# 15.364 Regional Entrepreneurial Acceleration Lab (REAL)

# MIT Fall 2015

Have you ever wondered where to locate your start-up? Have you thought about how you and your organization might improve your local innovation ecosystem? Have you asked what makes Kendall Square special as a place for entrepreneurial firms and what other regions might learn from our experience? REAL (Regional Entrepreneurial Acceleration Lab) is a practical MIT course aimed at students wishing a research-based but action-oriented understanding of how to accelerate innovation-driven entrepreneurship and build vibrant regional economies. It takes as its starting point the innovation-driven entrepreneurial ecosystems (IDE Ecosystems) that have served as the foundation of many successful regions since the first industrial revolution, and now characterize places such as Silicon Valley, Boston/Cambridge, London, Israel and Singapore. The course takes the perspective of five critical stakeholders: entrepreneurs, risk capital providers, and universities, as well as policymakers (government) and large corporations. It provides frameworks for understanding the strengths and weaknesses of innovation-driven entrepreneurship in particular regions, and then focuses on interventions – programs and policies - that can be designed and implemented to across regional economies worldwide.

## COURSE OBJECTIVES

The emphasis throughout REAL is on theory and practice: theories of innovation-driven entrepreneurial growth are used as the basis of practical analyses of specific policies and catalytic programs that can be implemented by corporate leaders, entrepreneurs and investors to enable regional entrepreneurial acceleration. Our objectives include providing you with:

- An MIT framework designed to help you analyze ecosystems and their stakeholders that builds on economic, political and social theories of how ecosystems accelerate economic prosperity.
- Insights into different regions worldwide both in terms of their current state but also the path dependencies that enable their current success (or failure) through the lens of the MIT framework.
- Detailed tools and metrics to design, implement and measure specific policies and programs that can be undertaken by a variety of stakeholders to accelerate ecosystem development.

## COURSE DESIGN

**Seminar Sessions**: We will achieve our objectives through a series of weekly interactive seminar-style discussions, in addition to short summary lectures on specific topics. The first few sessions will focus on comparing and contrasting different theoretical approaches and outlining the MIT-based approach to IDE ecosystems. We will then apply the framework through a series of deep dives into specific regions, cities and nations that exemplify entrepreneurial growth and economic development across sectors and across the world. These deep-dives will use the MIT IDE Ecosystem framework as an analytic lens through assess the causal factors for success and failure. Our third set of sessions will examine specific policy and programmatic interventions and the roles that different stakeholders might take in their effective implementation. Throughout we will examine regions in the USA, Europe, Asia, Africa and South America and will cover sectors from clean energy, media and IT, to the life sciences.

**Final Project**: The final project is an opportunity for you to work in small teams to explore a region or policy of your choice and produce a short written analysis (as well as a brief in-class presentation for your classmates). This is a chance to reflect and integrate the class lessons for regional entrepreneurial acceleration in a context of personal interest.

## CLASS TIME & LOCATION:

Thursday: 5:00-7:00 PM *(see below for dates)*, e62-250

NOTE: We will make video-conferencing available to a small number of students who are currently enrolled in our Executive MBA program.

## FACULTY:


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| **Dr. Phil Budden** | pbudden@mit.edu |
| **Prof Fiona Murray** | fmurray@mit.edu |
| **Josh Krieger (TA)** | jkrieger@mit.edu (please address queries to Josh) |

## READINGS:

Course material will also be made available through the Stellar portal at: https://stellar.mit.edu/S/course/15/fa15/15.364/. MIT students who have added 15.364 to their registration should have automatic access (if not please email our TA). Non-MIT students please contact our assistants, Carrie Beaulieu (beaulieu@mit.edu) or Stephanie Taverna (staverna@mit.edu), for an @mit.edu Kerberos account.

## GRADING

The class grade has three elements

1. Class participation (30%) – we expect you to attend class (either in person or remotely for those in our EMBA program). Excused absences are, of course, acceptable for personal or medical emergencies (please let the TA know via email). You should be prepared for discussion, having read the material critically.
2. Reflection Papers (20%) – you are expected to write two short reflection papers during the semester on sessions of your choice. They must be submitted in *advance* of the relevant class to the TA via email. Papers should be no more than 3 pages in length. They should be a critique of the material for the session, including the issues that you believe are not addressed by the readings or your view on why a particular region or policy is likely to be successful (or unsuccessful) given your own experience or learning.
3. Final Paper & Presentation (50%) – working in small teams (up to three people), you will develop a research report evaluating the current, past and future potential of a region or program to drive innovation-driven entrepreneurship. In the case of a region, you will analyze the region over time through the MIT framework and make recommendations for its further upgrading. For those exploring a program/policy please compare its success or failure in at least three or more modes of implementation. Your final paper should be 15 pages including as much factual detail as possible. You will be asked to make a 5-10 minute high-level presentation of your findings in the final class.

## COURSE SCHEDULE

| DATE | CLASS TOPIC |
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| September 10 | **Frameworks: MIT Innovation-Driven Entrepreneurial Ecosystem Model**. Innovation-driven entrepreneurship (IDEs vs. SMEs), role of ecosystems & geography (Marshall). Importance of entrepreneurship and innovation capacity & the links between them. Role of Institutional foundations. |
| September 17 | **Frameworks: MIT Stakeholder Model (Georgie to lead)** Stakeholder model. Role of different stakeholders in building and contributing to Innovation Ecosystems. Examples from REAP. Design of the REAP program as an action-oriented approach to shaping ecosystems. *Ecosystem exercise*. |
| September 24 | **Frameworks: Strategic Ecosystem Focus: *Silicon Valley & Israel.*** Strategic focus on particular areas of comparative advantage. Silicon Valley as a focus on communications etc. Comparison to Israel. Laissez faire versus pro-active approaches. History & path dependencies. |
| October 1 | **Policies to Accelerate Ecosystems: *Case of London.*** In this session with use the MIT Ecosystem model to analyze London's recent rise in entrepreneurship & explore the pro-active policy interventions made by the government and other stakeholders. We will outline the range of policy interventions & metrics to capture ecosystem progress and change. |
| October 8 | **Programs to Accelerate Ecosystems: *MassChallenge Case***. In this session we will analyze accelerators as one approach to catalytic intervention. We will also explore how to link design to underlying challenges and outline methods of measurement and evaluation. |
| October 15 | **Policy & Program Interventions for Human Capital** Evaluation of a range of policies and programs to improve access and availability of human capital e.g. visa policy and non-compete agreements. Also programs e.g. Prizes to encourage human capital development (e.g. Start-up Chile, GlobalScots) |
| October 22 | **NO CLASS – SIP WEEK & REAP WEEK!** |
| October 29 | **Policy & Program Interventions for Risk Capital** Evaluation of a range of policies and programs to improve access and availability of risk capital e.g. Angel investment policy (UK – Lerner) & tax policies for early-stage capital (OECD). Also programs to encourage risk capital development (e.g. Yozma) |
| November 5 | **Implementation – Ecosystem Orchestration by Universities: *Kendall Square Case.*** We will explore the variety of roles that universities can play in leading and shaping their innovation ecosystems by exploring the case of MIT and Kendall Square. Our focus will be on the role of ideas, people and space as well as leading stakeholders. |

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| November 12 | **Implementation – Ecosystem Orchestration by Governments: *Singapore Case.***<br>How important are governments as ecosystem leaders & what is their most effective role? And who in the government matters? What are the programs and policies that can and should be implemented by the Singaporean government (with other stakeholders) to effect the change that the country requires? |
| November 19 | **Implementation - Ecosystem Orchestration by Corporates.**<br>Can large corporations lead ecosystem change? Using examples from a variety of different countries – Nokia/Finland, OCP/Morocco, Alibaba/China. We will examine the particular challenges faced by large corporations as they attempt to serve as honest brokers in a broader ecosystem. We will end by considering the various ways in which all key stakeholders can be engaged. |
| November 26 | **NO CLASS – THANKSGIVING!** |
| December 3 | **NO CLASS – work on your presentations/papers!** |
| December 10 | **Student Presentations** (**NOTE: Session will run 5-8pm**)<br>We will use the session as an opportunity to hear a short 10-15 minute presentation from each of the class teams. Each presentation will be followed by Q&A from the instructors and all class participants. |

## READINGS

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| September 10 | **Frameworks: Introduction to Innovation-Driven Entrepreneurial Ecosystems**<br>We will define and introduce the critical role of innovation-driven entrepreneurship (IDE vs. SME) in vibrant regions and a core part of the MIT Innovation Ecosystem framework - innovation and entrepreneurship capacity. Our focus will then shift to spatial patterns of economic activity and how they are distributed across regions and nations. This will be illustrated with historical examples as well as contemporary ones.<br>As you read, please consider some of the following questions:<br>• **What are the special characteristics of IDEs?**<br>• **Why is agglomeration i.e. the co-location of firms, such a paradox in today's economy? What are the factors driving agglomeration?**<br>• **<u>Consider a region you know well</u>, what are the main factors contributing to its growth? What additional factors would you deem critical?**<br><br>**Readings**<br>• Michael E. Porter. 1998. "Location, Competition and Economic Development: Local Clusters in a Global Economy" *Economic Development Quarterly. 15-34.*<br>• Bill Aulet and Fiona Murray. 2013. A Tale of Two Entrepreneurs: Understanding Differences in the Types of Entrepreneurship in the Economy. Kauffman Foundation Working Paper (8 pages)<br>• Feldman, M. P., J. Francis, and J. Bercovitz., 2005. "Creating a cluster while building a firm: entrepreneurs and the formation of industrial clusters." *Regional Studies* 39: 129-141.<br>• |
| September 17 | **Frameworks: MIT Stakeholder Model.**<br>We will introduce the MIT Stakeholder model. Role of different stakeholders in building and contributing to Innovation Ecosystems. This session will also introduce the MIT Regional Entrepreneurship Acceleration Program (REAP) and the ways in which the program is structured as an action-oriented approach to shaping ecosystems and convening stakeholders. We will also do an interaction *ecosystem exercise*.<br>As you read, please consider some of the following questions:<br><br>• **<u>Consider a region you know well</u>, what are its strengths and weaknesses as an innovation ecosystem?**<br>• **Who are the main actors contributing to its growth – in the past and today? Who is missing from the ecosystem or failing to play their role?**<br><br>**Readings** |

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| | • Budden and Murray. Entrepreneurial Opportunity in the Global Innovation Economy. http://www.boston.com/business/blogs/global-business-hub/2014/01/greater_boston_1.html<br>• Read up on the REAP Progam at reap.mit.edu<br>• Florida, Richard. 2003. *The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community and Everyday Life* (New York: Basic Books). Please read the preface and Chapters 4 & 12.<br>• Feld., Brad. 2012. StartUp Communities: Building an Entrepreneurial Ecosystem in your City. Chapters 1 & Chapter 3. Book is available to buy at http://www.amazon.com/Startup-Communities-Building-Entrepreneurial-Ecosystem/dp/1118441540 |
| September 24 | **Frameworks: Strategic Ecosystem Focus: *Silicon Valley & Israel.***<br>In this session we will explore the famous and frequently analyzed ecosystems of Silicon Valley and Israel. We will focus on the ways in which different regions build different types of comparative advantage, as well as the role and linkage among stakeholders and that must exist among them for vibrant IDEA ecosystems to emerge. We will also compare laissez faire versus pro-active approaches.<br>As you read, please consider some of the following questions:<br>• **According to Saxenian, what are the factors shaping the success of Silicon Valley?**<br>• **According to Senor and Singer what has shaped Israel's success as a "startup nation"?**<br>• **What were the historical factors and path dependencies that positioned Israel and Silicon Valley for their comparative advantage?**<br><br>**Readings**<br>• AnnaLee Saxenian**.** 1996**.** "Inside-Out: Regional Networks and industrial Adaptation in Silicon Valley and Route 128" *CityScape: A Journal of Policy Development.*<br>• Senor, D. and S. Singer. 2009. StartUp Nation: The Story of Israel's Economic Miracle. Available to buy at http://www.amazon.com/Start-up-Nation-Israels-Economic-Miracle/dp/0446541478/ref=sr_1_1?s=books&ie=UTF8&qid=1378133785&sr=1-1&keywords=start+up+nation<br>• Isenberg, D. 2011. StartUp Nations: The Real Roots of Israel's Entrepreneurial Miracle. The Economist. http://www.economist.com/blogs/schumpeter/2011/04/israels_economic_miracle |

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| October 1 | **Policies to Accelerate Ecosystems. *Case of London.***<br>We will use the case of London's burgeoning IDE entrepreneurial activity to address the question of whether and how ecosystems can be accelerated through systematic interventions. We explore the factors that shaped the rise of London and the key policies that have been enabling of London's recent success. In particular we contrast traditional Porterian cluster policy approaches with the approaches to entrepreneurship policy.<br>As you read, please consider some of the following questions:<br>• **Using the MIT Frameworks assess the state of London's IDEA ecosystem in 2008 at the time of the economic crisis. What were the strengths & what were the potential weaknesses?**<br>• **What policy interventions are suggested by a cluster-based approach? How might the MIT Stakeholder model and Innovation Ecosystem model be at odds or consistent with this approach?**<br>• **What were the specific tensions that seemed to arise between the government and entrepreneurial community? How can these be avoided or is this sort of creative tension inevitable and productive?**<br>**Readings**<br>• Budden, Phil & Fiona Murray. 2014. London Case Study<br>• Budden, Phil & Fiona Murray. 2013. London TechCity: An Emerging Entrepreneurial Ecosystem. Boston Globe. http://www.boston.com/business/blogs/global-business-hub/2013/03/london_tech_cit.html<br>• McKinsey: 2011. East London: World class center for digital enterprise.<br>• Porter, Michael E., and Christian H.M. Ketels. "UK Competitiveness: Moving to the Next Stage." DTI Economics Paper Report Series, No. 3, 2003. |
| October 8 | **Programs to Accelerate Ecosystems: Accelerators & Hackathons**<br>This session explores catalytic programs that may be implemented to shape and accelerate innovation ecosystems. Their effectiveness depends upon careful design and implementation (although this is often not acknowledged by those who implement these programs!). Through an analysis of MassChallenge and its global expansion, we will determine their key design variables, the potential role of all five stakeholders and the ways in which such programs must be designed to complement other underlying aspects of iCapacity and eCapacity in a region.<br>As you read, please consider some of the following questions:<br>• **Why are accelerators considered to be effective programs that can rapidly improve Innovation Ecosystems? How do they shape i- and eCapacity?** |

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| | • **What contribution does MassChallenge make to the Boston ecosystem?**<br>• **What are the Ecosystem conditions under which MassChallenge is likely to be successful or unsuccessful around the world?**<br>• **How can you measure the possible success and impact of accelerators or other programs?**<br><br>**Readings**<br>• MassChallenge Case (to be circulated)<br>• Feld, Brad. 2012. StartUp Communities: Building an Entrepreneurial Ecosystem in your City. Chapter 8 – the Power of Accelerators.<br>• Seed Accelerator Rankings Project. http://www.seedrankings.com/pdf/sarp_2014_accelerator_rankings.pdf<br>• Fehder, Hochberg, Murray. 2013. Accelerating Innovation Ecosystems. MIT Innovation Initiative Working Paper |
| October 15 | **Policy & Program Interventions for Human Capital Development**.<br>In this session we will continue with a more detailed analysis of specific policies that can accelerate IDE entrepreneurship when initiated by regions and nations to build iCapacity and eCapacity. Our focus today is on policies that shape the nature and mobility of talented people in ecosystems.<br>As you read, please consider some of the following questions:<br>• **What role do talented individuals play in an innovation ecosystem?**<br>• **What policies can a government use to shape the flows of talent?**<br>• **Why do visa policy and non-compete policy matter? What is the evidence?**<br>• **How might prize competitions serve as effective programs to shape and upgrade human capital?**<br>• **Can mentoring programs make a difference? IF so how, and what examples have you found to be effective?**<br><br>**Readings**<br>• MacCormack, Alan, Fiona Murray & Erika Wagner (2013). How Competition can Spark Innovation. *Sloan Management Review*.<br>• Wadhwa, V. et al. 2009. America's Loss is the World's Gain. Kauffman Foundation White Paper on Visa Policy.<br>• Marx, M. and L. Fleming. 2011. "Non-compete Agreements: Barriers to Entry...and Exit?" *Innovation Policy and the Economy* (12) (**SKIM**)<br>• Mentoring networks?<br>• **OPTIONAL**: National Foundation for American Policy. 2010. H1B Visas By the Numbers. Available at http://www.nfap.com/pdf/1003h1b.pdf |

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| October 22 | **No Class (SIP week: MIT REAP will host Workshop 1 for its 3rd Cohort)** |
| October 29 | **Policy & Program Interventions for Risk Capital**<br>Evaluation of a range of policies and programs to improve access and availability of risk capital e.g. Angel investment policy & tax policies for early-stage capital (OECD). Also programs to encourage risk capital development (e.g. Yozma in Israel).<br>As you read, please consider some of the following questions:<br>• **What policies & programs can governments effectively develop to help early-stage capital flows into IDEs? Do you agree with Lerner's argument that governments should NOT use their funds?**<br>• **According to the OECD report, what types of tax policies for early-stage capital have caused Europe's regional ecosystems to be more successful? From an entrepreneur's perspective do these make sense?**<br>• **What is the role of major lending institutions such as commercial banks, of sovereign funds and regionally-based pension funds in IDEA ecosystems?**<br><br>**Readings**<br>• OECD. 2012. Financing High-Growth Firms: The Role of Angel Investors. OECD Publishing. Chapter 2 and Chapter 4. Available to read online at http://www.keepeek.com/Digital-Asset-Management/oecd/industry-and-services/financing-high-growth-firms_9789264118782-en<br>• Lerner, J. 2011. Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital have failed. Ch 6: How Governments go Wrong & Ch 8:The Special Challenges of Sovereign Funds. |
| November 5 | **Implementation – Ecosystem Orchestration by Universities: *MIT Kendall Square.***<br>This session is one of three final sessions of the role of different stakeholders in orchestrating and implementing ecosystem change and acceleration. We start by looking at the role of the University focusing specifically on MIT and 'Kendall Square'. We look at the role of all key stakeholders, and the tensions with the broader City of Cambridge and its residents.<br>As you read, please consider some of the following questions:<br>• **Using the MIT Frameworks assesses the state of Kendall Square's Innovation ecosystem – is it really Kendall Square, or Cambridge, or Greater Boston or the whole of Massachusetts?**<br>• **What role has MIT played in its development?** |

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| | • **What role does MIT play versus other key stakeholders? What are the causes of the tension between MIT and the local community, as well as the City of Cambridge government? How can these be avoided or is this sort of creative tension inevitable and productive?**<br>• **What lessons does this case hold for other regions hoping to use the University stakeholder to drive and orchestrate the Innovation Ecosystem (e.g. Skoltech/Moscow; Masdar/Abu Dhabi)?**<br>**Readings**<br>• Budden, Phil & Fiona Murray. 2015. MIT in Kendall Square Case Study [to be circulated]<br>• MIT Innovation Initiative Report. http://innovation.mit.edu<br>• MIT Alumni Innovation Survey. 2015. Roberts, Murray and Kim. [DRAFT]<br>• Brad Feld. Startup Communities. Chapter 5: Attributes of Leadereship.<br>• MIT Vision for the East Campus (Report recently circulated by the Provost)<br>• Graham, Ruth. 2014. Creating University-Based Entrepreneurial Ecosystems. Executive Summary<br>• http://techcrunch.com/2013/05/31/russia-hopes-the-skolkovo-tech-city-will-produce-its-great-leap-forward/ |
| November 12 | **Implementation – Ecosystem Orchestration by Governments: *Singapore Case***<br>Here we focus on the role of the government and ask how effective governments can be as ecosystem leaders & what is their most useful role? We will explore the opportunities and challenges associated with attempts at government-focused ecosystem development. Our focus will be on Singapore.<br>As you read, please consider some of the following questions:<br>• **What arguments does Glaeser make regarding the role of government in ecosystem development?**<br>• **Is Singapore a successful example of innovation ecosystem development? If not, what is missing from the government-oriented approach?**<br>• **What would you recommend to the government based on the MIT IDEA Ecosystem approach and analysis?**<br><br>**Readings**<br>• MIT Case Study: Singapore (Fiona Murray and Phil Budden).<br>• Edward L. Glaeser. 2007. Do Regional Economies Need Regional Coordination? (March 2007)<br>• Brad Feld. Start-Up Communities Chapter 10.<br>• http://www.economist.com/news/special-report/21657606-continue-flourish-its-second-half-century-south-east-asias-miracle-city-state |

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| | • http://www.economist.com/news/special-report/21657609-after-decades-prudence-singapore-well-prepared-most-eventualities-years |
| November 19 | **Implementation - Ecosystem Orchestration by Corporates.**<br>Can large corporations lead ecosystem change? Using examples from a variety of different countries – Nokia/Finland, OCP/Morocco, Alibaba/China – we will address the ways in which large global corporations can facilitate innovation ecosystems and the challenges that they confront. We will examine the particular challenges faced by large corporations as they attempt to serve as honest brokers in a broader ecosystem.<br>**As you read please consider the following questions:**<br><br>**Readings:**<br>• Stanford Social Innovation Review: Understanding the Value of Backbone Organizations http://ssir.org/articles/entry/understanding_the_value_of_backbone_organizations_in_collective_impact_1<br>• Leading a Backbone Organization (http://www.collaborationforimpact.com/wp-content/uploads/2014/01/Leading-a-backbone-organisation.pdf) |
| November 26 | **No Class – Happy Thanksgiving!** |
| December 3 | **No Class – work on your presentations/final papers!** |
| December 10 | **Student Project Presentations** |