Co–Creation @MIT: An Innovation Ecosystem Approach

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OECD: Towards Effective Science–Industry Co–Creation
Co-Creation in Innovation Ecosystems*

- Innovation ecosystems are of central importance to building our innovation economy today - not only in the US, but also Europe, Middle East, Africa & Asia.

- Within innovation ecosystems key stakeholders must come together in new ways to engage in effective co-creation to solve the world’s greatest challenges.

**Universities & corporations** play an important role these changes but are often slow to adapt.

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MIT’s Innovation Initiative (MITii) defines innovation as the “process of taking ideas from inception to impact”;

- Emphasizing that an ‘idea’ is the match between a problem and a solution, not just tech;
- Focusing on process (not products/services), highlighting the entire journey;
- Observing that a range of different organizations are engaged, from universities and startups, to corporations & even governments.
An innovative ‘idea’ usually starts with a problem or a solution…
...but eventually requires the match between a problem and a solution
In today’s innovation economy, the world of innovation is **NOT** flat.....

...instead there are a growing number of ‘innovation ecosystems’- characterized by interactions and inter-dependencies between key stakeholders and their resources - supporting ‘innovation-driven entrepreneurship’.
What are the lessons from successful innovation ecosystems worldwide?
In MIT’s Innovation Ecosystem model, we outline this ‘System’
Innovative/Entrepreneurial Capacities are the ‘twin engines’ of the System.

https://innovation.mit.edu/assets/BuddenMurray_Assessing-iEcosystems-Working-Paper_FINAL.pdf
Often, although not always, highly concentrated in regions with strong universities, to support the ecosystem.

Innovation & entrepreneurship in MA is highly concentrated within the Greater Boston area and specifically around “Kendall Square”

- R&D spend ~5.86% GDP
- > $25Bn in R&D funding
- ~ 20% R&D by academia
- > 10% of US VC investment - over $8Bn in 2017
- > 3000 start-ups
Leading Innovation Ecosystems are characterized by five Key Stakeholders…

- Entrepreneur
- University
- Risk Capital
- Government
- Corporate
coming together in new ways with a growing role for innovation-driven enterprises in the innovation process (especially in the earliest phases)
Effective regions build a strategy for co-creation around assets, identity & activities that drive **comparative advantage**
Governments can signal key grand challenges & missions that may shape the direction of co-creation based around comparative advantage.

New demand-side approaches can be used to direct innovation ecosystems via competitions, incentives & attention; tools that complement traditional R&D spending and tax incentives for innovation.
E.g. Nova Scotia is building on its historical & emerging ocean advantage with its oceans ‘super-cluster’
E.g. Pittsburgh is building its industrial ‘renaissance’ around computer science, robotics & autonomy
E.g. Dubai is emphasizing the government need to solve critical social problems as the foundation of its approach...

- **Goal** is to be the best run country of the future in 2030, pioneering new solutions to key government challenges;
- Using iEcosystem engagement of **entrepreneurs** (rather than traditional internal solutions);
- In doing so, also building a strong **entrepreneurial community**.

Puts the emphasis on finding new formats or mechanisms for co-creation that put the mission at the core.

Requires universities & large organizations to find new ways to interact & to share their challenges to maximize the effectiveness of exchange recognizing the role of:

- Diverse human capital - e.g. specialized talent interested in problem-solving
- Funding - structured in a new and rich variety of formats
- Infrastructure - e.g. critical specialized equipment and datasets
- Demand - for novel solutions to critical problems
- Culture - opportunities to develop new shared cultures
INNOVATION & ENTREPRENEURSHIP REDEFINED

Fiona Murray
48-hour hackathons to share mission-critical topic & galvanize diverse participation & exchange

“Hack-a-thon” - from hacking and marathon - as an opportunity to pose specific corporate or other organizational challenges & attract attention by providing problem-insights, possible materials and props, a community of “solvers”.
Semester-long course focusing on a single problem e.g. Beaverworks

Environmental Awareness In the Maritime Domain (Course 2.013/2.014): Mechanical Engineering course designed a deployable “blue water” resupply system. Networks of latent semisubmersible pods operate autonomously in a marine environment and provide power and comms links to extend the duration of maritime surveillance operations.
Year-long grants for translating solutions
e.g. J-WAFS for water & food security, MITei for energy

Recognizing that faculty labs are motivated by opportunities to support translational research (in collaboration with those who understand the solution space), “ignition” and “innovation” grants along with mentoring provide a new mode of co-creation.
On-going problem-driven engagement enabled by proximity & multi-mode interactions

Boeing will be Kendall Square Initiative’s first major tenant
New research presence will serve to advance innovation in the aerospace industry and shape East Campus gateway.
Educational approach

THEORY

PRACTICE
Educational Proposal

THEORY/MENS
• Discipline- and evidence-based education
• Combination of research-based insights with specific case studies (drawn from MIT & beyond)
• Move beyond “animal spirits” conception of entrepreneurship to a skills-based approach

PRACTICE/MANUS
• Practice in real-world environments but in a “safe” setting
• Problems of increasing complexity
• Practice of working in a team under resource constraints and high uncertainty
• Opportunity to explore entrepreneurial careers & activities
Current generation of young people seem to find working on these mission-led opportunities especially appealing

For example:

• **90% of MIT graduates** choose their job on its “creative & expressive challenges”.

• **77% of MIT graduates** say “making a contribution to impact is essential” in their career.

• MIT graduates entering software, healthtech & **energy** jobs – risen from 15% to 40% in a decade.

• More than 15% now seek their first job in venture-backed start-ups for more rapid impact.