

The Iterative Innovation Process

Context and Lessons for its Implementation in Industry
and Building Regional Ecosystems

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For Today

- Where we come from...
 - Our Timeline of Executing on Iterative Innovation
- Introduction to the Innovation Process
 - Iterative Innovation Model
 - Features of the Innovation Process
- Corporate Implementation and Governance
 - Operational vs. Innovation Efficiency
 - Operational vs. Innovation Comfort Zones
 - The Innovation Corporation
- Moving towards Iterative Innovation
 - Building Corporate Innovation Capabilities
 - Building Regional Innovation Ecosystems
 - Next Steps



Where we come from...

Timeline of Executing on Iterative Innovation

INNOVATION PROJECT WORK

"You can't buy an innovation process"

*The Beginning
between Gene
and Andreas*

Business of
Science and
Technology
Initiative (BSTI)
@ Cornell University

Innovation Interface
or KII Inc.,
501(c)3 not-for-profit
innovation projects at
the industry-university interface

Andreas: ITERANDIS GmbH
implementing Iterative Innovation in industry

*Gene's Strained Si
~18 year
Fundamental
Innovation*

*innovation projects at
the industry-university
interface*

outside corp.

inside corp.

a "Third Place"

Gene:
SMART

Gene: SMART LEES and New Silicon Corp.
research to commercialization based on Iterative Innovation

MTY
&
SG

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'02 '03 '04 '05 '06 '07 '08 '09 '10 '11 '12 '13 '14 '15 '16 '17 '18 '19 '20

INNOVATION TEACHING

SMA 3.207
(Gene)

SMA 3.207

MIT 3.086/3.207

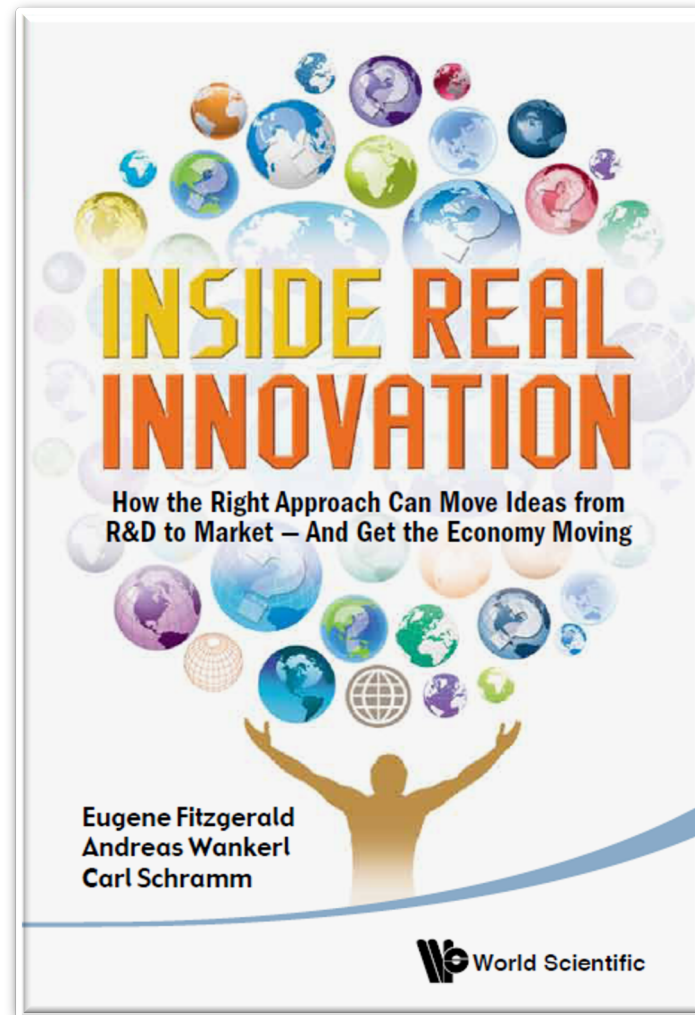
edX/MITx 3.086x

NTU EE8095

MIT 3.085/15.737

TEC NN3002





Introduction to the Iterative Innovation Process

What is Innovation?

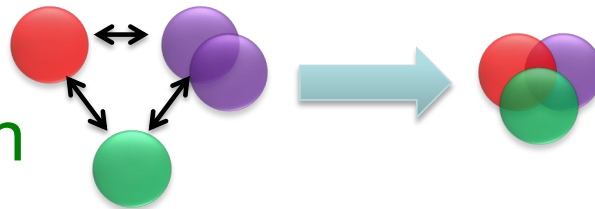
- Not just invention, not just science
- Not entrepreneurship
- **“Useful embodiments of ideas *in the marketplace*” (as going concern)**
- **Basic human process** that delivers value in the market place
- Driver growth long-term growth
- **Innovation efficiency \neq operational efficiency**

Focus on process that makes the tree grow

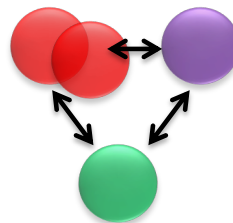
Do not only focus on necessary but insufficient nutrients: soil, water, sun

The Basic Elements of Innovation

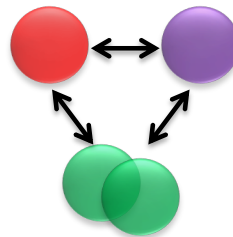
- Market Application
- Technology
- Implementation



Music Player Technical Evolution



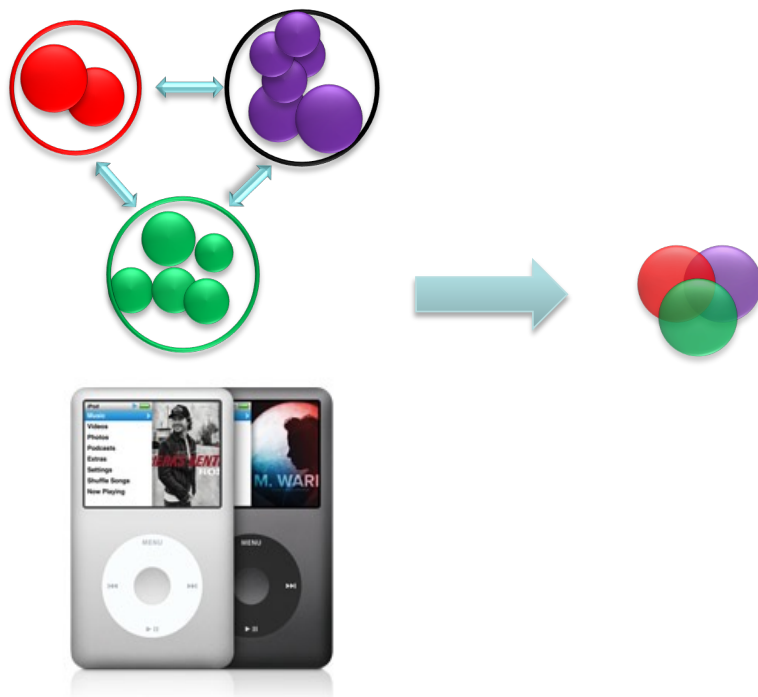
Finding a new application for Music Player



Considering New Business Model

Apple iPod

- Uncertainty introduced simultaneously in **Market**, **Implementation** and **Technology**



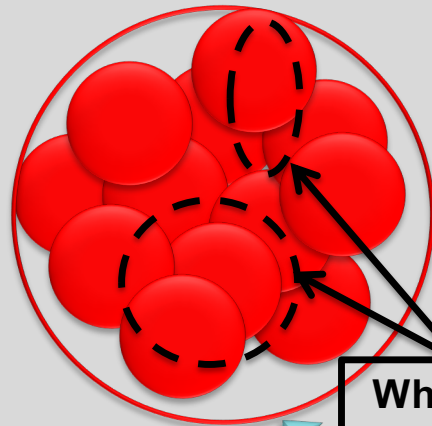
Example of a medium scale innovation:

- Apple did not invent the MP3 player, nor did it bring it to market first
- **changing the business model of the music industry was key**
- **for changing human behavior around portable music,**
- **which could only be achieved with changed Technology.**

Flexible Boundaries Needed for M-I-T

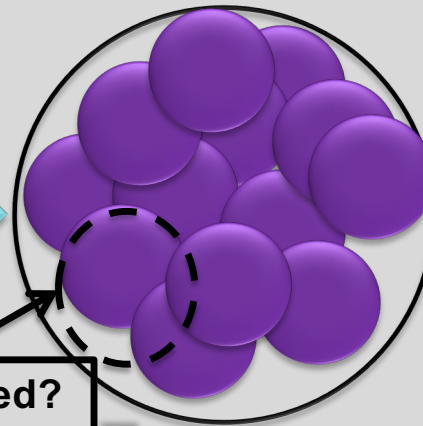
Market:

any new or old set of users having a need or desire for the innovation



Technology:

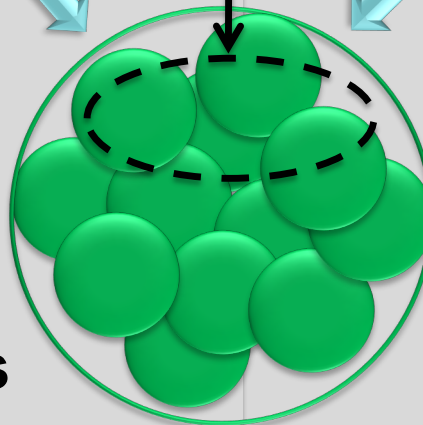
any new or old technology that allows the innovative idea to exist and enables it to be executed



What do I need?
What will I miss?

Implementation:

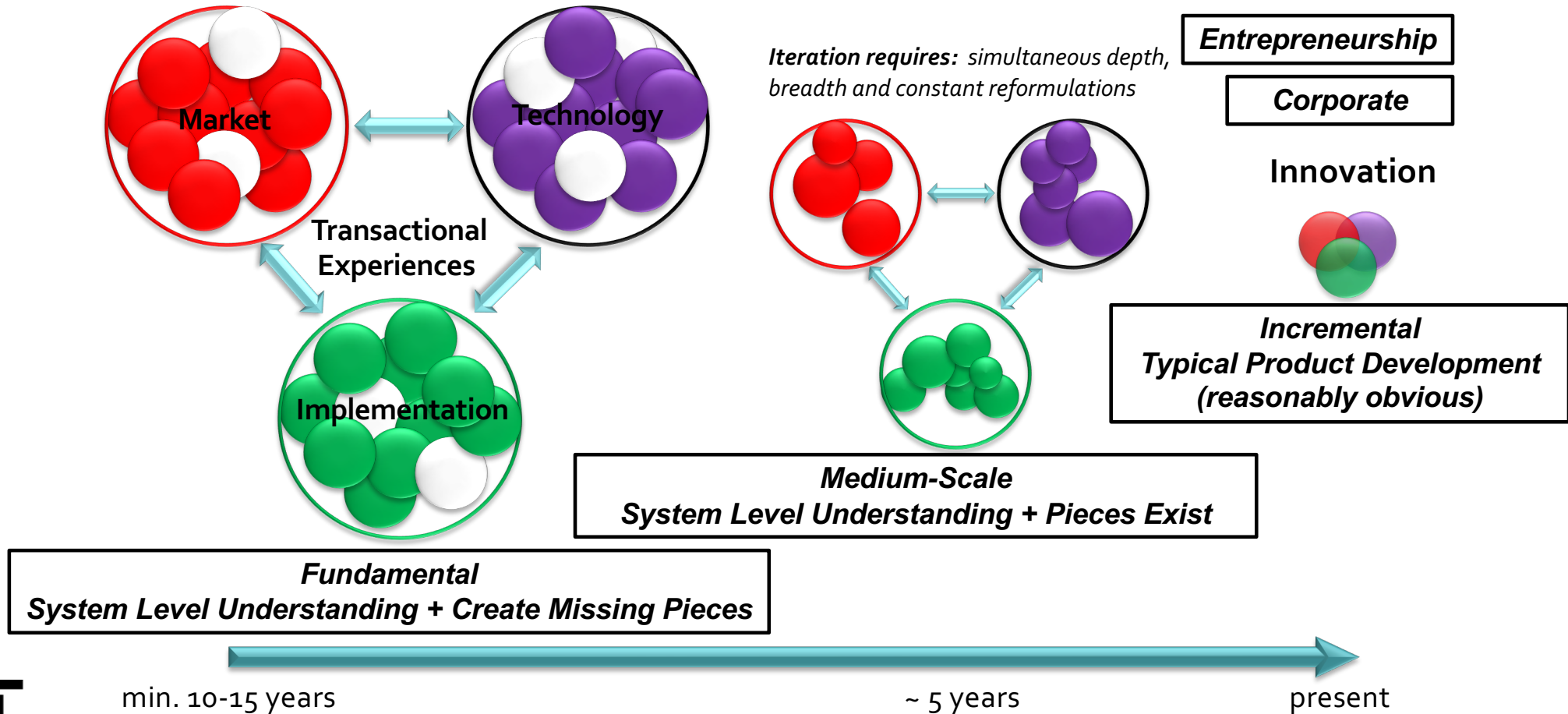
any process or knowledge, old or new, used to execute on making the innovation real



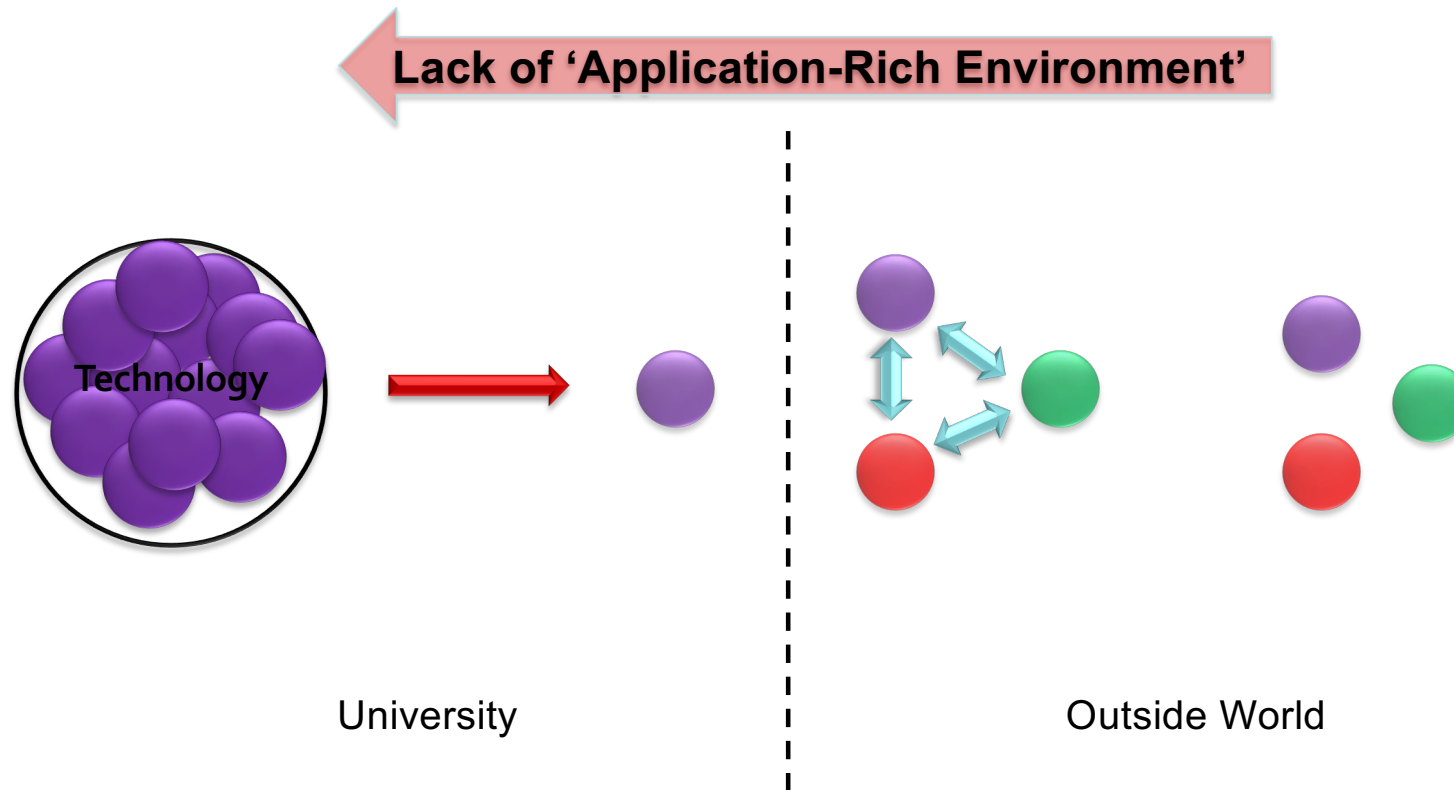
Language of Humans

Language of Nature

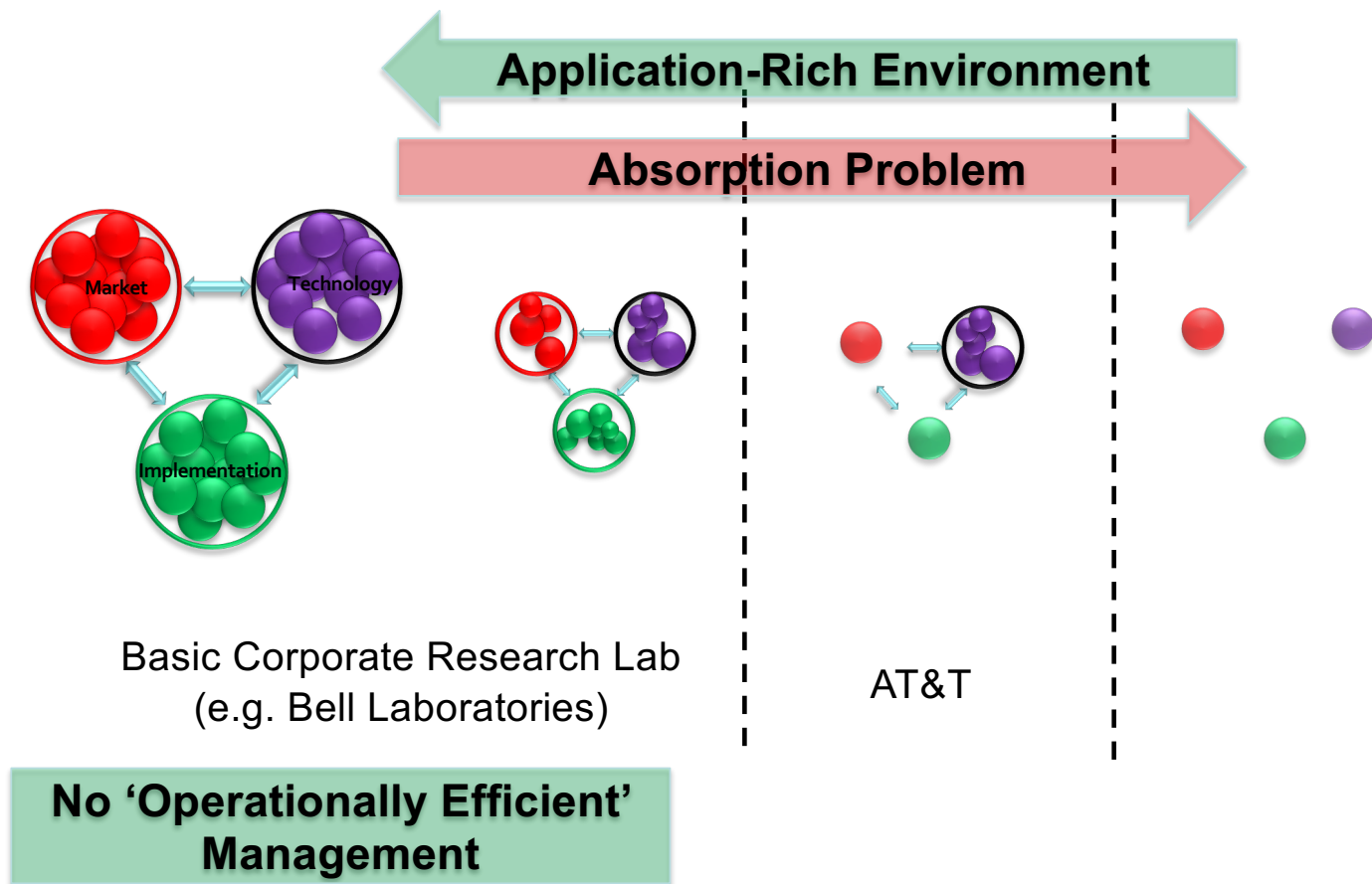
The Innovation Process



What not to do: University 'Innovation'



Previous Basic Research Corporate Laboratories

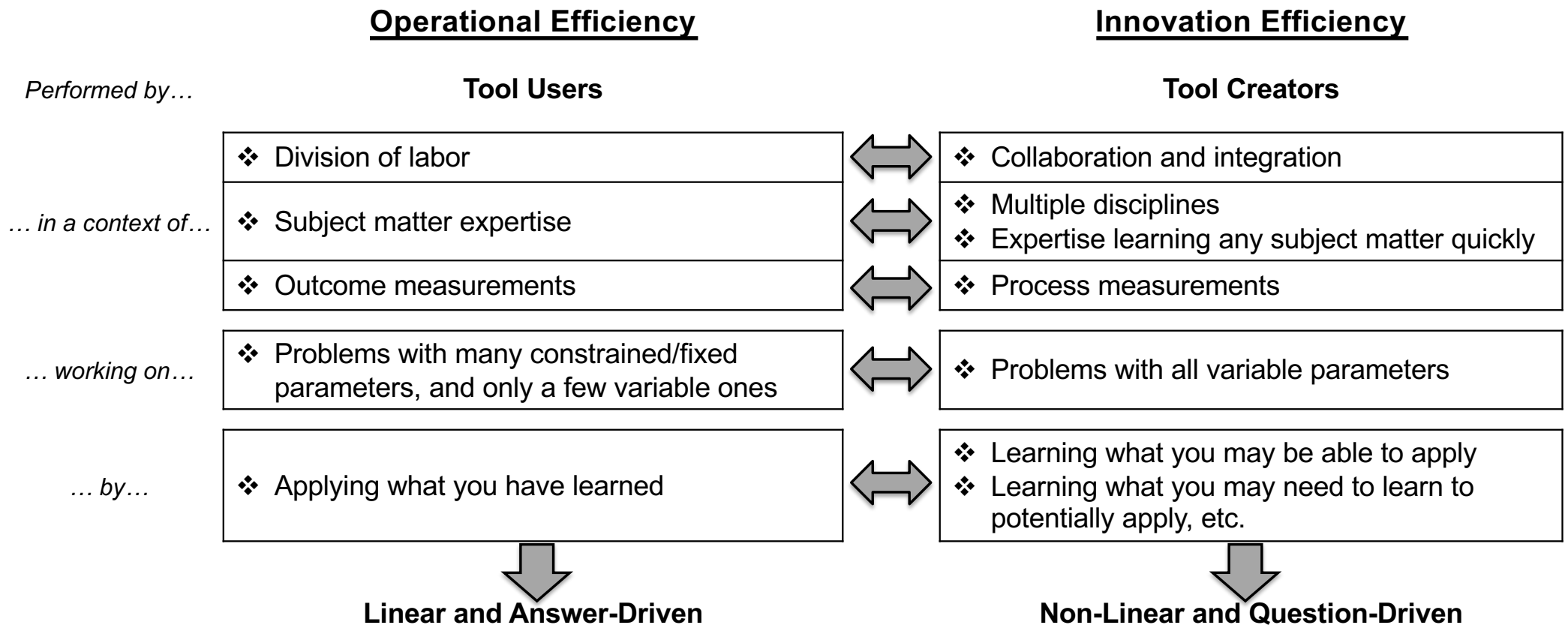


Features of the Innovation Process

- It is a societal activity
- It is a *Process*
- M-I-T groupings- not just technology, not just market
- Iteration
- Necessity and Management of Uncertainty (opportunity vs. risk)
- Non-linear
- Incremental and Fundamental Innovation Unification
- Real-world interactions (transactional experiences) are required to narrow uncertainty

Corporate Implementation and Governance

Operational vs. Innovation Efficiency



Operational vs. Innovation Comfort Zones

Operational Comfort Zones

Innovation Comfort Zones

Performed by...

Tool Users

Tool Creators

... in a context of...

❖ Horizontal Industry Specialization ❖ Customer Requests
❖ Trends
❖ Current Technical Knowledge ❖ Focus on WHAT goes on





❖ Vertical Knowledge Integration ❖ Understanding the Customer's Business
❖ System-Level Understanding
❖ Fundamental Technical Knowledge / Thinking ❖ Focus on WHY it goes on

... managed by...

❖ CONTROL through Authority and/or Budget

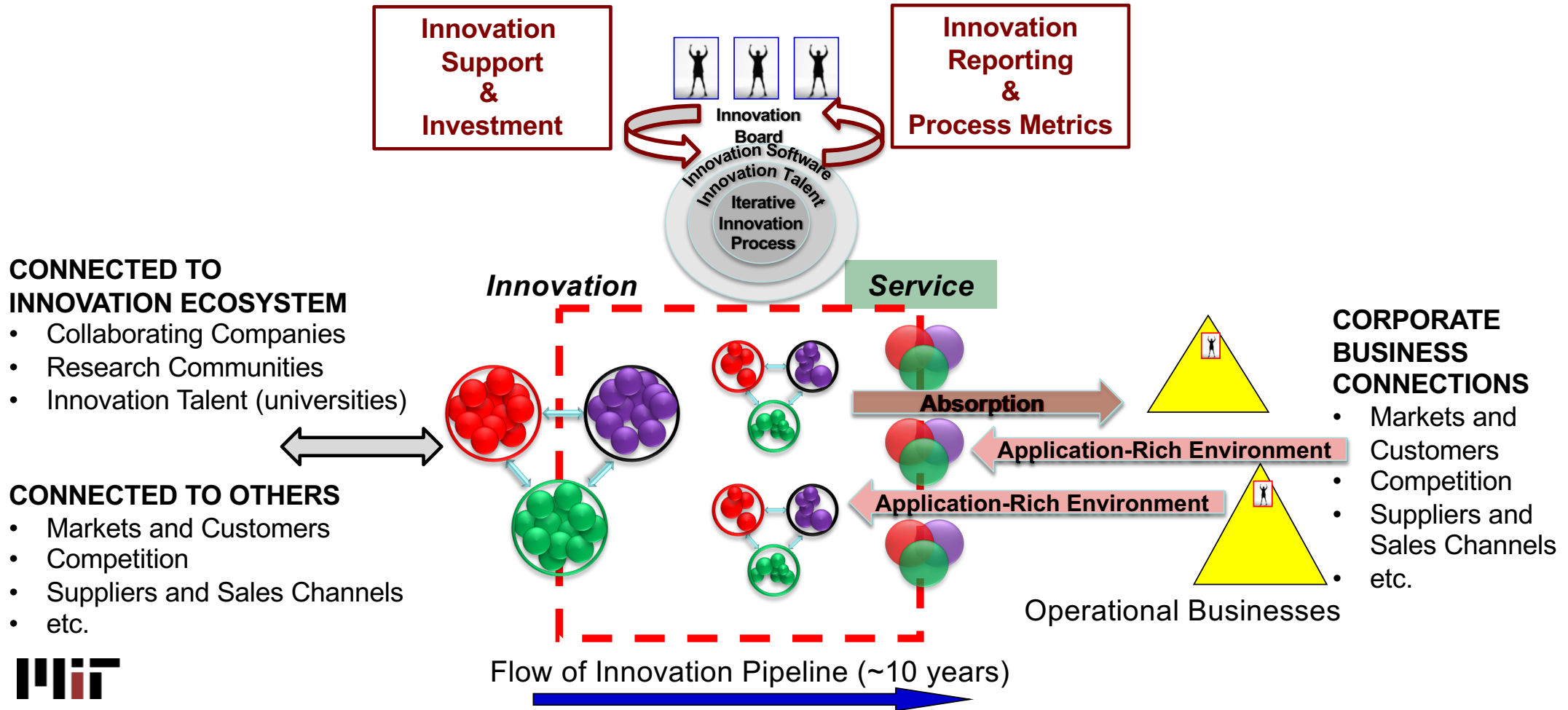
❖ TRUST and TRANSPARENCY


Reactive Corporate Strategy
Reactive Product and Process Development


Fully Informed Corporate Strategy
Justified Product and Process Development

... eventually Real Innovation Capabilities

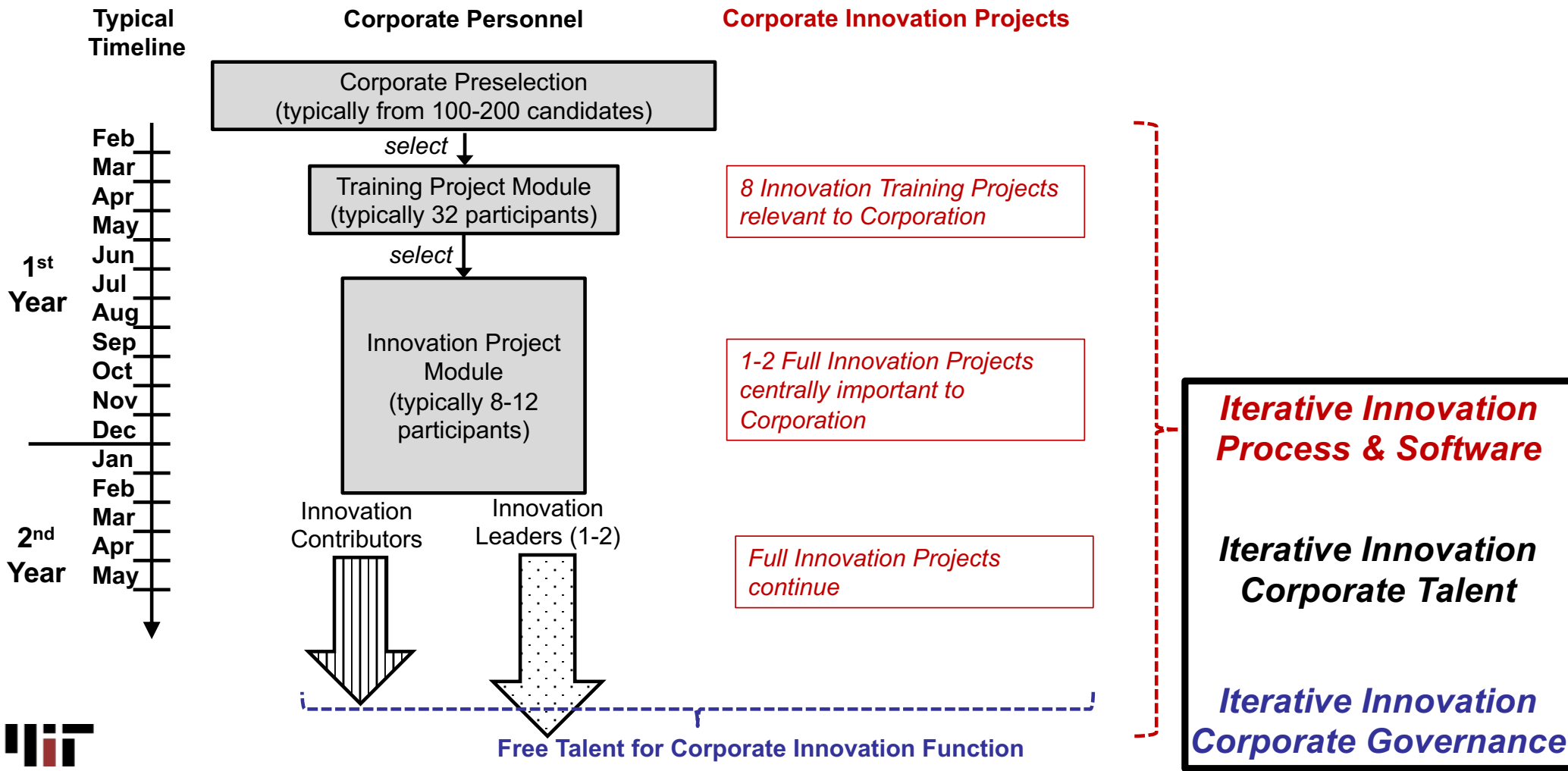
The Innovation Corporation

Innovation Governance: Transparency instead of Control



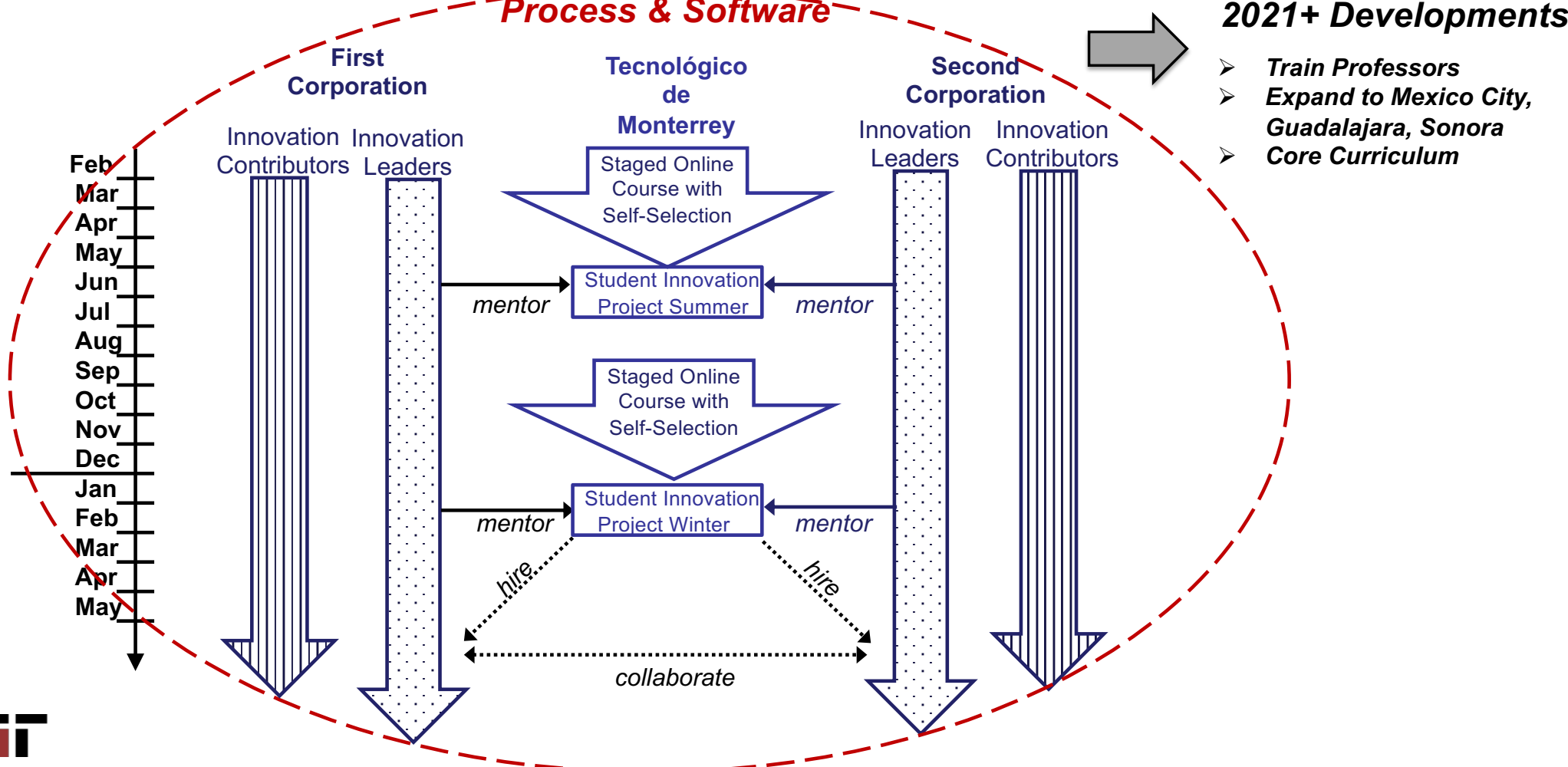
Moving towards Iterative Innovation

Building Corporate Innovation Capabilities



Building Regional Innovation Ecosystems (MTY)

Iterative Innovation Process & Software



Next Steps

If you are interested in

- building **iterative innovation capabilities in your corporation** and/or
- building a **Medellin / Colombia innovation ecosystem** and
- can have an **in-depth discussion during the week of Oct 11th – Oct 15th**

then **email us** at

- Klaus Schleicher: klaus_rs@mit.edu
- Andreas Wankerl: awankerl@mit.edu

before Wednesday, September 1st

**Given enough interest, we will visit you in your
company / institution during the week of
Oct 11th – Oct 15th**

