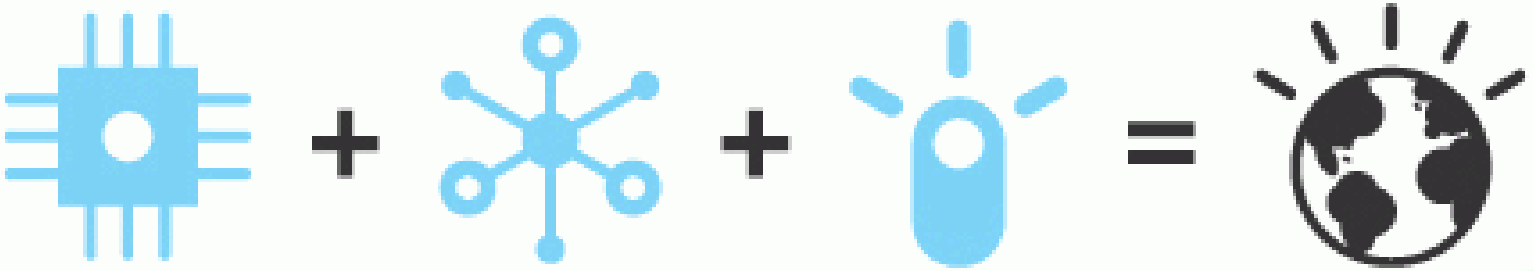
Innovation though collaboration



Working Together to Build a Smarter Planet

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University Relations Coordinator
IBM Central & Eastern Europe, Middle East, Africa
February 22, 2012

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IBMers Value

Dedication to every client's success.
Innovation that matters—for our company and for the world.
Trust and personal responsibility in all relationships.

IBM has 425,000 employees worldwide

IBM in 170 countries around the globe

22% of IBM's revenue in growth market countries; growing at 16% in 2011

Number 1 in patent generation for 18 consecutive years ; 5,896 US patents awarded in 2010

100 Years of Business & Innovation

9 time winner of the President's National Medal of Technology & Innovation - latest award for Blue Gene Supercomputer

2011 Financials

- *Revenue - $ 106.9B*
- *Net Income - $ 16.3B*
- *EPS - $ 13.44*
- *Cash Flow - $16.6B*

The Smartest Machine On Earth

5 Nobel Laureates

More than 40% of IBM's workforce conducts business away from an office

"Let's Build a Smarter Planet"

world community grid.
technology solving problems

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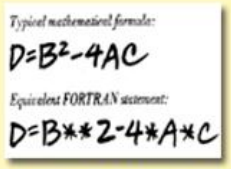
History of Innovation at IBM

1944: Mark 1

1948: SSEC

1956: RAMAC



1957: FORTRAN

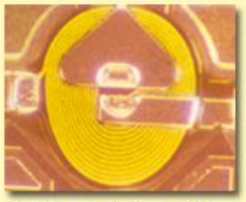
1966: One-Device Memory Cell

1967: Fractals

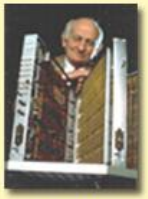
1970: Relational Database

1971: Speech Recognition

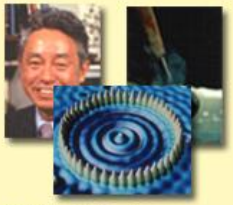
1973: Winchester Disk



1979: Thin Film Recording Heads



1980: RISC

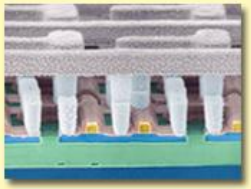


Nobel Prizes

1994: SiGe

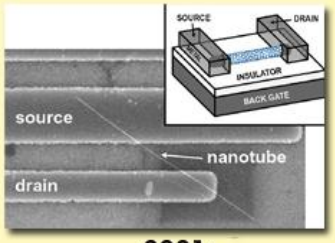
1993: RS/6000 SP
1996,97: Deep Blue

1997: Copper Interconnect Wiring

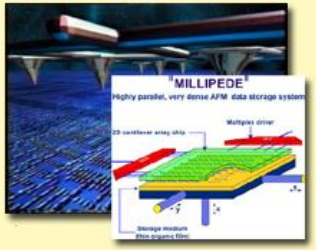


1998: Silicon-on-Insulator

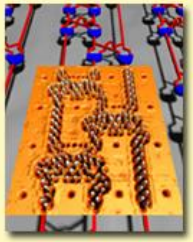
1998: Microdrive



2001: Nanotube Transistor



2002: Millipede



2002: Molecule Cascade Logic Circuit

2004: Blue Gene/L
The fastest supercomputer in the world

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Over 60 Years of Collaborations with Universities

COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK

1945: IBM Research born in cooperation w/ Columbia University

1951: PhD Fellowship Program launched

1983: Faculty Award Program launched

1985: Shared Univ Research (SUR) Program launched

1990: First Center For Advanced Studies (CAS) opens in Toronto CA

1997: First ACM Int'l Collegiate Programming Contest (ACM ICPC) held

2002: Virtual Computing Lab Initiative (VCL) created at NC State

2003: IBM and leading universities pioneer the discipline of Services Science, Management & Engineering (SSME)

2004: Launch of the Academic Initiative (AI) providing free IBM SW to the academic community

IBM ACADEMIC INITIATIVE

2006: Open Collaborative Research (OCR) award program launched

Bringing great minds together for the greater good

2007: IBM, RPI and State of NY form CCNI ; A $100M public-private partnership

2008: Award programs innovated with introduction of Named Awards for outstanding achievers

2009: IBM Cloud Academy launched as a forum for Higher Educ to create & share cloud based technologies

IBM Cloud Academy

1945 1980 2010

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Brand Building / Showcase Centers

SYRACUSE UNIVERSITY

VCL VIRTUAL COMPUTING LAB powered by NC STATE's Virtual Computing Platform

NORTH CAROLINA STATE UNIVERSITY

UNIVERSITY of CALIFORNIA

Mega Scale Centers of Competency

UNIVERSITY of ROCHESTER MEDICAL CENTER

HSCCI

CCNI Computational Center for Nanotechnology Innovations

The World's Most Powerful University-Based Supercomputing Center

UNIVERSITY OF TORONTO

Sci Net Consortium

Rensselaer

IBM Smart Planet Solutions

IBM Platforms

Grand Challenge Centers

KAUST

LAGrid Latin American Grid ™

The Cancer Institute of New Jersey

RUTGERS THE STATE UNIVERSITY OF NEW JERSEY

On Campus Collaborations

KIT Karlsruhe Institute of Technology

Services Research Institute

R·I·T

Innovation & Collaboration Lab

IBM ISB

Collaboratory for Services Science

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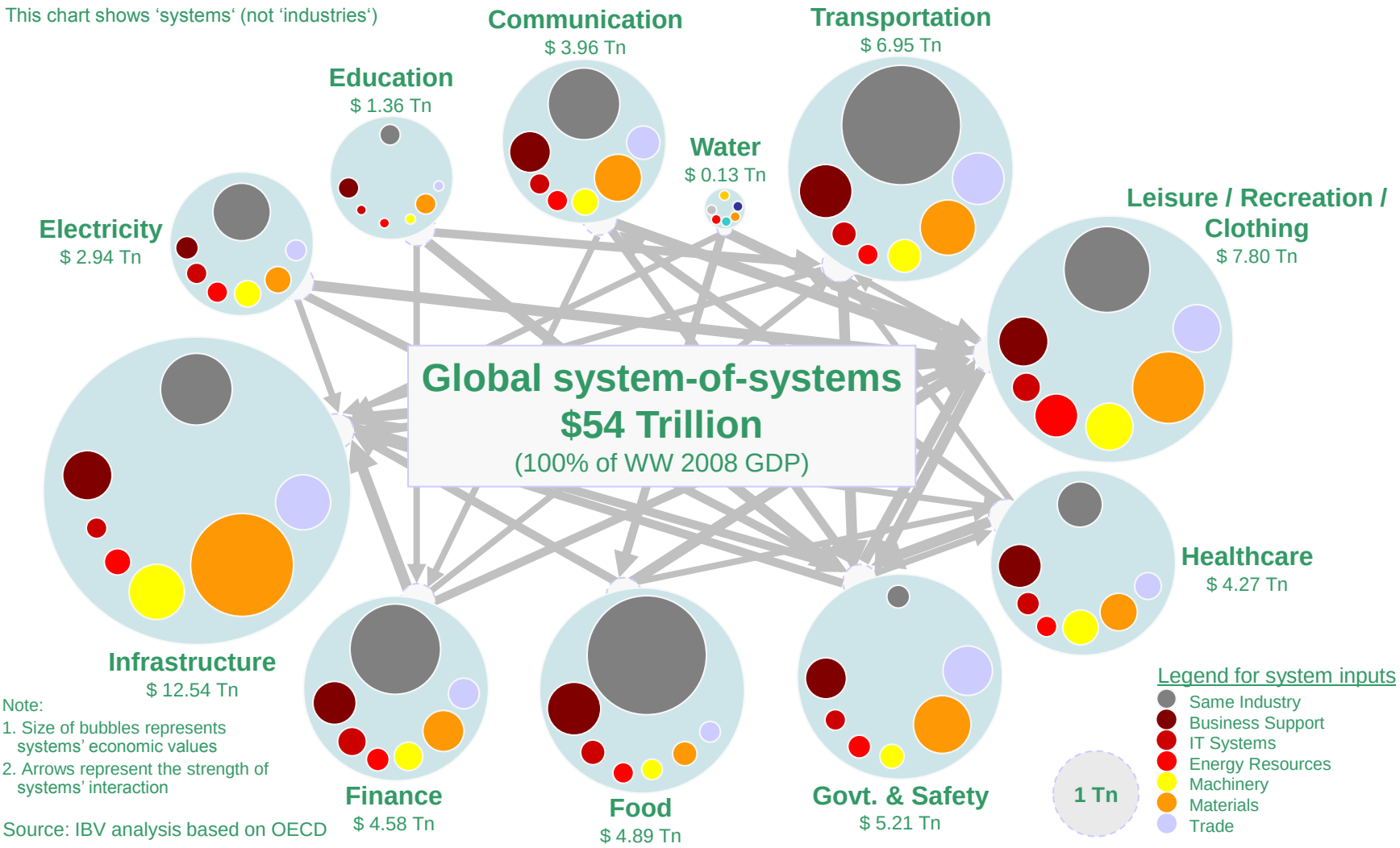
Our planet is a complex, dynamic, highly interconnected $54 Trillion system-of-systems (OECD-based analysis)



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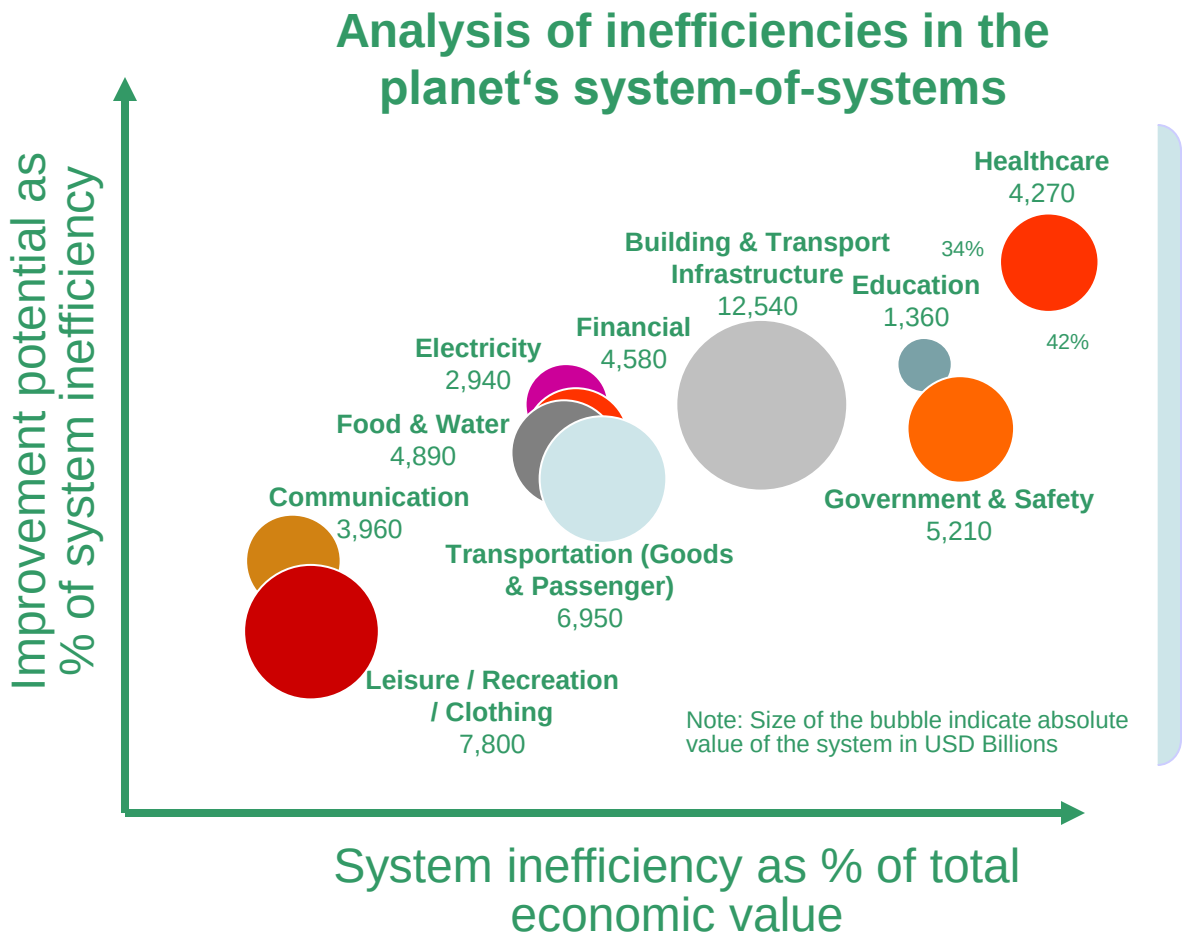
Economists estimate, that all systems carry inefficiencies of up to $15 Tn, of which $4 Tn could be eliminated

This chart shows ‘systems‘ (not ‘industries‘)



Source: IBM economists survey 2009; n= 480

Global economic value of

System-of-systems	$54 Trillion **100% of WW 2008 GDP**
Inefficiencies	$15 Trillion **28% of WW 2008 GDP**
Improvement potential	$4 Trillion **7% of WW 2008 GDP**

How to read the chart:

For example, the Healthcare system‘s value is $4,270B. It carries an estimated inefficiency of 42%. From that level of 42% inefficiency, economists estimate that ~34% can be eliminated (= 34% x 42%).

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Our Mission: What is Smarter Planet?
Harmonized “service systems” waste less, innovate more

INSTRUMENTED

We now have the ability to measure, sense and see the exact condition of practically everything.

INTERCONNECTED

People, systems and objects can communicate and interact with each other in entirely new ways.

INTELLIGENT

We can respond to changes quickly and accurately, and get better results by predicting and optimizing for future events.

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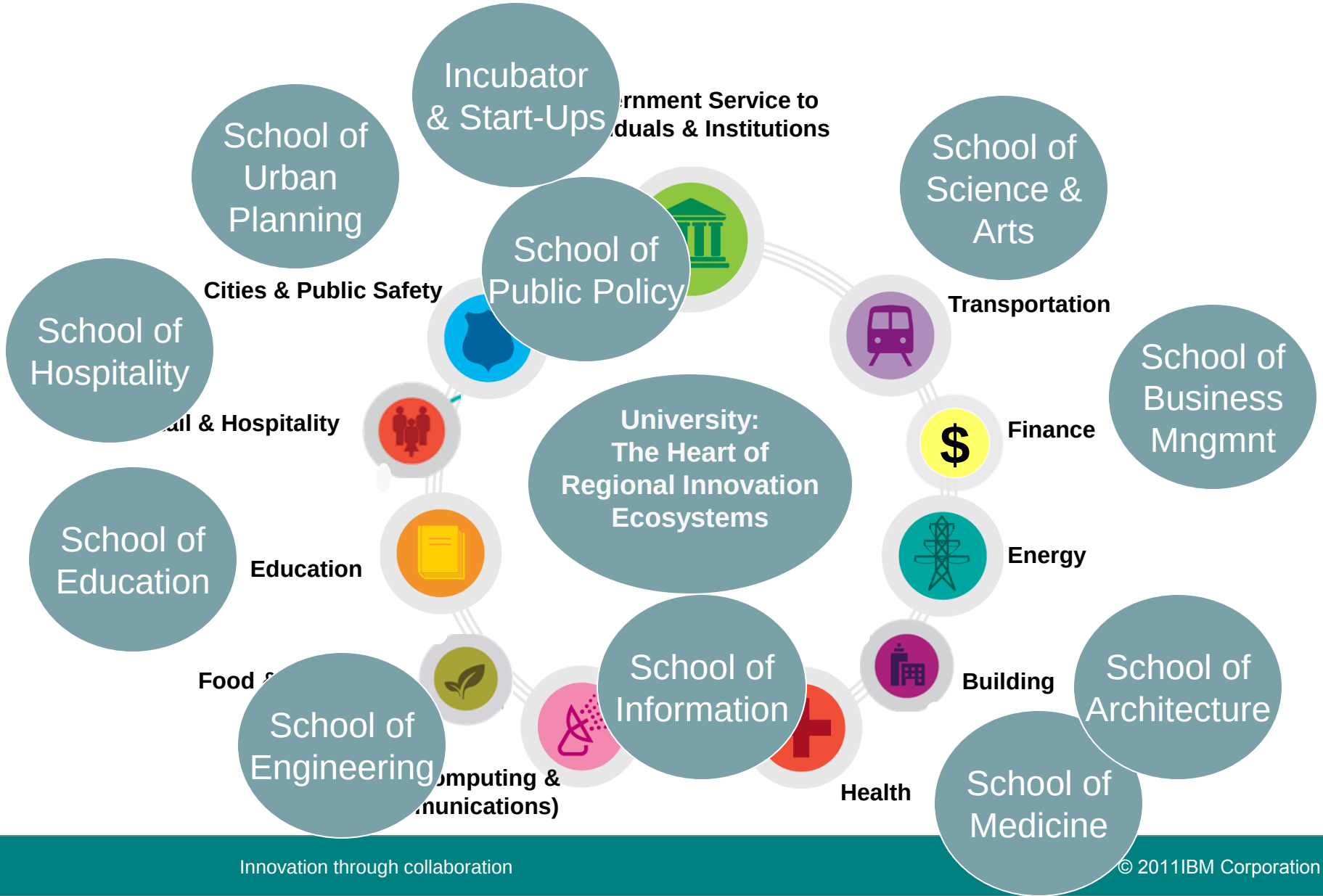
University: The Heart of Regional Innovation Ecosystems



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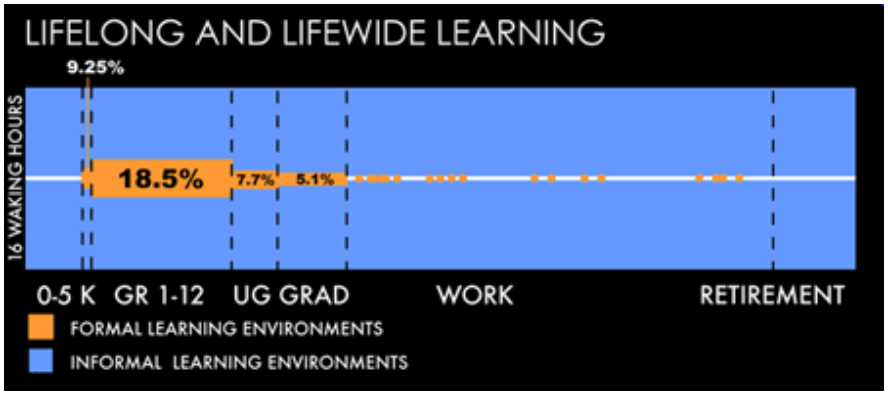
Let's Innovate Together!

Learning is changing…
… so what is needed?
What new programs?
What new initiatives?
What new projects?



Education's Signposts

Five interrelated signposts have emerged over the last few years directly impacting the rate and direction of change in education.

TECHNOLOGY IMMERSION
Technology immersion of students

PERSONAL LEARNING PATHS
Personal and varied learning paths

KNOWLEDGE SKILLS
Knowledge skills for service-based economies

GLOBAL INTEGRATION
Global integration of systems, resources, and cultures

ECONOMIC ALIGNMENT
Education's critical role in a 21st century economy

Five signposts of educational trends can be perceived as challenges to traditional institutions – or – as opportunities for meaningful and long-lasting systemic transformation to systems of education.

How an educational system responds to these trends will determine not only its value to its students but ultimately, its long-term value to society.

An investigation into each of these areas is useful for understanding the direction and rate of change, as well as to developing realistic and actionable strategies for education policy, investments and programs.

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Skills for 21st Century: T-Shaped Innovators

Many team-oriented service projects completed
(resume: outcomes, accomplishments & awards)

Many disciplines
(understanding & communications)

Many systems
(understanding & communications)

Deep in one discipline
(analytic thinking & problem solving)

Deep in one system
(analytic thinking & problem solving)

SSME = Service Science Management Engineering (and Design)

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Thank you and any questions?

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