-Market/12 Month Operating Plan OR Business Opportunity Assessment (should you choose to not proceed with your Technology Business (Final Project) 85%

Total

100%

**COURSE SCHEDULE:**

**Session 1: Tuesday 12:00pm – 1:30 pm June 1<sup>st</sup>, 2021**

*Overview of Course and Expectations. Introduction and Base Principles of Technology Commercialization*

**Session 2: Thursday 12:00pm – 1:30 pm: June 3<sup>rd</sup>, 2021**

*Phases of Commercialization --“Science Experiment” and IP Formation Phase: Technology Creation Lecture & Discussion*

**Due Today:** Determination of your own Intellectual Property for classroom work.

**Session 3: Tuesday 12:00pm – 1:30 pm: June 8<sup>th</sup>, 2021**

**Due Today:** Individual Presentations. 10 minutes per student. Present your Technology and initial commercialization idea to the class. Expect 10 mins of additional initial questions.

**Session 4: Thursday 12:00pm – 1:30 pm: June 10<sup>th</sup>, 2021**

*Phases of Commercialization --“Science Experiment” and IP Formation Phase: Technology Protection and when/how you can “show things safely” externally Lecture & Discussion*

**Session 5: Tuesday 12:00pm – 1:30 pm: June 15<sup>th</sup>, 2021**

*Phases of Commercialization --“Science Experiment” and IP Formation Phase: Market Sizing / Domain Knowledge Acquisition / Vendors Lecture & Discussion*

**Session 6: Thursday 12:00pm – 1:30 pm: June 17<sup>th</sup>, 2021**

*Phases of Commercialization -- Company Formation Phase Lecture & Discussion*

**Session 7: Tuesday 12:00pm – 1:30 pm: June 22<sup>nd</sup>, 2021**

*Phases of Commercialization -- Market Acceleration and Leadership Phase (Part I) Lecture & Discussion*

**Session 8: Thursday 12:00pm – 1:30 pm: June 24<sup>th</sup>, 2021**

*Phases of Commercialization -- Market Acceleration and Leadership Phase (Part II) Lecture & Discussion*

**Session 9: Tuesday 12:00pm – 1:30 pm: June 29<sup>th</sup>, 2021**

*Phases of Commercialization: Market Exit Phase Lecture & Discussion*

**Session 10: Tuesday 12:00pm – 1:30 pm: July 6<sup>th</sup>, 2021:**

*ROUND-TABLE: WOLFGANG THIEME, MICHEL HEPP, ANTHONY NEHME, ALLAN PORSTNER, DAVID PAMENTER. Real-life and Current Case study on Technology Commercialization*

**Final Assignment II Due (85 marks): Tuesday July 20<sup>th</sup>, 2021:**

*Delivery of 12 Month Go-To-Market/12 Month Operating Plan OR Business Opportunity Assessment Document*

**Written 12 Month Go-To-Market/Operating Plan OR Business Opportunity Assessment**

Assessment Criteria:

- i. The document must be for a new technology venture and involve an underlying concept that has the potential to serve as a platform device for a fast-growth company/partner.
- ii. You will need to do a proper “Market Map” of all the players/competitors in the market and your specific uniqueness and sustainable competitive advantages.
- iii. You must confirm there is or is not a market for your product technology by conducting a focused market/strategic partner viability study prior to the completion of your Operating Plan or Business Opportunity Assessment. This will prevent you from developing a plan for a company that has a limited chance of success.
- iv. You need to discuss your Intellectual Property / Patents findings, strategies, and next steps.
- v. The plan should discuss the key considerations for the operation and financing required over the 12 months it covers (regardless whether you choose to proceed or not). This financing must be a combination of owners’ equity, outside equity, debt, Strategic Partner investment (i.e. “Prepayments”, “Non-Recoverable Engineering Fees”, etc) internally generated funds, and other sources, e.g. tax credits or government support.
- vi. The plan should support an annual growth rate for the company of at least 50% - 100%.

Further guidelines:

- Report length is based on providing pertinent (not redundant) information to a potential investor, creditor, alliance partner, etc. Detail is important, but should not be excessive.

Reports should include:

1. 1 page title page
2. 1 page executive summary

3. Font and spacing for all submissions are 12 point Arial font, double-spaced, single-sided.
4. Body of report would typically be 15-20 pages of text
5. Appendices as required (support documents, financials, etc.)
  - You must also include copies of all reference sources cited in your plan, i.e. interviews with potential strategic partners, journals, etc.
6. Articles, research reports, magazine articles and newspaper columns in a separate folder
7. The following financial statements must be included:
  - a. Projected Cash Flow
  - b. Projected Income Statement
  - c. Projected Balance Sheet
8. BIGGER IS NOT BETTER! The “tighter” the business plan, the better!

## FACULTY BIOGRAPHY

---

### **Albert Behr**

A proud Canadian, Albert Behr is an innovator and leader focused on technology commercialization. Born in Winnipeg, Behr has been in the technology industry for more than three decades. His experience spans high-level marketing, operational, and financing roles across leading technology companies and startups around the globe.

In Phase I of his career, and while based in Silicon Valley, Seattle/Redmond and Tokyo, Behr held executive leadership roles with technology giants such as AT&T, Fujitsu, and Symantec. While in Canada, he served as chief strategy officer for BorderWare Technologies, COO of NRG Group, and senior VP for Platform Computing/IBM.

For Phase II of his career, and for the past 20 years, Behr has been at the helm of the technology commercialization consultancy he founded, advising more than 1,100 tech companies. During that time, he led numerous large-scale strategic partnerships and funding efforts for some of the most promising IT, clean tech, and material sciences firms in North America and Europe. In early 2015, he began devoting time to speaking engagements around the globe and curriculum development for one of Canada's top universities, where he is a professor in the faculty of engineering and teaches a course focused on entrepreneurship, innovation, and technology commercialization strategies.

Representing Phase III of his career, and in 2016 Behr was asked to consult with Fraunhofer-Gesellschaft, one of the world's largest research institutes in Germany responsible for introducing disruptive technologies such as MP3 and Sirius/XM. While working with Fraunhofer, Behr encountered MIOTY™, a yet to be commercialized wireless data transmission solution that he believes will disrupt the Wi-Fi, Bluetooth, and cellular markets to address the last mile of connectivity for IoT. MIOTY is the result of a 10-year, €30 million research effort by Fraunhofer.

Seeing the opportunity for MIOTY to capture significant global market share, Behr was awarded the exclusive worldwide licensing rights to commercialize MIOTY under his newly formed company, Behr Technologies Inc. (BTI). The licensing agreement for what is now known as MIOTY by BTI represented a first in Fraunhofer's 70-year history. Since then, BTI has forged partnerships with Microsoft, Intel, Hitachi Solutions, Advantech, and several other global OEMs. BTI has gained significant interest from the world's leading industry analysts and in October 2018 was named the Entrepreneurial Company of the Year in IIoT Sensor Connectivity by Frost & Sullivan. With MIOTY as a flagship product, Behr's mission is to gain global domination for Canada in the field of wireless IoT communications.

Albert earned an MBA in Marketing and Finance from North Dakota State University, and his undergraduate degree from the University of Manitoba in Psychology and Economics.