



MARKET-DRIVEN RESEARCH AND INNOVATION: A new role for universities

Wendy Cukier, MA, MBA, PhD, LLD (hon) DU (hon) M.S.C. (civilian)
Vice President, Research and Innovation, Ryerson University

OVERVIEW

Building an “innovation nation”

Evolution of the University-Industry relationship

Our approach: Ryerson University in Toronto

BUILDING AN INNOVATION NATION

- Macro Level Enabling Conditions
 - Political, social, strong financing, tax structure and eco-system, THE CULTURE OF INNOVATION
- Recognize Sectoral Issues
 - One size does not fit all: new app versus cure for cancer
- Organizational Approaches
 - Processes and techniques
 - Building networks
 - Shaping corporate culture: accept failures enroute to success
- Individual Focus (nature versus nurture?)
 - Developing the knowledge, skills and attitudes

Evidence-Based Strategy

- Many claims about innovation are assertions
- Measures often focus on inputs (eg. spending on R&D)
- How important are patents? IP?
- Significant sectoral differences
- Context matters: The world is flat – new global competitors may not follow historical trajectories
- Don't forget the “bottom of the pyramid”
- Where you sit affects what you see

Creating the Innovation Advantage

“Top-down, centrally planned approaches are rarely effective.” - Dearing, 2007

“Knowledge and innovation capabilities cannot be created by decree....they depend on a complex set of values, learning processes, networks and interactions.” - Schwaag Serger, 2006

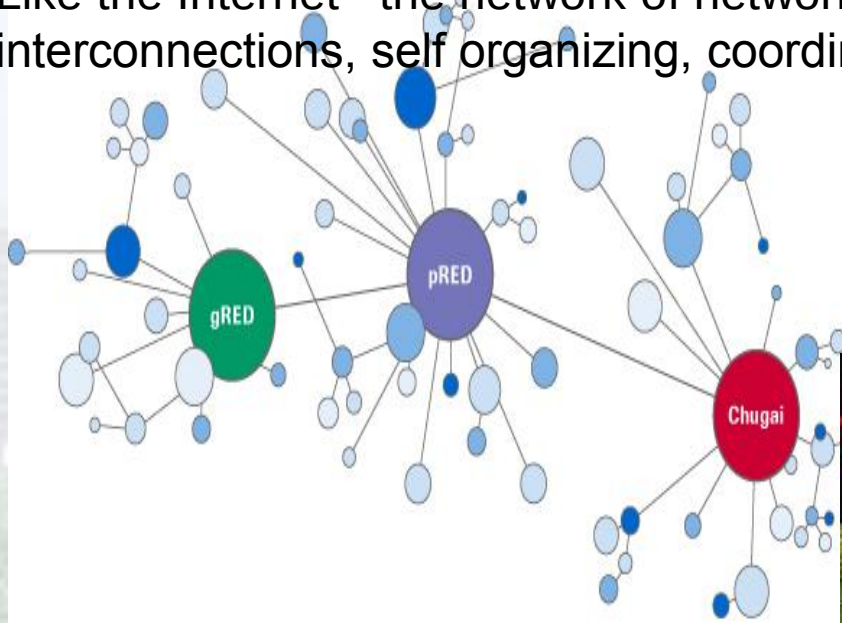
Entrepreneurship is not in the genes, it is a mindset and an approach that can be taught – Peter Drucker, 1996

You can't learn surfing from a textbook

- Michael Lazaridis, CEO, RIM, 2002

Polycentric Innovation or Innovation as rhizome

Like the Internet– the network of networks: hubs, interconnections, self organizing, coordinated....



Plant the garden, sow the seeds,
provide the resources, till the soil and
“let a thousand flowers bloom”



THE ROLE OF THE UNIVERSITY

The University of the 14th Century: A battlefront KNOWLEDGE VERSUS THE ECONOMY



The University of the 20th Century: an uneasy alliance

Eroded boundaries but separate and distinct with increased University and Industry connections to:

Generate Knowledge

Share knowledge and develop Talent

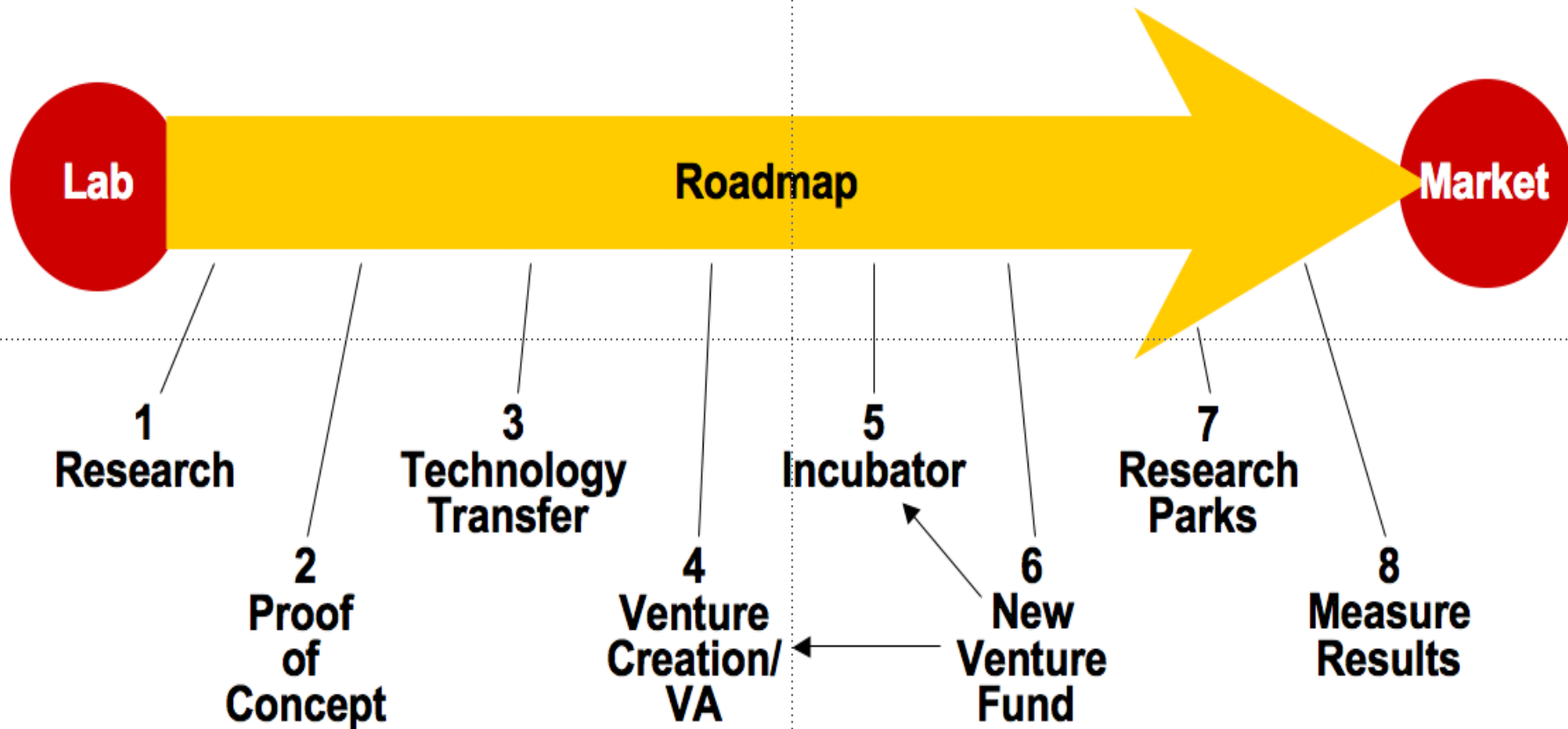
Apply knowledge

Commercialization of lab research (to market)

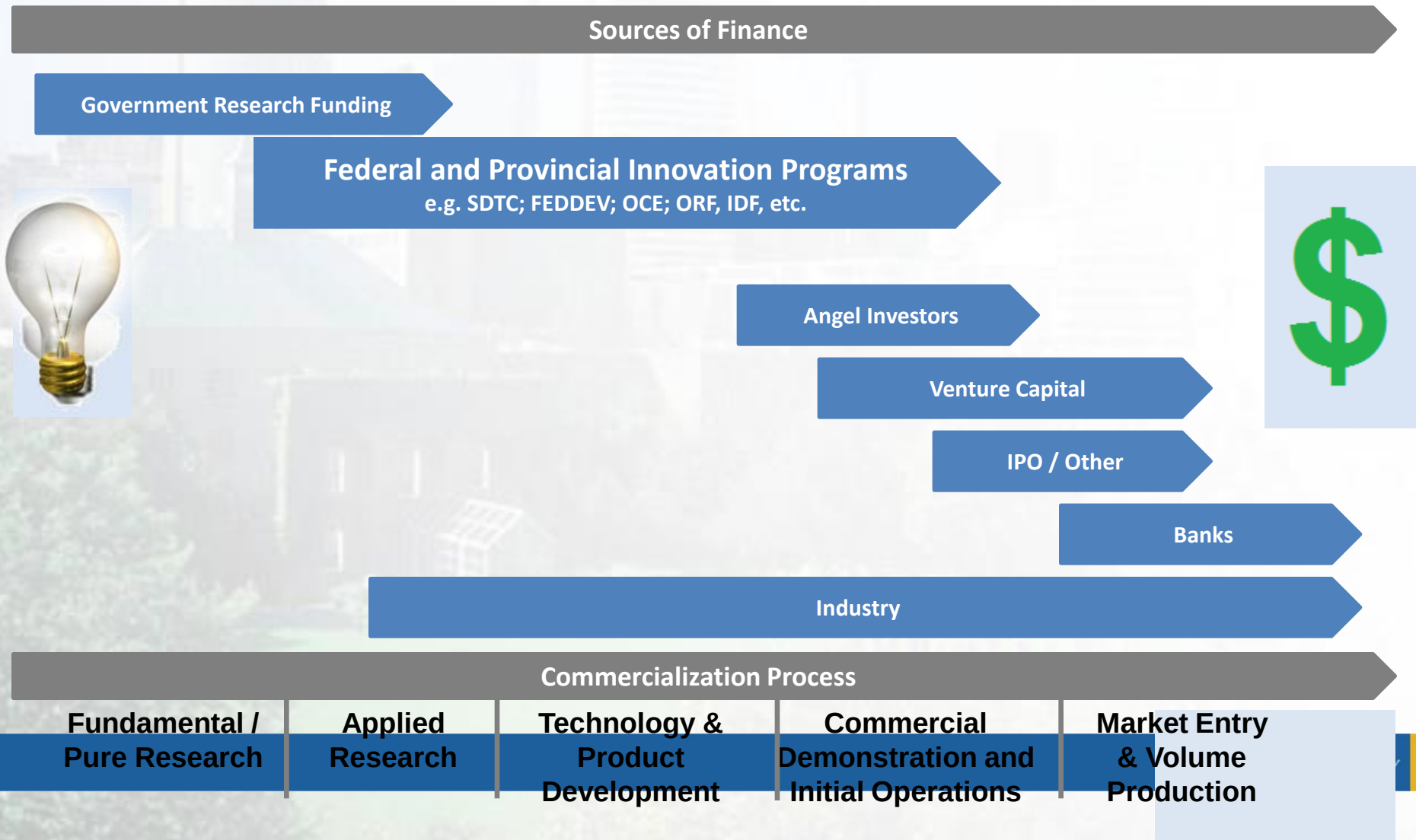
Applied / Contract Research



Traditional University Research Roadmap from Lab to Market



Strengthen investments in commercialization?



Learning system is fragmented

By level: Apprenticeship, undergraduate, masters, doctorate, professional development, training, executive education

By institution: ivy league versus applied

By discipline: engineering, management, art

By pedagogy: classroom, online, experiential

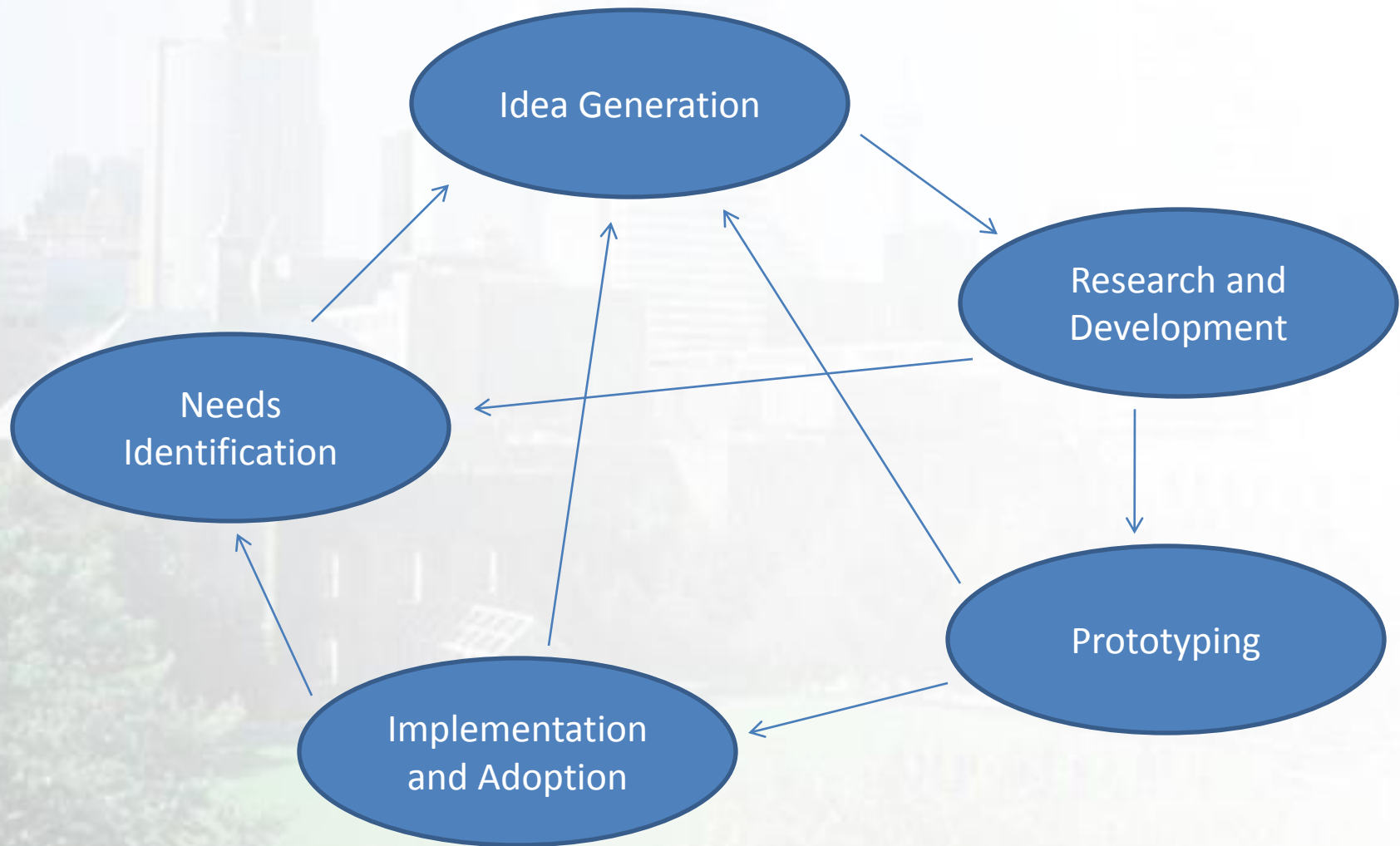
By jurisdiction: regional, national, public/private

Need to erode boundaries, promote cross fertilization, agility and access

The University for the 21st Century

- No “ivory towers”: embedded in the community
- Erode barriers among disciplines, institutions, stakeholders
- “We are the knowledge economy”
- “We create jobs”
- “We value “real world” experience”
- Challenges: measurement and aligning reward systems

Embrace Market Driven Innovation?



Tensions Remain

ENTREPRENEURIAL

Start with perception of an opportunity

Bias toward action

Make adjustments as you go

Build teams and informal networks

Focus on impact

Real time, nimble, agile

BUREAUCRATIC

Start with resources in hand
(show me the money, first)

Bias toward analysis
(paralysis)

Follow structured policies and procedures

Work independently and autonomously

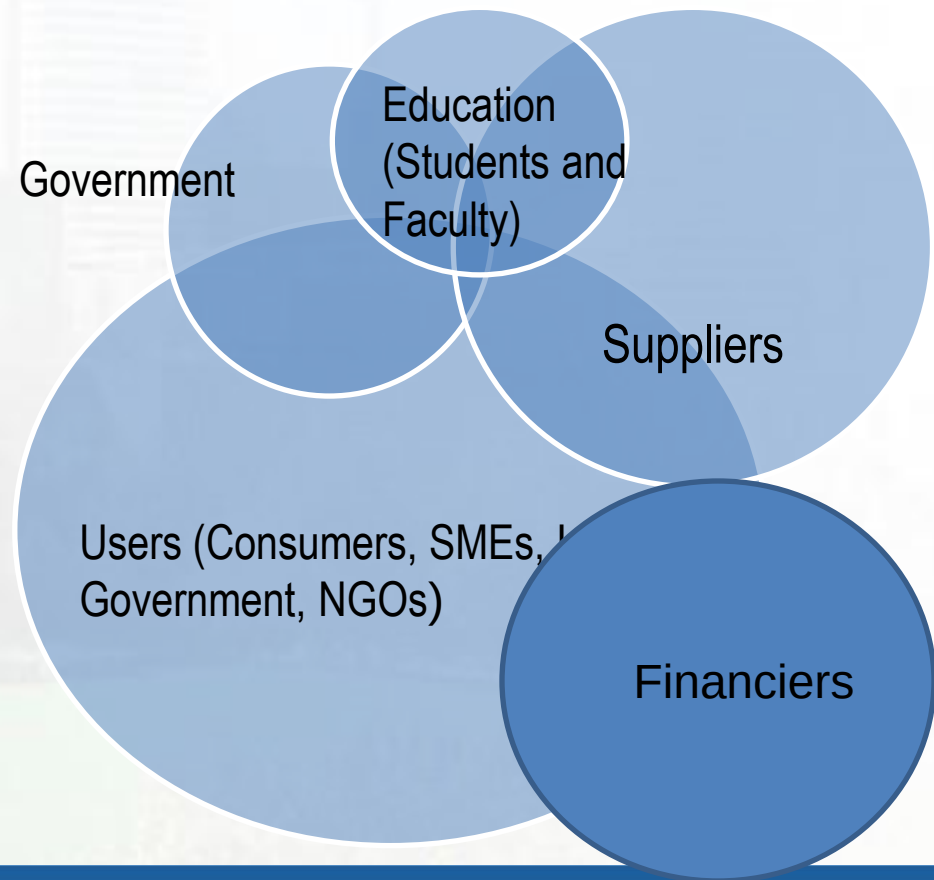
Focus on traditional metrics

University time, process, approvals

RYERSON UNIVERSITY

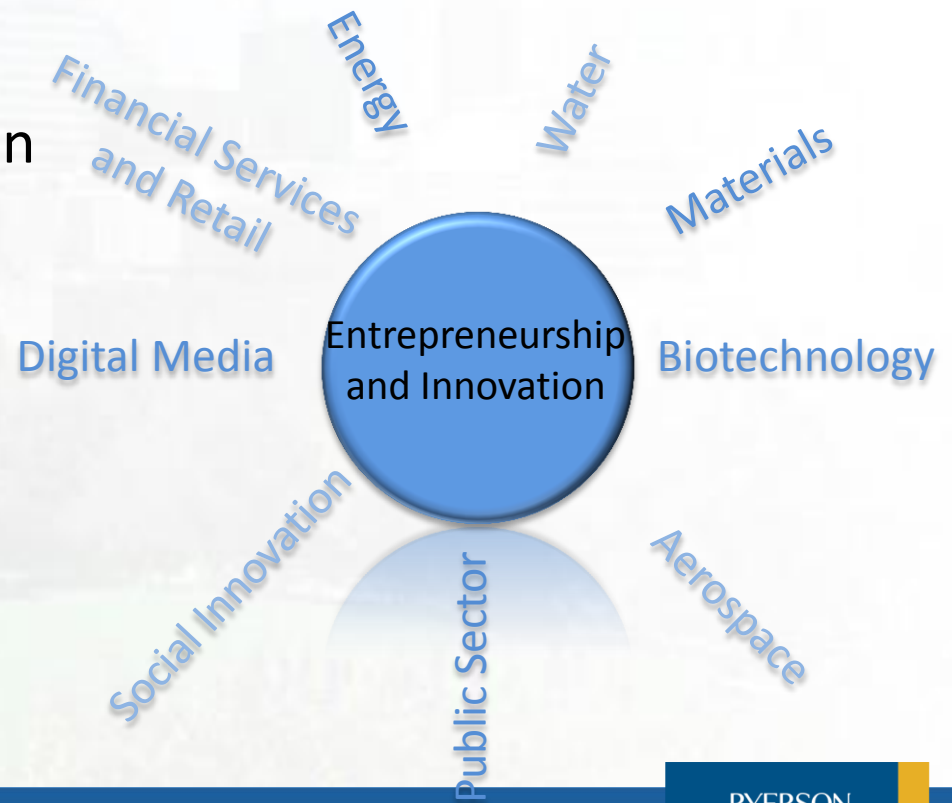
- Leader in career-focused education: Engineering, Architecture, Science; Management; Arts; Community Services; Communications and Design
- 100+ programs with 25,000 FT & 30,000 PT students
- High quality, **accessible** and experiential learning
- Excellent faculty with **real world experience**,
- Innovation and entrepreneurship across the curriculum
- Partnerships with industry, government and community
- Conventional lab-to-market AND market-led research
- Unique “Zones” of Innovation

Create Collaborative Zones of Innovation



Entrepreneurship and Innovation Across the University: “Zones” of Innovation

- Core/node provide support across sectors
- Promotes knowledge within and between sectors
eg. Digital Media/Finance; Materials/Aerospace



Core/Central Hub/Node

Includes capacity building and support for:

- Market analysis and opportunity identification for faculty and students
- “Business development” – eg. “speed dating”, “bridgers”, “hybrids”
- Just-in-time skills development
- Coaching, mentoring, training from serial entrepreneurs
- Knowledge sharing, dissemination and mobilization platforms
- Cross-sectoral exchanges
- Links to investors – Ryerson Angel Networks – other Angels
- IP and commercialization expertise
- Global connections and international relationships (BIIC)
- Monitoring, research and evaluation on innovation and entrepreneurship

Entrepreneurial University: Core Knowledge, Skills and Attitudes

- Broad conception of innovation
 - both economic and social
 - new enterprises, new products and services, process improvements
- Opportunity identification, business case development, pitching, project management, ICT, team work, leadership, IP etc.
- Collaborative teambuilding and COMMUNICATIONS
- Structured as well as iterative processes
- Resilience and agility: learning from failures
- Just-in-time expert advice, coaching and support
- Formal courses, projects, internships, coop, integrative semesters, competitions and clubs, zones
- By 2014, 20% of students will have entrepreneurship exposure

Our approach? Just do it!

- Ryerson's Zone strategy vs. conventional master plan (we are not constructing an edifice or a highway – some “incubators” are just real estate!)
- Harness student ingenuity: provide space, infrastructure, coaching and support to small group
- NOT science fair projects!
- Iterative: conception to action, adjust and adapt
- Results: approaches that are fresh, even disruptive: combine hydraulics + signal processing + neuroscience
- Inclusive: includes work with India on scalable “bottom of the pyramid” solutions and attention to diversity issues
- Location, location, location: provides showcase, access to clients, financiers, coaches
- Nonlinearity: extraordinary impact on all aspects of university position

Eg. The Digital Media Zone (DMZ)

(opened April 2010)



- Interdisciplinary, student-centric, hands-on, collaborative, accelerator
- Space, infrastructure and support to **SELECTED** students
 - 36 start-ups incubated and accelerated
 - 340 jobs created
 - 6 companies have "graduated"
 - 1 company failed
 - 1 company has 60 employees

