

On Innovation as a Challenge to Reason

- How we miss our Wealth -

MIHAELA ULIERU
Science Technology and Innovation Council of
Canada

Science Technology and Innovation Council of Canada

- Is an important element of the **Government of Canada's Science and Technology Strategy**, announced in May 2007, which encourages a more **competitive** Canadian economy and improved quality of life for Canadians through science and technology.
- **Reports to the Minister of Industry.**
- The Council's **mandate** is to provide the Government of Canada with evidence-based science and technology advice on issues critical to Canada's economic development and Canadians' social well-being.

Canada's Innovation Roadmap

- **MAIN PILLARS:**
 - attracting and retaining talent;
 - supporting world-leading research;
 - **transforming discoveries into commercial success**

The Council also produces regular national reports that measure Canada's science and technology performance against international standards of excellence.

Leadership Function: Strategy, Policy, Priorities

Attracting & Developing Talent

Supporting World-Leading Research

Development

Commercialization

Faculty, Post-docs,
Research Assistants,
Students

Discoveries & Inventions by
Researchers in Universities, Colleges,
Federal Laboratories and Industry

Tech
Transfer

Proof of
Concept

Product/ Process
Development &
Testing

Product
Roll Out

Business
Expansion

Creation of New Firms

Technology Acquisition and Business Recruiting

Pre-seed
Financing

Seed Financing

Early Stage
Financing

Working
Capital &
Expansion

Market
Research

Marketing
Strategies

Marketing

Government Programs

Entrepreneurs and Private Sector Companies

Incubators

Shared Infrastructure: Labs, Equipment, Facilities

Global Market

Today's reality

- “knowledge” economy
- “creative” economy

Advancing Knowledge
and the Knowledge Economy

Brian Kahi

NETWORK ECONOMY

The image shows the cover of the 'Creative Economy Report 2008'. It features a circular collage of images: a person taking a photo, a woman in a black dress, and hands working on a craft. The text 'CREATIVE ECONOMY' is prominently displayed in large white letters, with 'Report 2008' below it. The background of the collage includes mathematical symbols like pi, infinity, and percentages.

**CREATIVE
ECONOMY**
Report 2008

CHANGE THE GAME!

« Innovation has nothing to do with how much R&D dollars you have. When Apple came up with the Mac, IBM was spending at least 100 times more in R&D. It's not about money. It's about the people you have, how you're led, and how much you get it. »

Steve Jobs



« The world is changing very fast. Big will not beat small anymore. It will be the fast beating the slow. »

Rupert Murdoch



The iPhone *Prosumer* Community

GreatApps Company

Product: iSteam

Profit: \$100,000 in 1 month

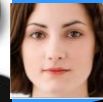
<http://www.news.com.au/technology/story/0,25642,24916555-5014239,00.html>

Ethan Nicholas

Product: iShoot

Profit: \$600,000 in 1 month

<http://www.wired.com/gadgetlab/2009/02/shoot-is-iphone/>



Consumption

Inspiration



Consumption



Production



Distribution



Production

NETWORKED INDIVIDUALISM

(Barry Wellman – U Toronto)

2

Challenges the Institution

3

Access to knowledge

4

Self-catalyzing

1

Innovative marketing model

Coder's Half-Million-Dollar Baby Proves iPhone Gold Rush Is Still On

By Brian X. Chen  February 12, 2009 | 2:38 pm | Categories: Uncategorized

Apple's iPhone application store is as crowded as a Beyonce concert, with more than 20,000 apps available. But one independent developer still managed to rake in \$600,000 in a single month with a single iPhone game.

Ethan Nicholas, developer of a tank artillery game called *iShoot*, told Wired.com **he quit his job the day his app rose to No. 1** in the App Store, earning him \$37,000 in a single day.

"I'm not going to be a millionaire in the next month, but I'd be shocked if it didn't happen at the end of the year," he said in a phone interview.

"If it weren't for taxes I would be a millionaire right now."

It wasn't easy for Nicholas, either. **After getting off his shift as an engineer at Sun Microsystems,** he worked on *iShoot*

eight hours a day, cradling his 1-year-old son in one hand and coding with the other. He didn't have the money to buy books to learn how to write an iPhone app, so **he taught himself by reading websites.**

What compelled him to code an iPhone game? Hard times for him and his family — **and he was inspired by *Trism*,** he said.

When *iShoot* launched in October, business was slow for a while. And then Nicholas found some spare time **to code a free version of the app — *iShoot Lite*, which he released January. Here's how that helped: Inside *iShoot Lite* he advertised the \$3, full version of *iShoot*.** Users downloaded the free version 2.4 million times. And that led 320,000 satisfied *iShoot Lite* players to pay for *iShoot*.



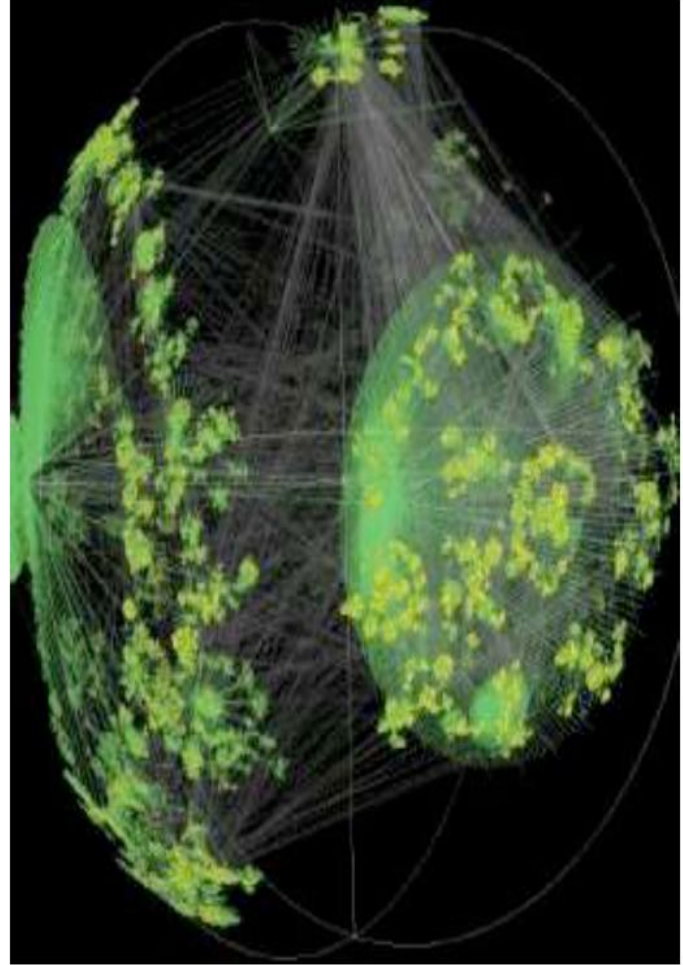
« We don't have a traditional strategy process, planning process like you'd find in traditional technicals company. It allows Google to innovate very, very quickly, which I think is a real strength of the company. »

Eric Schmidt

AGILITY AND ABILITY TO ADAPT QUICKLY



-
- True innovation occurs at the margins...
 - We are pushed further by:
 - disruptive notions
 - perspectives that do not fit in
 - unpredictable inspirations that burst our neat categories
 - true innovation is experienced by the majority as uncomfortable, foreign and strange

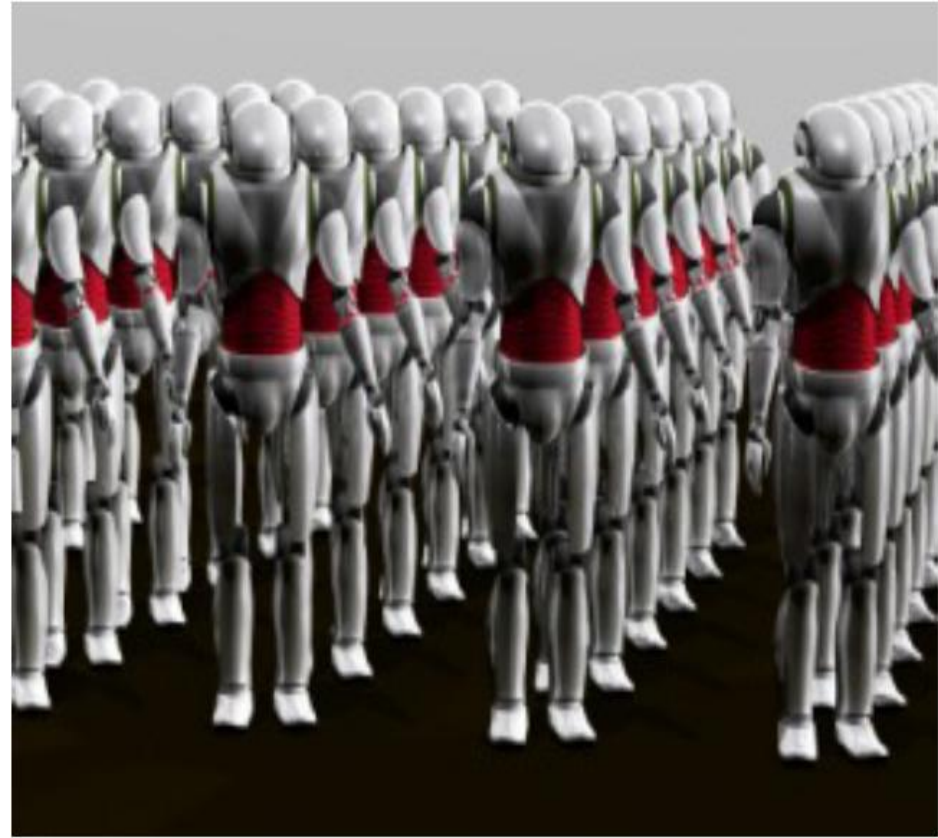


THE INCONVENIENT TRUTH ...



We teach our children to not take risks

**INNOVATION GETS CAUGHT IN
THE WEB OF RULES!**



Our educational system stifles diversity and creativity

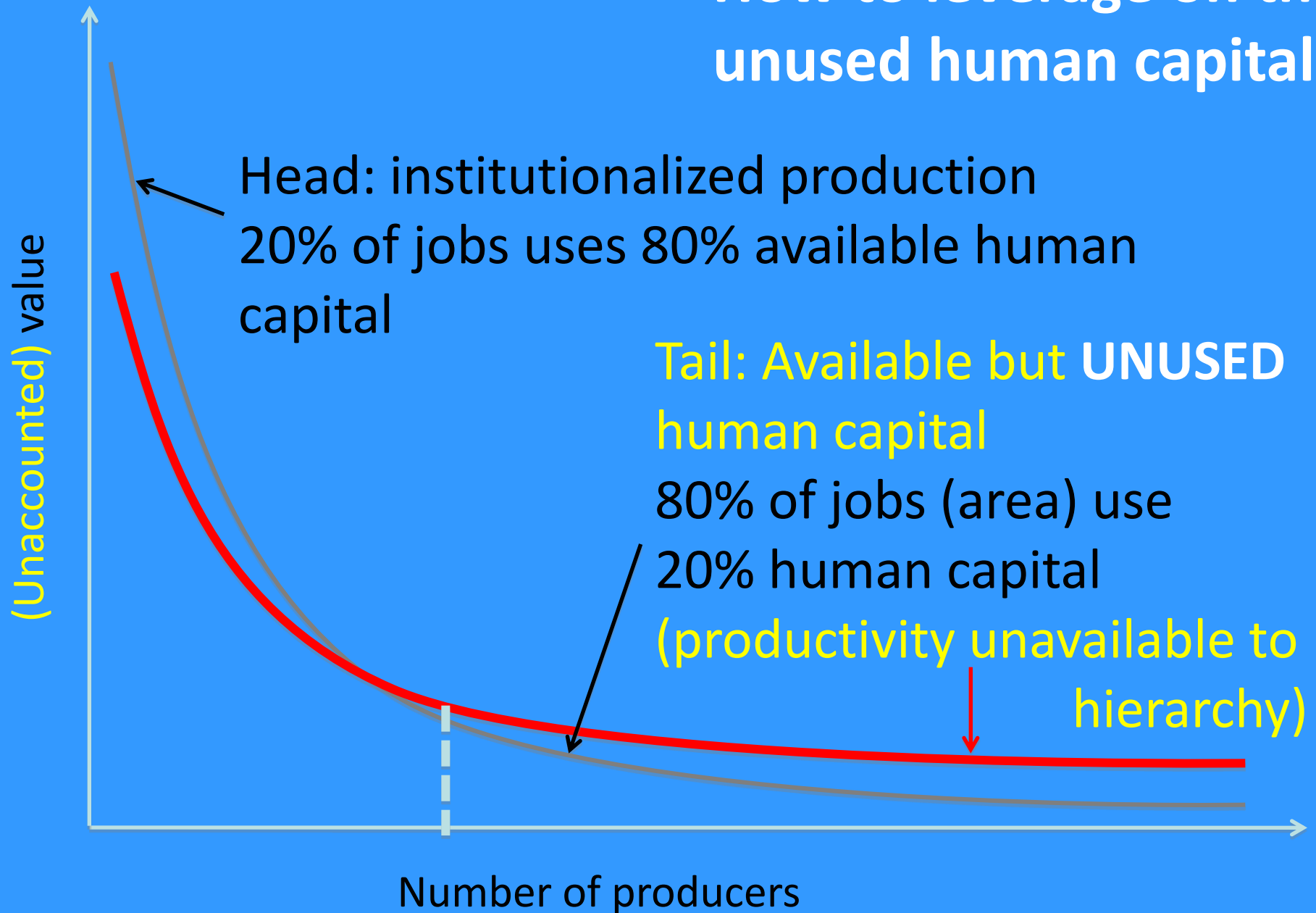
Are we ready for the 98% failure rate ?

WHAT DO WE PUNISH? WHAT DO WE REWARD?

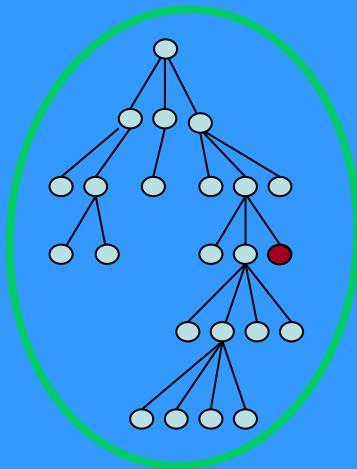
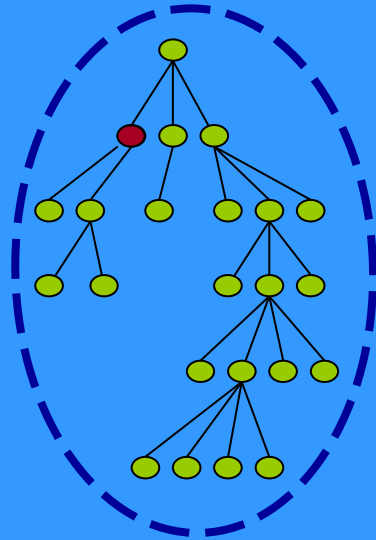
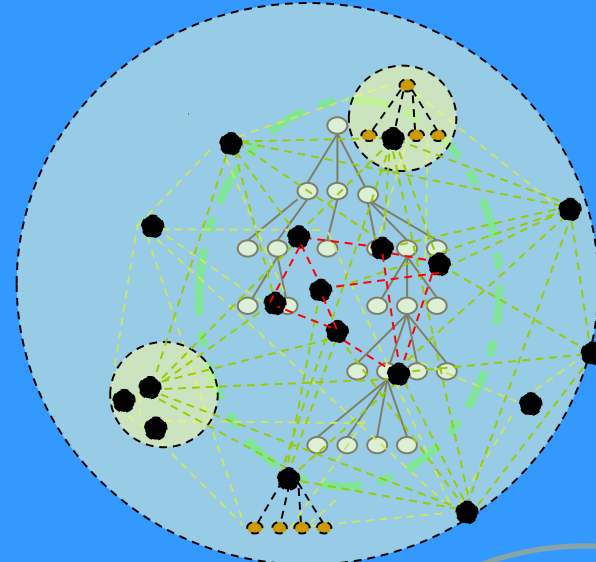
Which Profile Do You Manage?

Alignment	Capabilities	Engagement	Profile
↑	↑	↑	Superior Performance
↓	↓	↑	Cheerleader
↑	↓	↑	Under Equipped
↓	↑	↑	Strategic Disconnect
↑	↑	↓	Under Achiever
↑	↓	↓	Indifferent
↓	↑	↓	

How to leverage on this unused human capital?



NEED TO REVOLUTIONIZE OUR INSTITUTIONAL STRUCTURES !



300,000s
Government.
Contributors

34 Million
Citizen.
Contributors
(in Canada)

Hierarchies are Ineffective

- Human capital restricted to current 'role' and job requirements – Being 'the cog in the machine'.

Culture is structured by the Conventions of Incentives

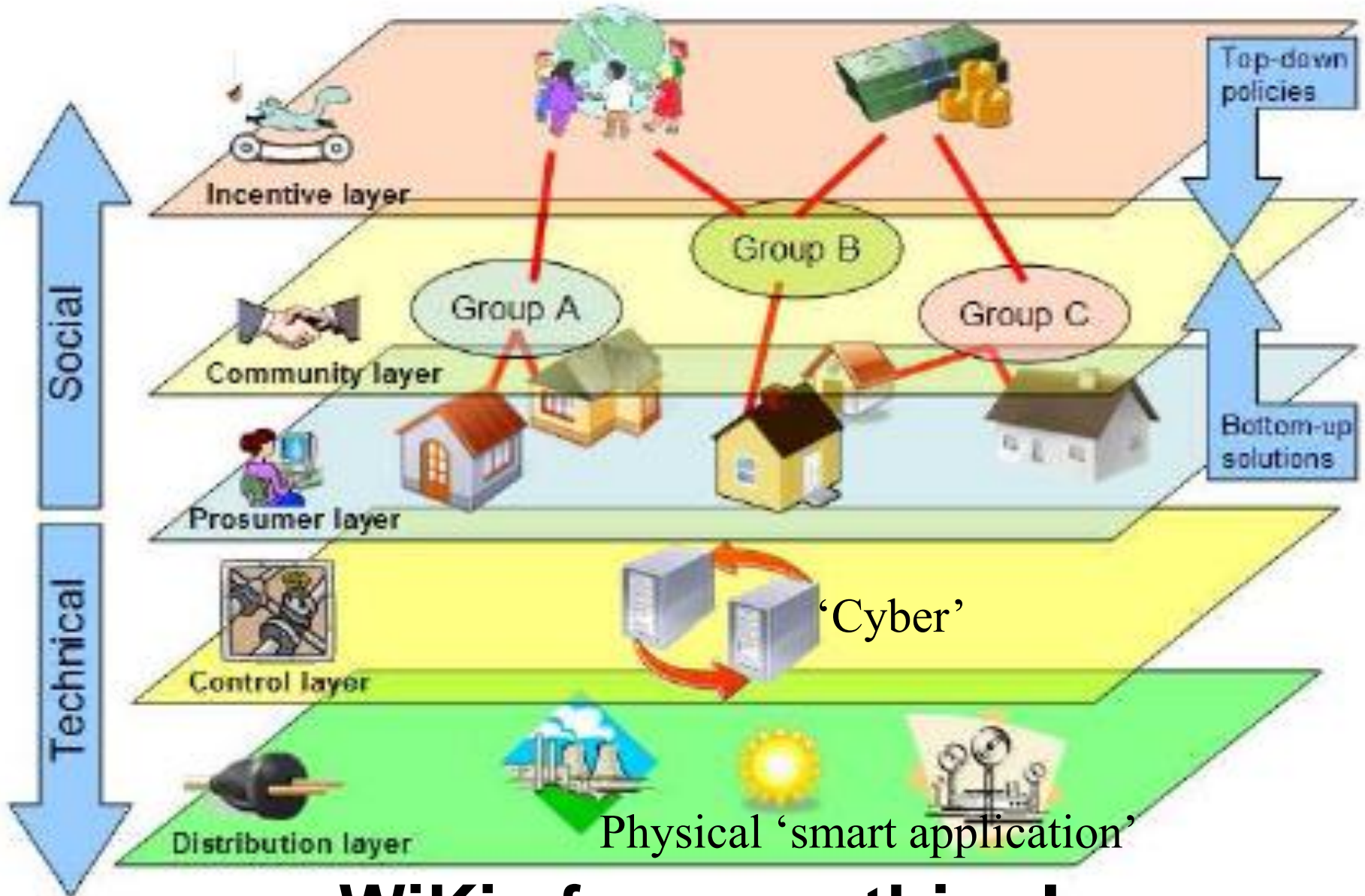
Stability guarded by stiff coordination system – risk taking punished ('the Web of Rules')

Social Innovation Generation

- Stimulate participation by rewarding initiative and courage to take creative action
- Enable the deployment of innovation networks
- Creating the premises for social innovation in the Networked Society will naturally lead to a **ROBUST ECOSYSTEM THAT IS SUSTAINABLE**

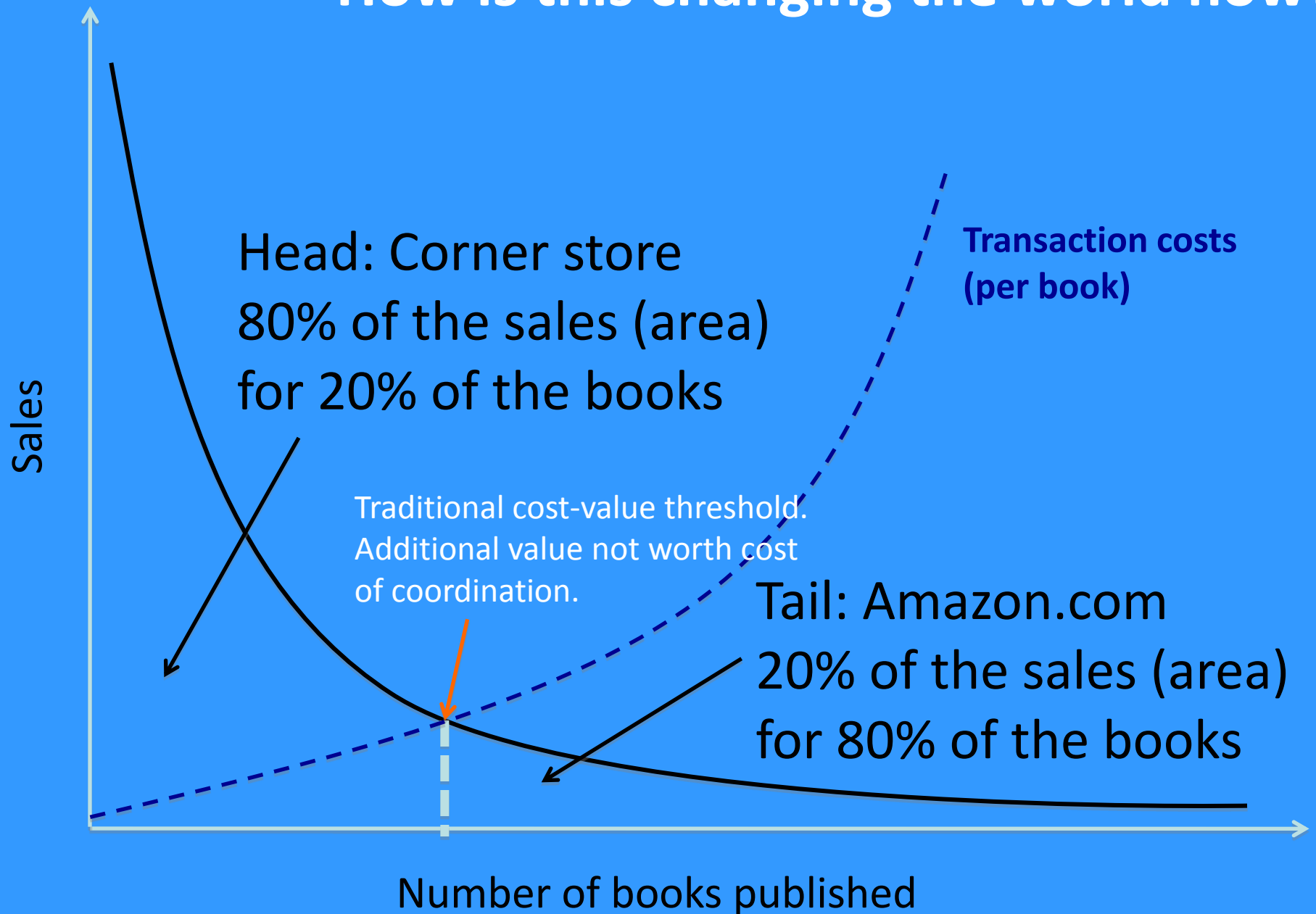
Policies that empower the citizen to bypass the 'jurisdictional web' and TAKE ACTION.

WITH Citizens FOR Citizens

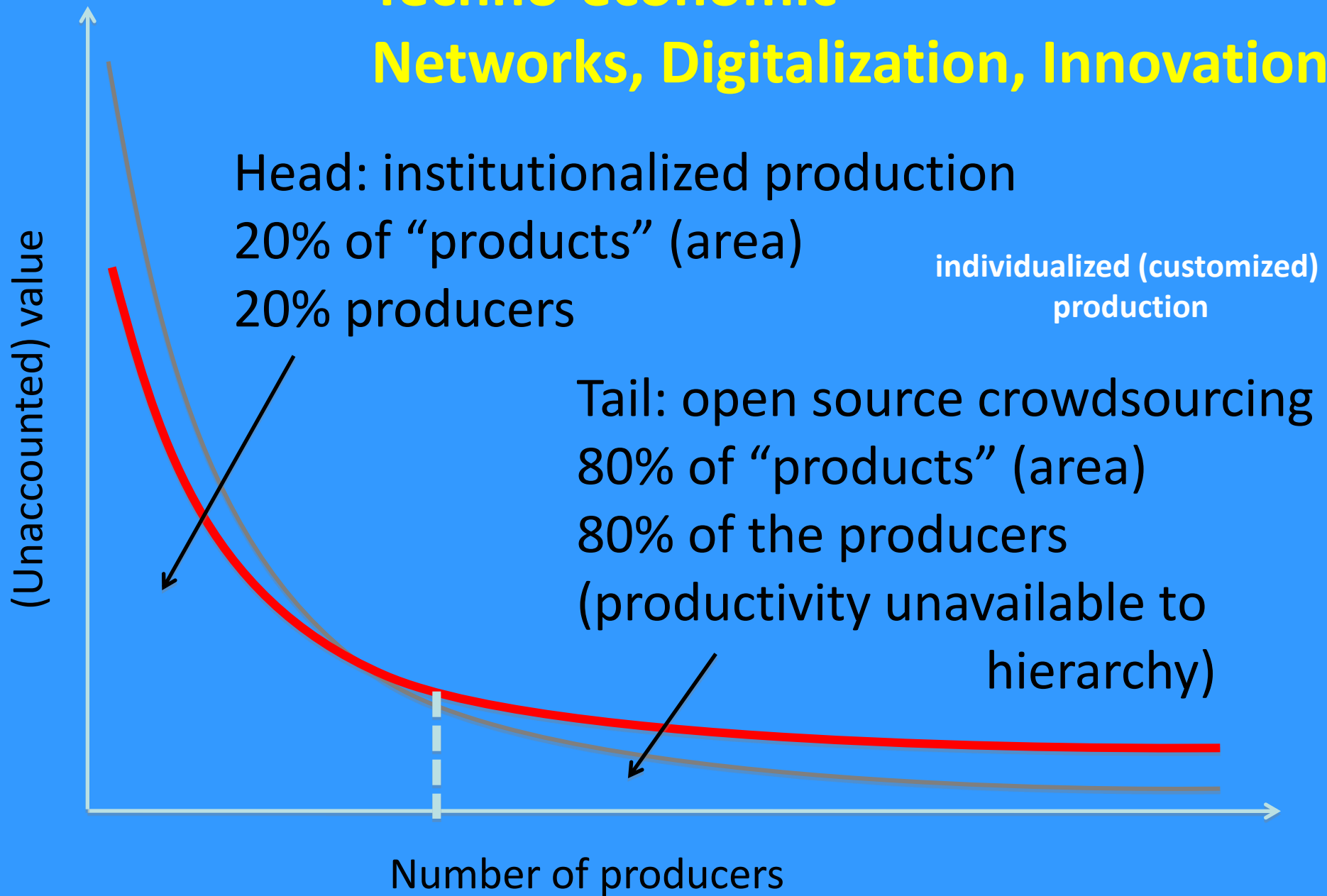


WiKis for everything!

How is this changing the world now?

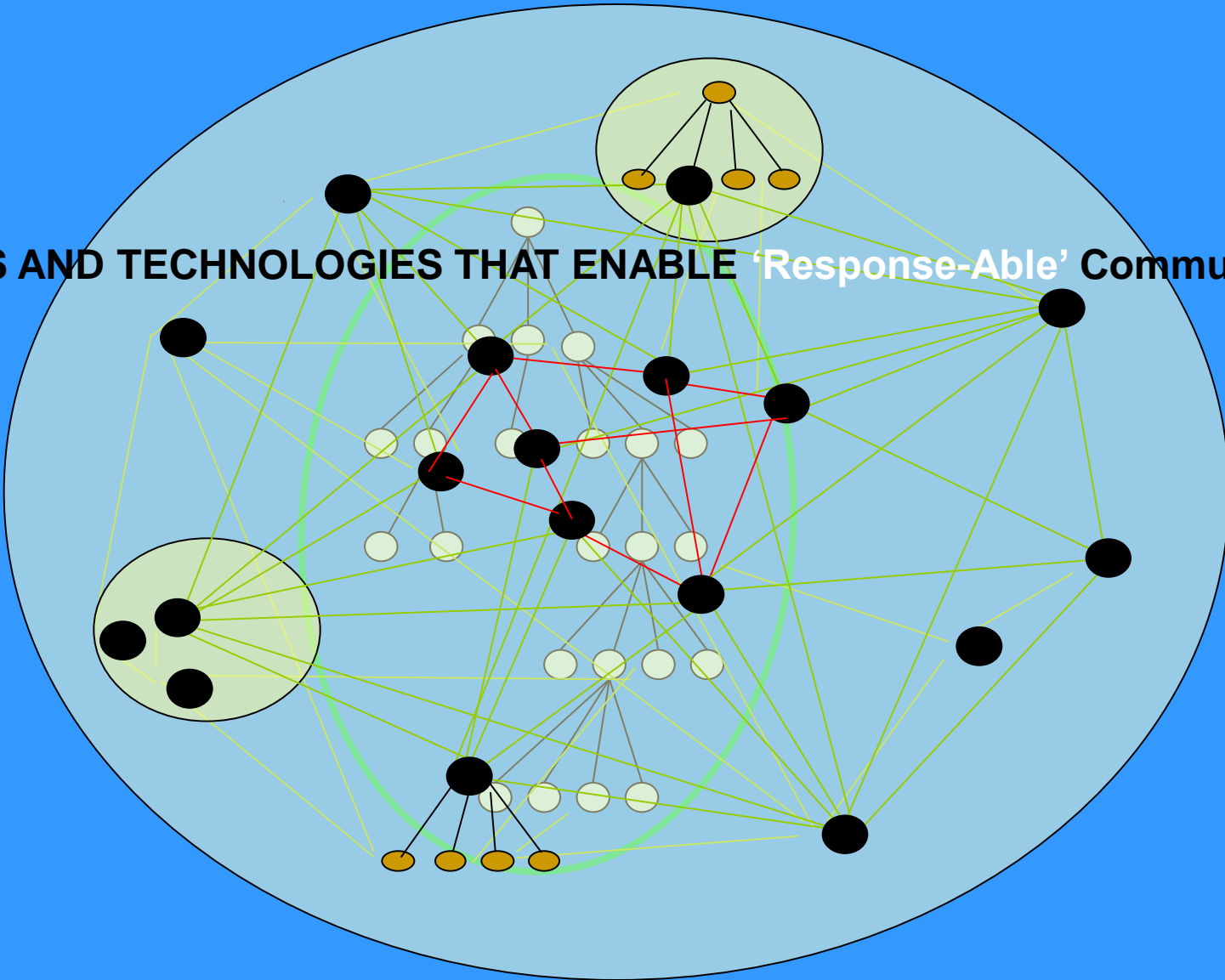


Techno-economic Networks, Digitalization, Innovation



Unleashing the Ecosystem

POLICIES AND TECHNOLOGIES THAT ENABLE 'Response-Able' Communities



Set Premises for Innovation



- Maria Theresa Order
- Austria's highest military decoration 1757 until the end of World War I
- **Given to commanders who disobeyed orders – and thereby won a battle**

Risk Taking as a **Necessity** for Innovation

“More specifically, in this report we advance our observations and recommendations to support a **balanced approach to reasonable risk taking** and provide insight into what has become known as the Public Service’s “**web of rules.**” Our emphasis is on the need to have the right rules in place to ensure accountability, transparency, and consistency, while providing results for Canadians. We are of the view that this requires **reducing the number and complexity of unnecessary rules** that can cloud our ability to achieve these important goals.” **[Third Report of the Prime Minister’s Advisory Committee on the Public Service - 2009]**

<http://pco->

[bcp.gc.ca/index.asp?lang=eng&Page=information&Sub=publication](http://pco-bcp.gc.ca/index.asp?lang=eng&Page=information&Sub=publication)

Are we ready ?

Canada Now

- Knowledge-based education
- Long analysis
- Result oriented management
- Few successes well planned
- Process management
- Following the rules



Canada Innovative

- Thinking-based education
- Fail fast !
- Initiative oriented management
- Many failures and successes
- Change management
- Breaking the rules

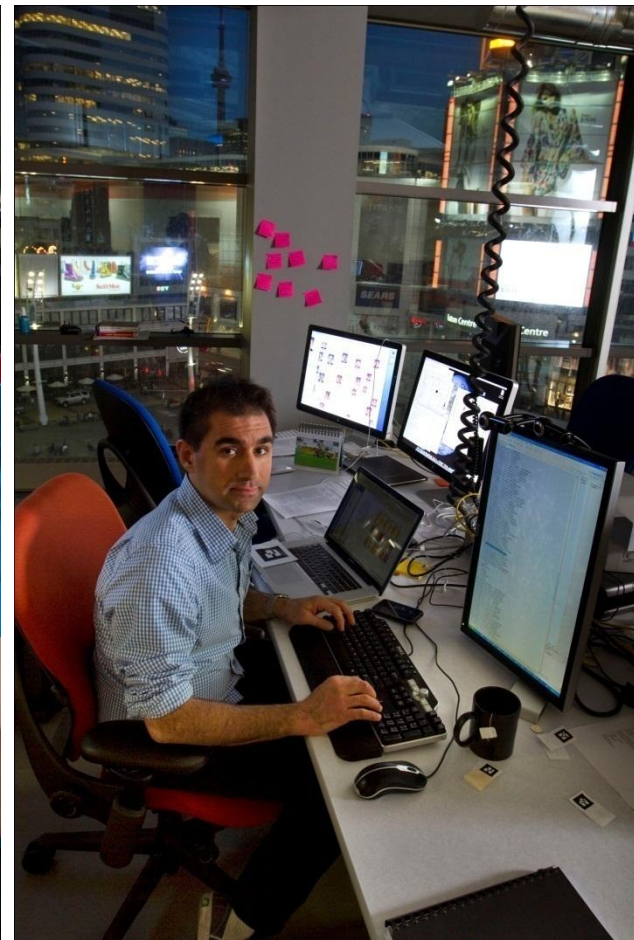


EXPERIENTIAL LEARNING IN THE SUPPORT OF ENTREPRENEURIAL INNOVATION

Digital
Media
Zone



Success comes from highly motivated students + collaborative environment



Did we tell you it was designed by Ryerson interior design students?

to get...

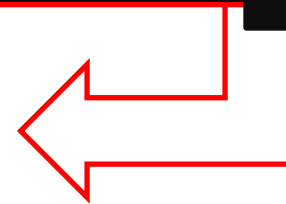


- Employment-ready graduates
- Innovative creation of new products and services
- Successful student startups
- Research implementation and commercialization

What fuels it?



StartMeUp from SIFE Ryerson provides business wrapper that enables professional business proposal building, good project management skills, great presentation skills and help towards getting the project and/or business ready for commercialization



criteria

1. Unique innovative idea, enabled by digital media that brings commercial or social value
2. Idea has a plan and is in a form of prototype
3. Idea and team fit into the collaborative nature of the Zone (brings and receives value)
4. Idea builds on Ryerson's reputation as a driver of leading edge education and innovation support

Our recipe for success:



- Bring in more highly-driven entrepreneurial innovators
- Connect with talent in user experience, technical development and business
- Work with industry and research
- Network, collaborate, and always keep the channels open

Innovation

What is the INNOVATION?

- Is it a New Idea?
- Is it a New Concept?
- Is it a Patent ?
- Is it a Solution?

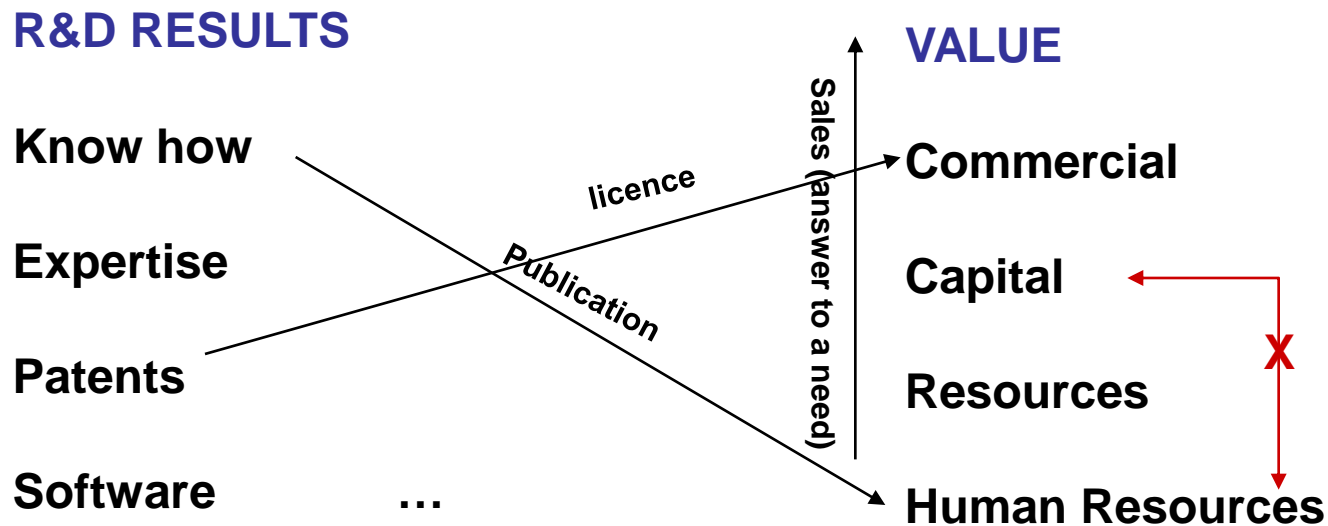
When does it occur ?

- While responding to an identified need?
- While doing Fundamental Research? Applied?

CREATIVITY

INNOVATION = CREATIVITY + VALUE (Recognized by a Market)
« Successful Exploitation of a New Idea » E. von Hippel

Scientist and Establishment roles inside the Innovation Process

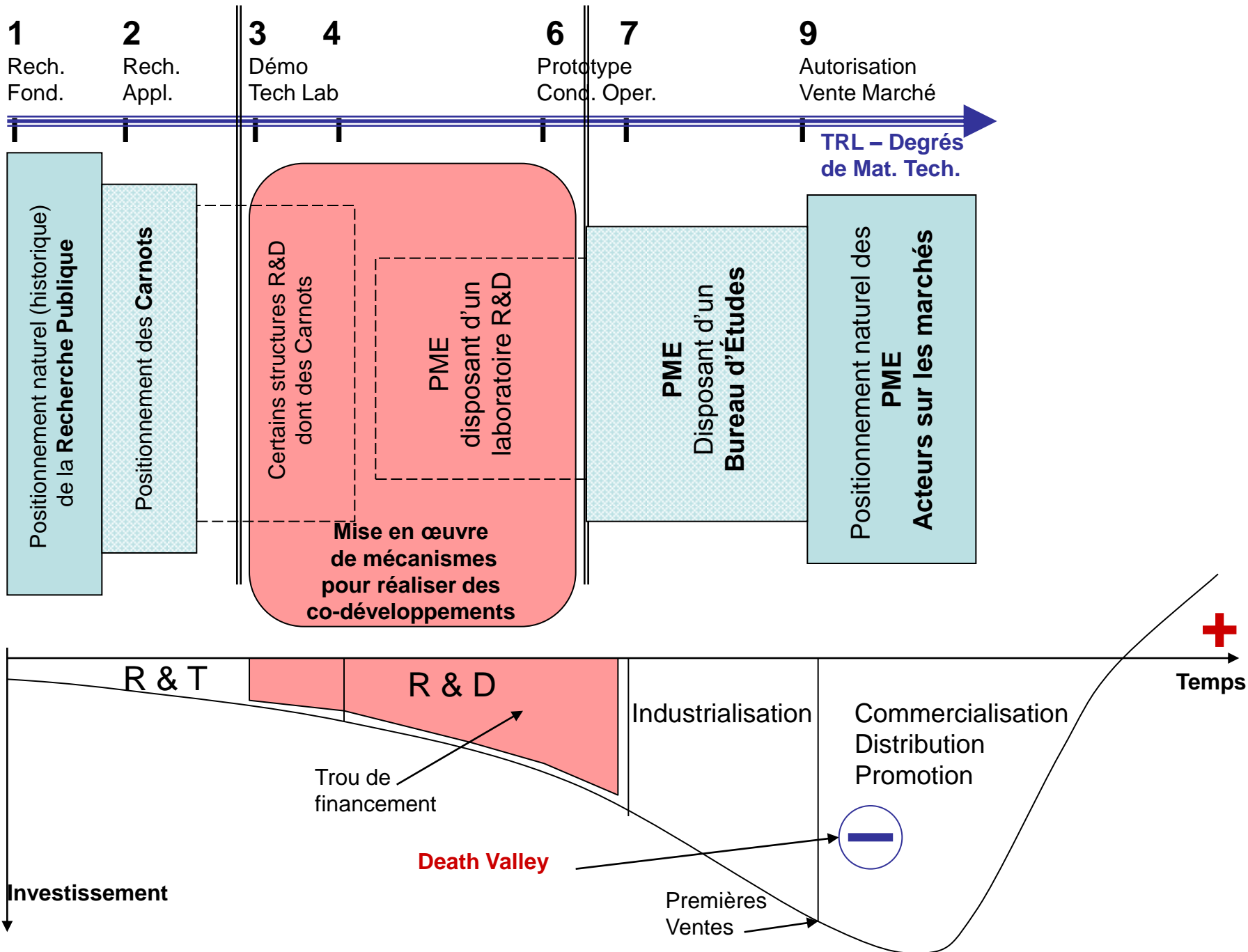


Crossing Mechanisms induce Value Creation ← **Public R&D Establishments' Mission**

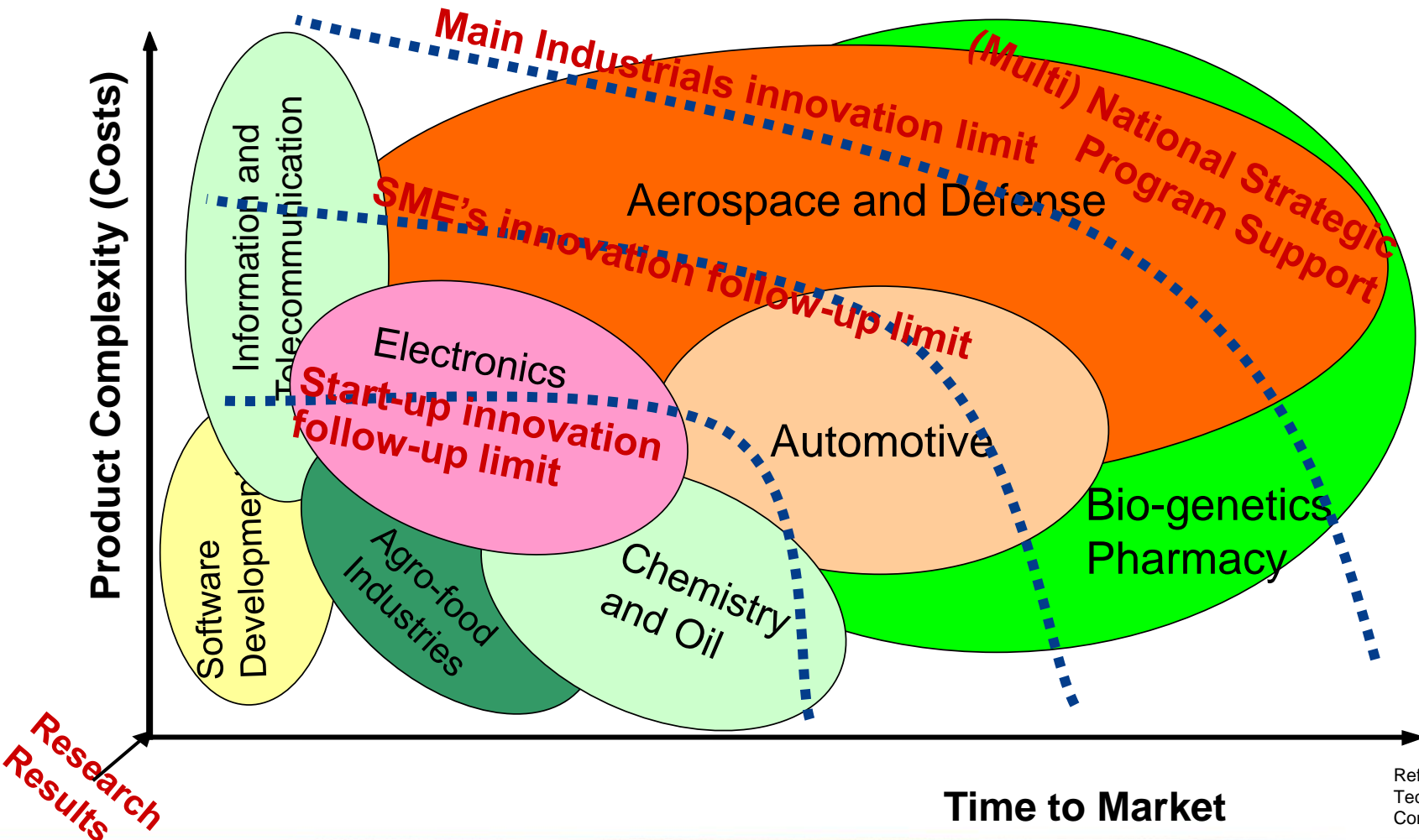
Commercial Value recognize the Innovation

(else « Invention which doesn't work », « Born dead idea »,...)

Technology Creator is Part of the Tech. Developpement Chain < **Innovation Process**



Aerospace barrier: Innovation process follow-up ability by the Technology creator



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Innovation models

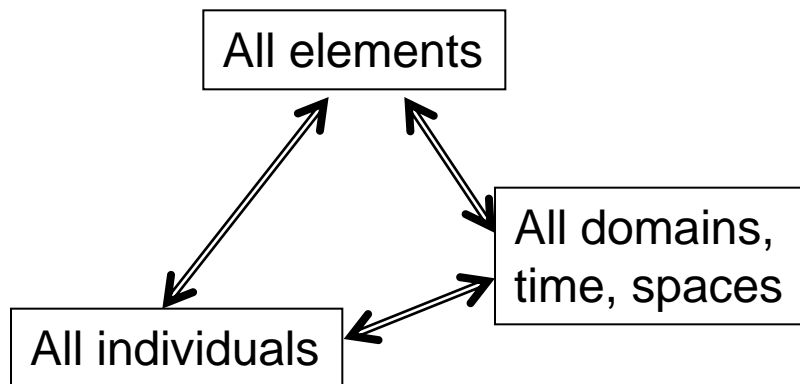
Linear Process focused on individual process, activities or components

- concept (Schumpeter) → entrepreneur as driving force (Myer, Freeman)
- R&D push (Abernathy, Utterback) → User (Lead) as Innovator (von Hippel)
- Co-innovation (Shapiro)

Integrated and Systematic Process

- coordination and relationship between participants (Hardy, Iansiti, Chen)
- innovative management (Tucker) – R&D + others/ organizational, systematical, continual opportunism/ every member involvement

→ **TOTAL INNOVATION MANAGEMENT – 3 Totalities Model**

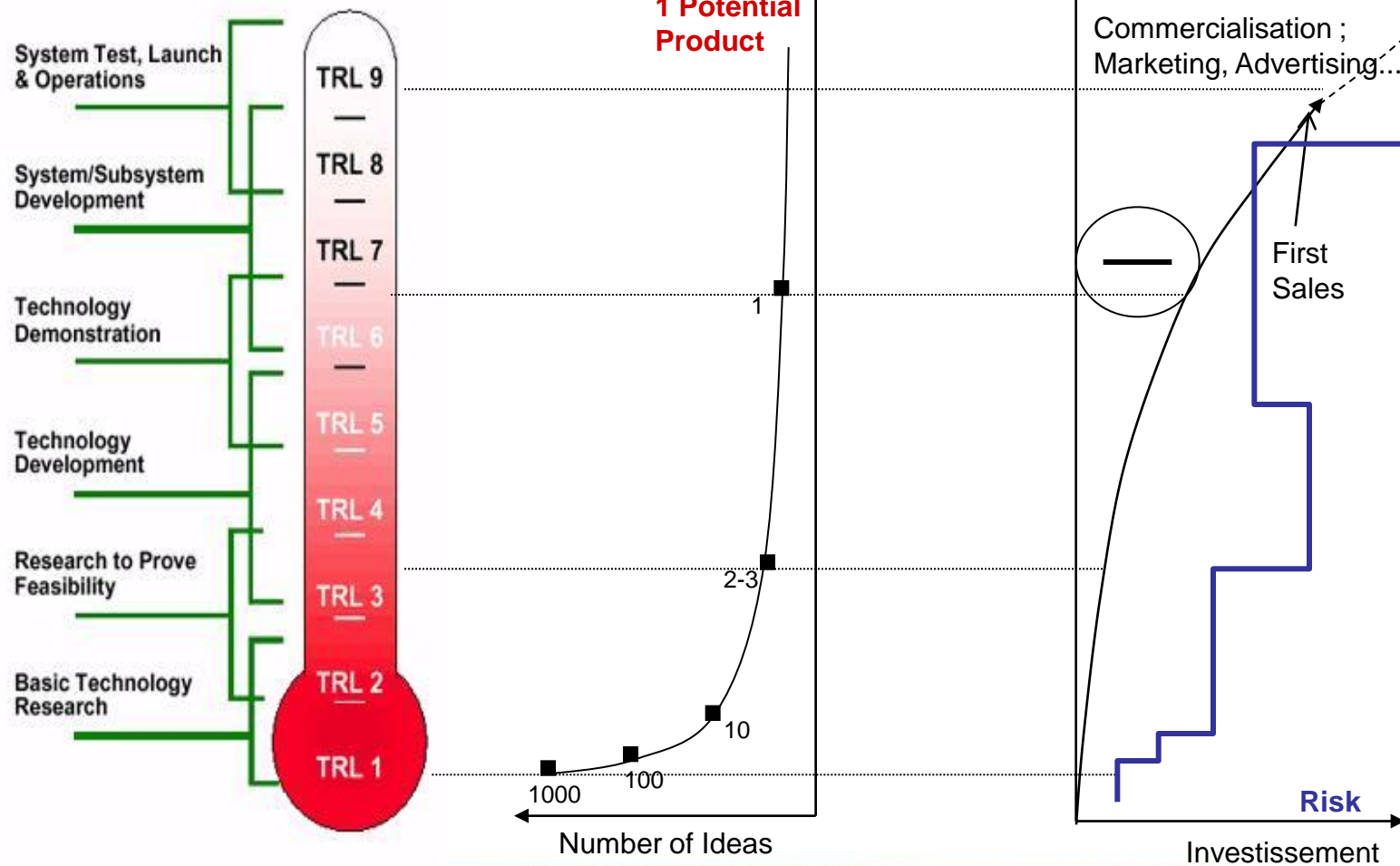


Existing mechanisms must facilitate bridges Inter and Intra Totalities to create a complete cycle → Innovation Occurrence

Importance of the “Helicopter View”

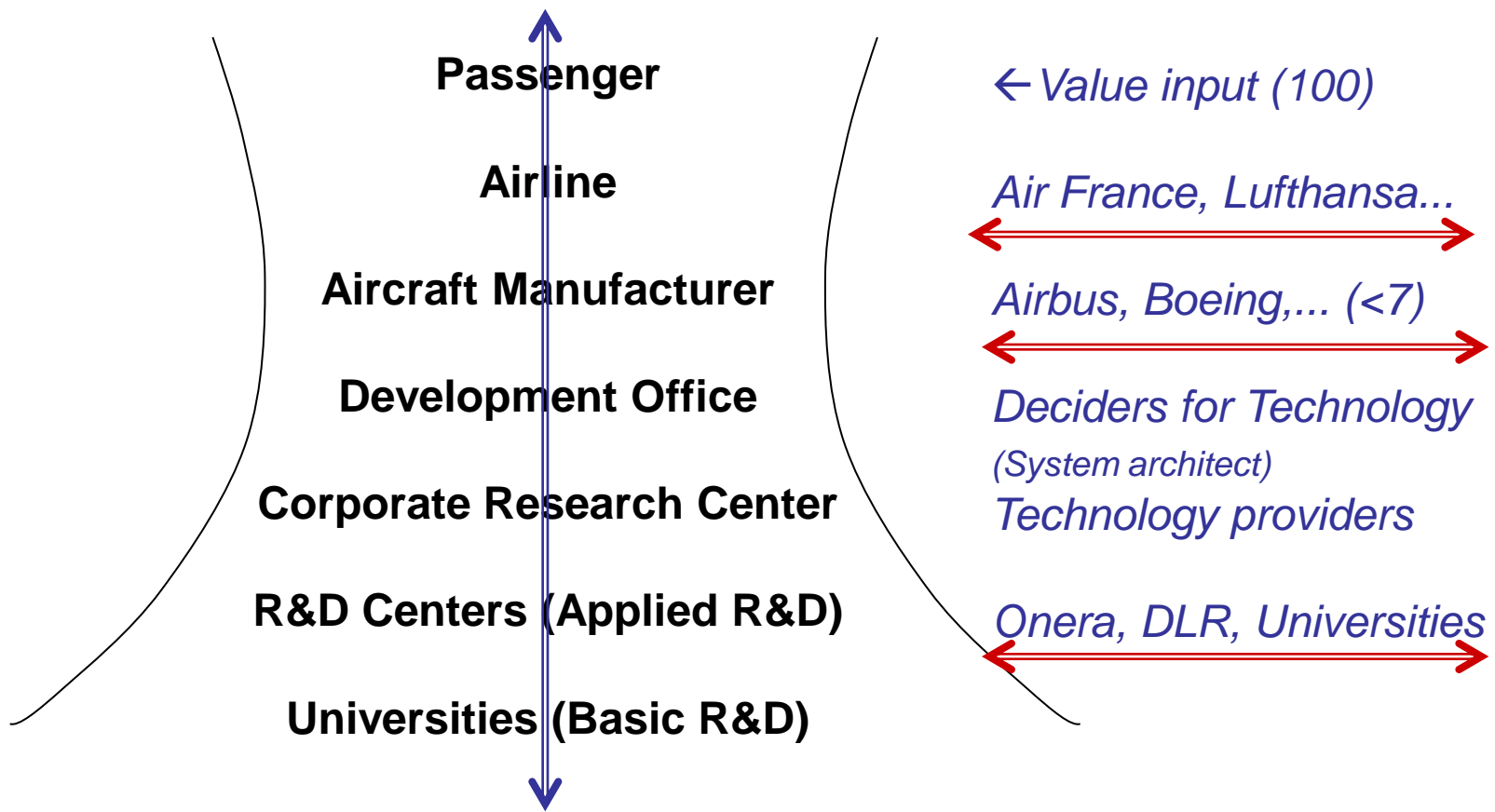
- Build at each level an ideas receptive system
- Identify barriers → build facilitating bridges

Positioning on the TRL chain



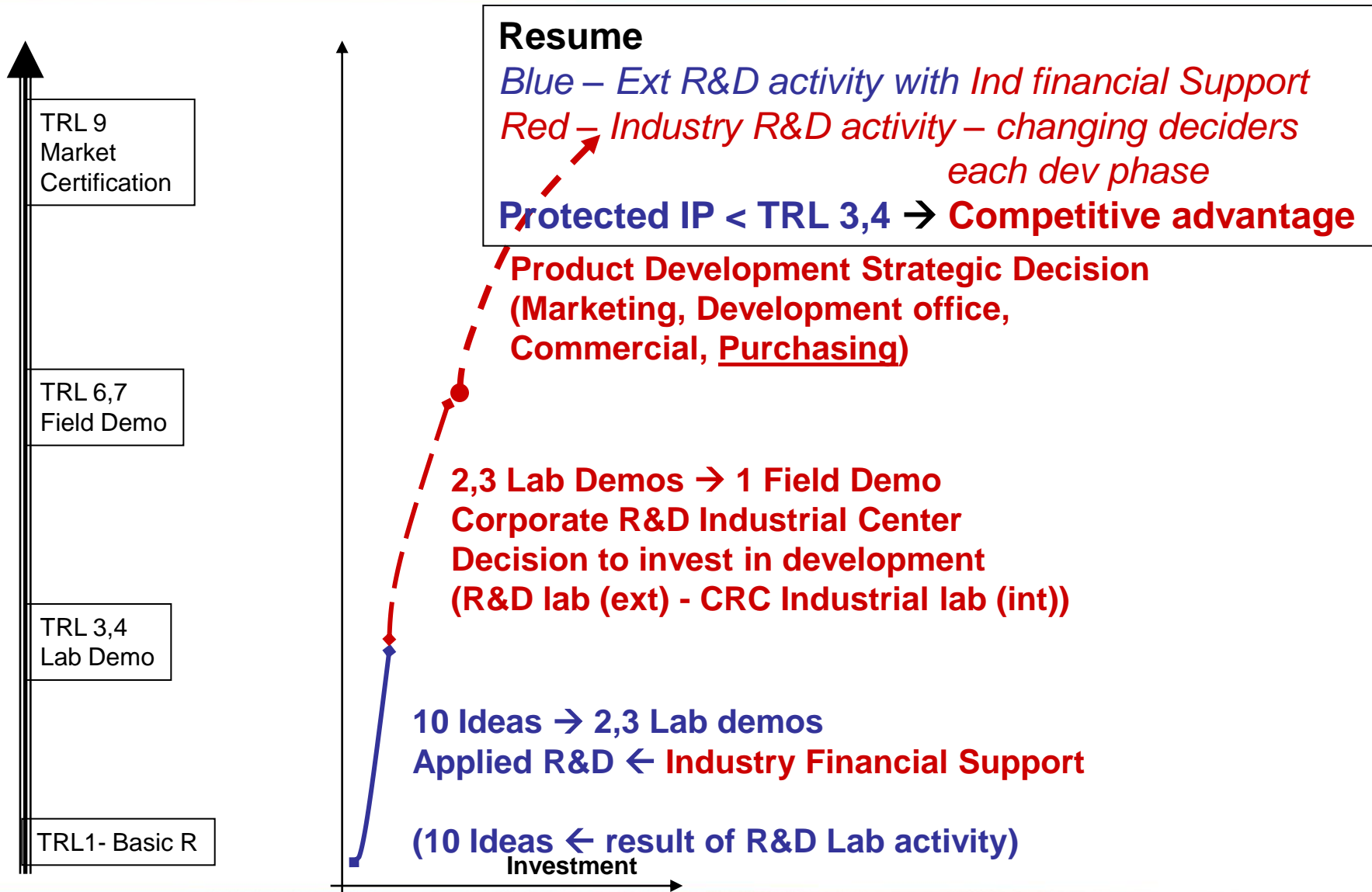
Aerospace Innovation Distribution Channel

Study case – Commercial Aircraft

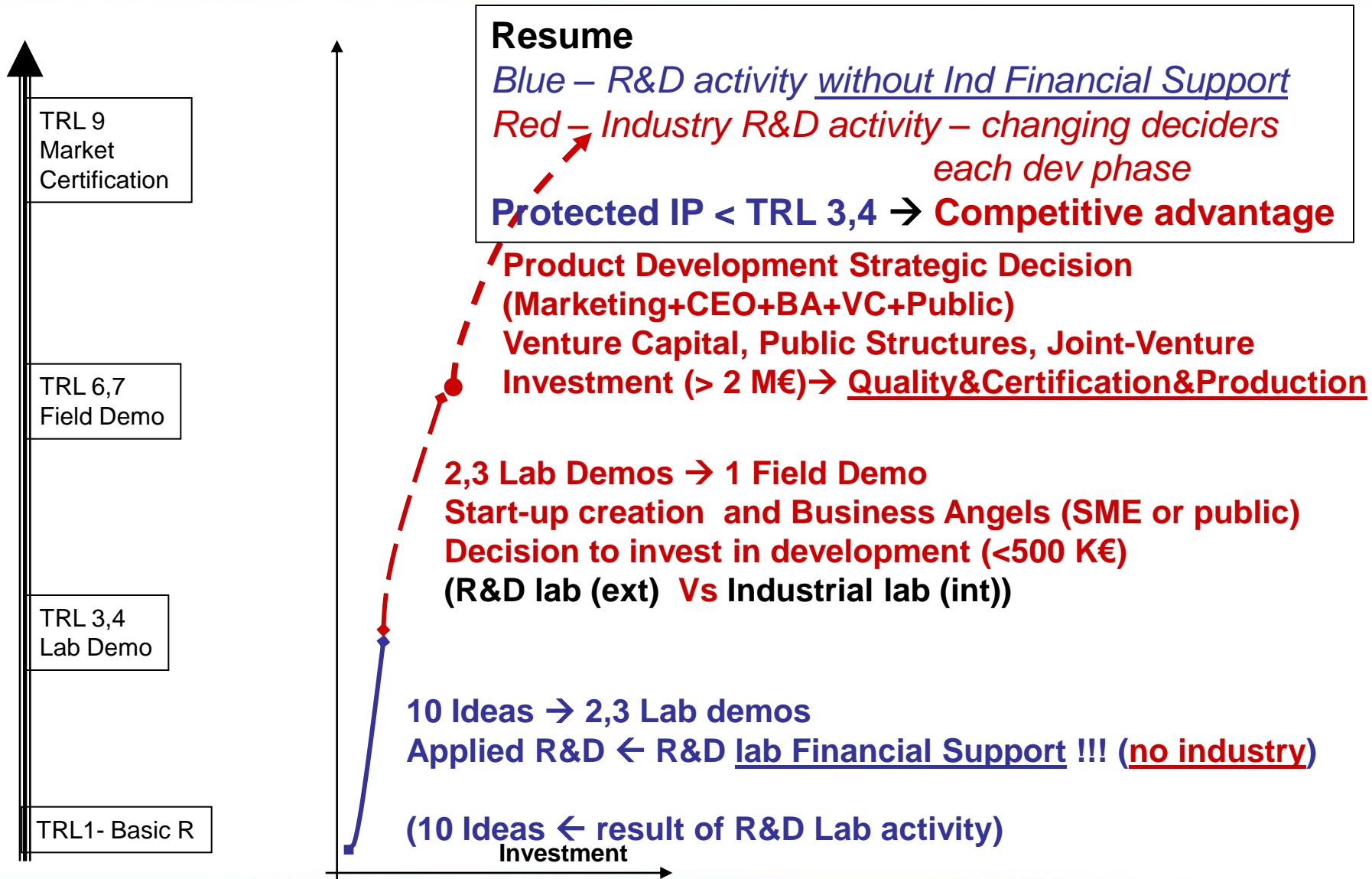


↔ **Vertical competition** → **Criticality** → **Strategic Partnership**
↔ **Horizontal competition** → **Competitive Advantages** (quality, costs, time...)

Decision process related to the TRL chain roles of the different actors – study case “Main Industrials”

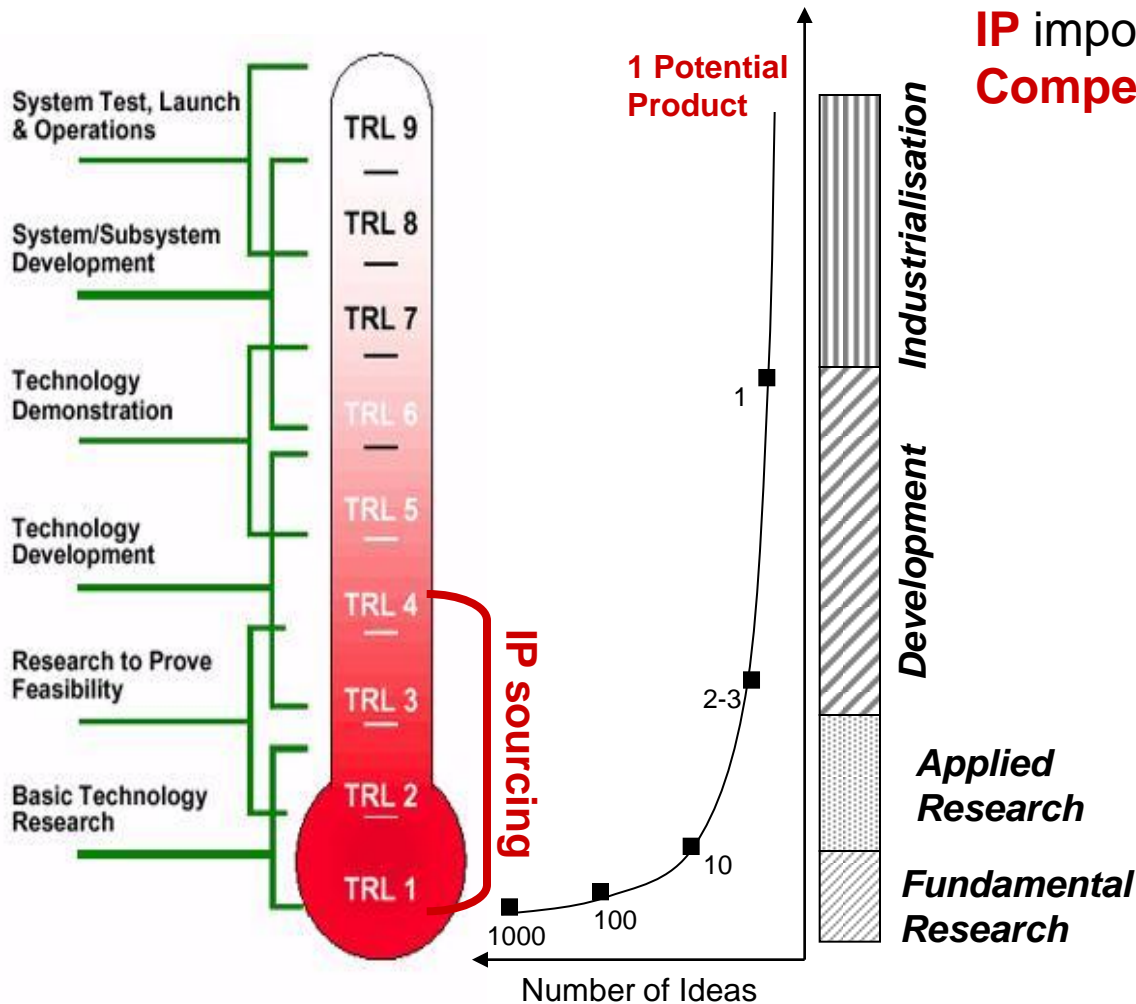


Decision process related to the TRL chain roles of the different actors – study case “SMEs & Start-ups”



Fundamental vs Applied Research

IP occurrence – R&D public mission



**IP importance → Competitiveness
Competitive Advantage**

→ reinforced position inside its “horizontal competition”
→ local economic growth

compliance with the public R&D mission

Patent?!

**Means (Component)
Combination
Function
Result**

**Any new idea on
one of the 4 key words
Generates IP rights**

Innovation models

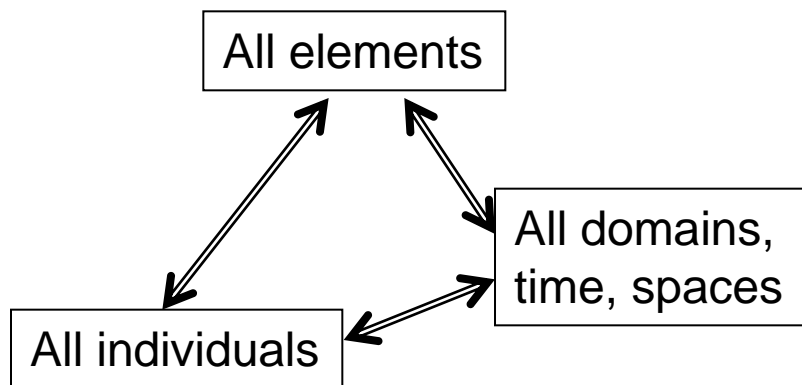
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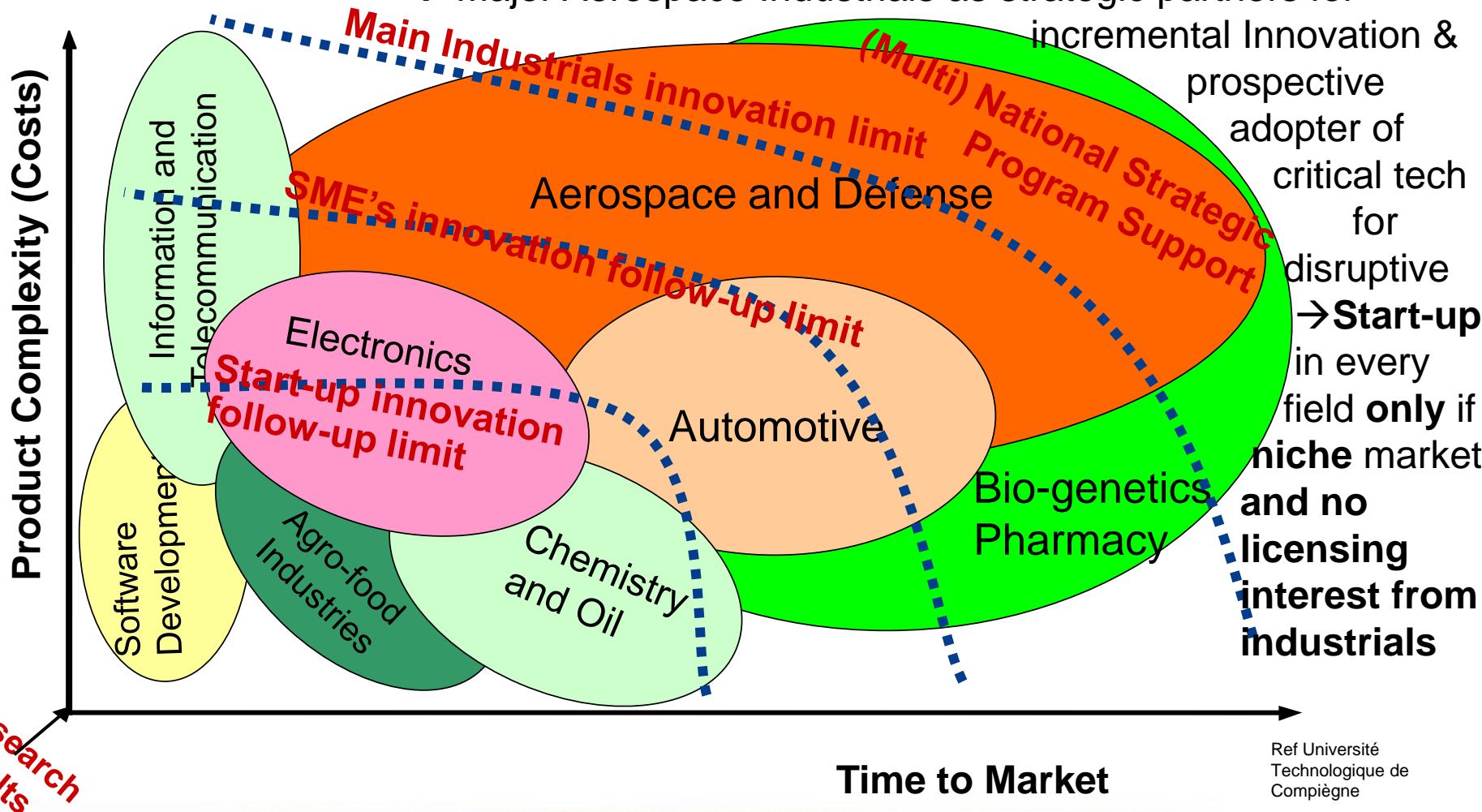
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Aerospace barrier: Innovation process follow-up ability by the Technology creator

Onera's strategy

- SMEs as best vector for technology demonstrators
- Major Aerospace Industrials as strategic partners for incremental Innovation & prospective adopter of critical tech for disruptive



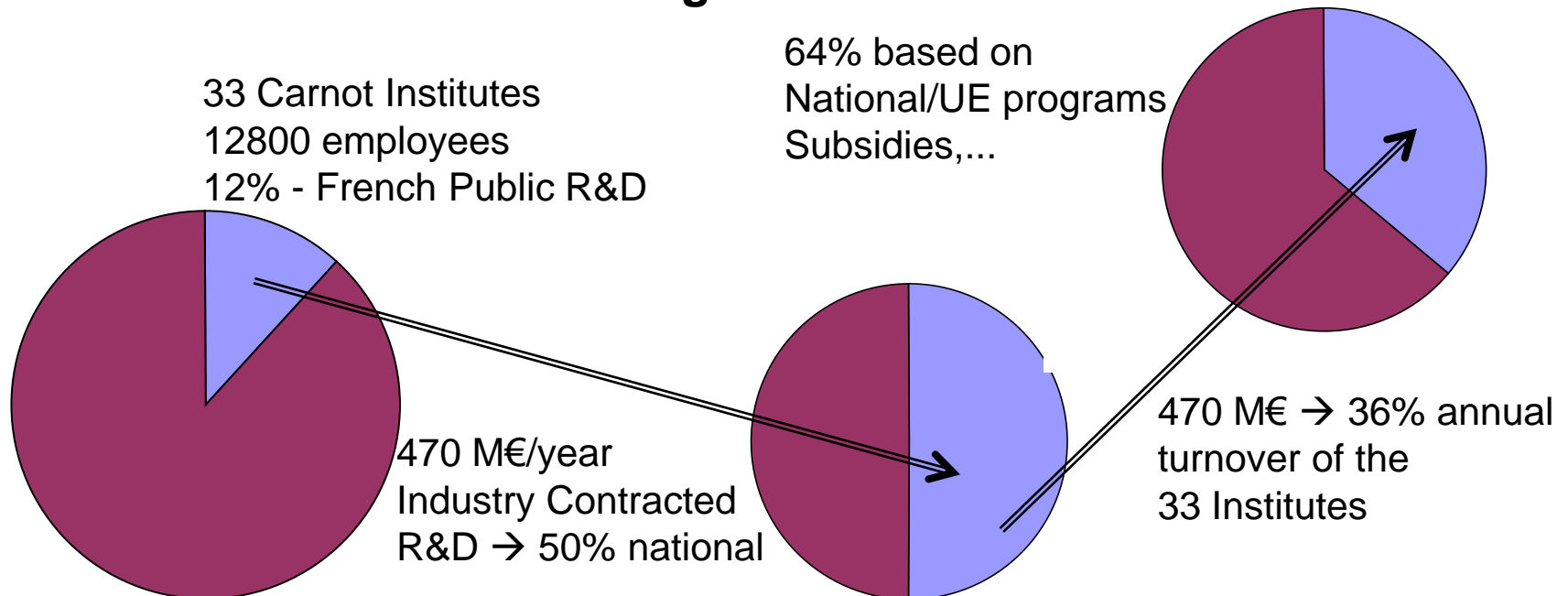
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Aerospace R&D : A Changing Environment

- **Major industrial players are going global**
- **Aerospace programs rely increasingly on international cooperation**
- **New industrial and research players are emerging**
- **Scientific & technological expertise is globally accessible through outsourcing and higher mobility of engineers & scientists**
- **Business success depends on capacity to innovate quickly**
- **Institutional Aerospace R&T funding practices may evolve**

National R&D Business Environment

- Public R&D in France historically not oriented toward market
 - Cultural barrier - Contractual R&D is perceived as a constraint
 - Applied research → National Institutes or Centers
 - Law 'Allegre' 1999 → Universities Commercial and Legal services for TT
 - Law 'Pecresse' 2007 → Universities 'Autonomy'
 - New trends : Carnot Institutes and 'Competitiveness Poles'
- Carnot revealed as good indicator**



The Organizational Continuum

Culture is structured by the Conventions of Coordination

Centralized

Decentralized

Centralized Hierarchies

Traditional Industrial Organization

Heterarchies

Democracies,
Academia

***Responsible
Autonomy***

Free Markets
Web 2.0
'Peer-Production'

CONTRACT

COMMITMENT

Gaming as Future 'Workground'

*Video games train people to work harder while enjoying it.
The success of online games illustrates how seductive
and concealed the work treadmill can be*

3.0. Unleashing Creativity

We are witnessing what amounts to no less a global exodus to virtual worlds and other online (gaming) environments

In games we can imagine the ripples of potential events across massively multiple domains

A Concept of **Commitment versus Contract**

- Contract by definition is about specifiable exchange
- **Commitment more progressive view of mutual relationship between member(s) and organization**
- Mutual responsiveness