



Benchmarking National Innovation Systems: *Dynamic positioning for Industrialized, Developing and Emerging Economies*

12th September 2013

International Conference on Innovation

Debra M. Amidon

Founder and CEO

ENTOVATION International Ltd.



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7 Decades Ago – *Bretton Woods*



“Creation of a dynamic world community in which the peoples of every nation will be able to realise their potentialities for peace”. - Henry Morgenthau, Opening Address

Bretton Woods Conference

The Bretton Woods Conference, officially known as the United Nations Monetary and Financial Conference, was a gathering of delegates from 45 nations that met from July 1 to 22, 1944 in Bretton Woods, New Hampshire, to agree upon a series of new rules for the post-WWII international monetary system. Two major accomplishments of the conference were the creation of the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (IBRD).

<http://history.state.gov/milestones/1937-1945/BrettonWoods>



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More from Morgenthau...



“Task...do away with economic evils – the competitive currency devaluation and destructive impediments to trade – which preceded the present war. We have succeeded.”

“...devise machinery by which men and women everywhere can exchange freely, on a fair and stable basis, the goods which they produce through fair labor...nations of the world will be able to help one another in economic development to their mutual advantage and for the enrichment of all.”

“There is a curious notion that the protection of national interest and development of international cooperation are conflicting philosophies -that somehow or other men of different nations cannot work together without sacrificing the interests of their particular nation. ”



More from Morgenthau...



“...will help determine whether or not people will have jobs and the amount of money they are to find in their weekly pay envelope. More important still, it concerns the kind of world in which our children are to grow to maturity.”

“This monetary agreement is but one step, of course, in the broad program of international action necessary for the shaping of a free future.”

“We are at a crossroad, and we must go one way or the other...signpost-signpost pointing down a highway broad enough for all men to walk in step and side by side. If they will set out together, there is nothing on earth that need stop them.”



1987-1991: *The Singing Revolution*

*"Some revolutions are about hate...
others – revenge; one was about hope.
A million voices...
An unstoppable dream."*



<http://www.imdb.com/title/tt0954008/>

On August 23, 1989, the fiftieth anniversary of the Molotov-Ribbentrop Pact, the People's Fronts of all three Baltic countries held a huge demonstration of unity - the "Baltic Way". A 600 km (373 mi) long human "chain" from Tallinn through Riga to Vilnius was assembled. This was a symbolic demonstration of the people's call for independence from the Soviet Union.



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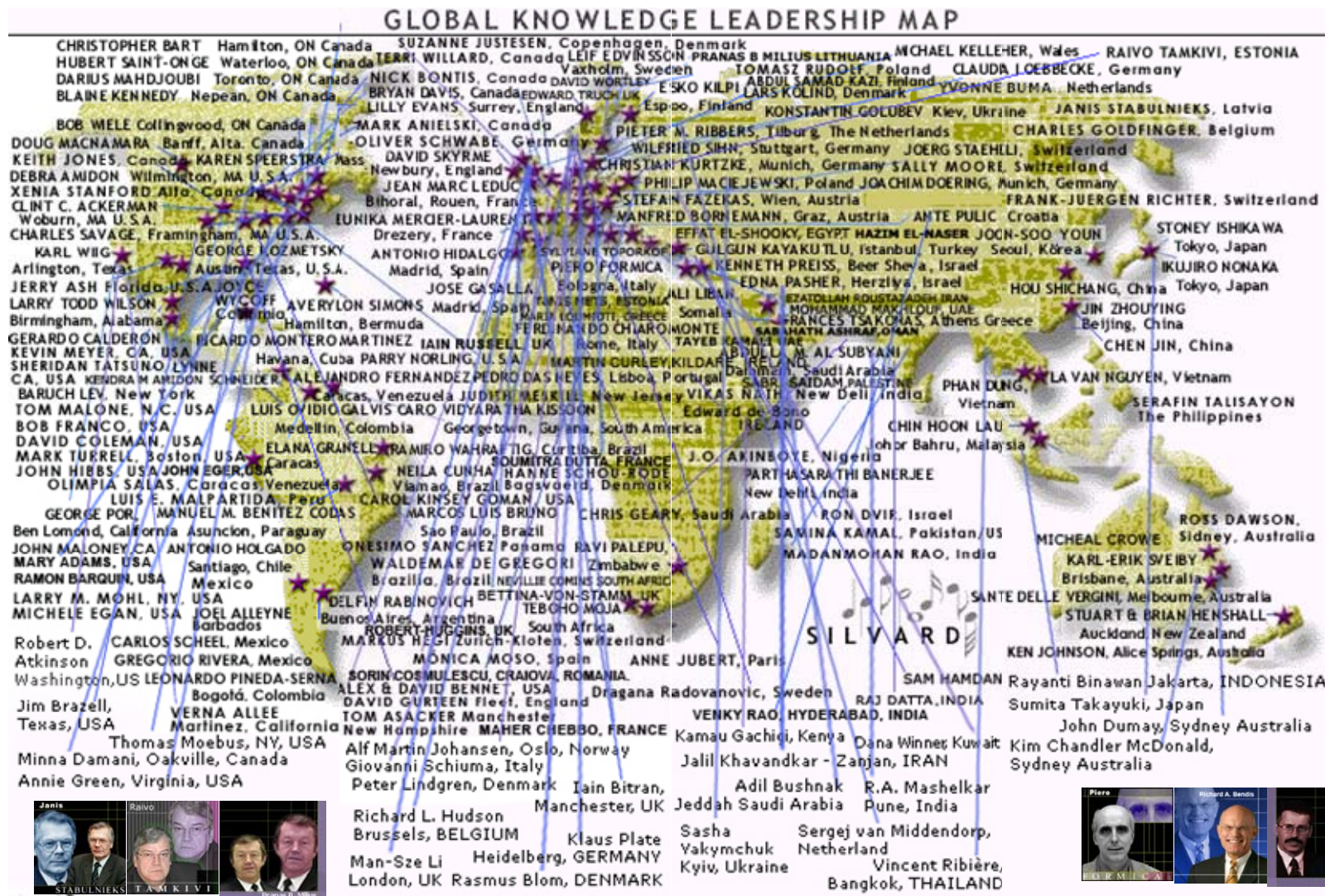
Outline



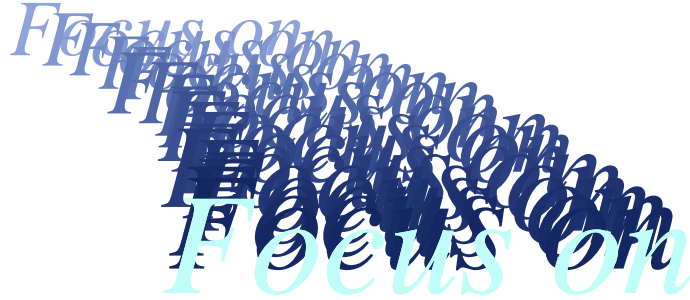
- *Where We've Been...*
 - *Context – Key Concepts*
- *Where We Are...*
 - *What's in a KIZ – Measuring and Managing*
- *Where We Might Go...*
 - *Aspirations – From Dream to Reality*
- *Conclusion – New Game in Town*



The ENTOVATION Network [E100]: 200+ from 68 countries



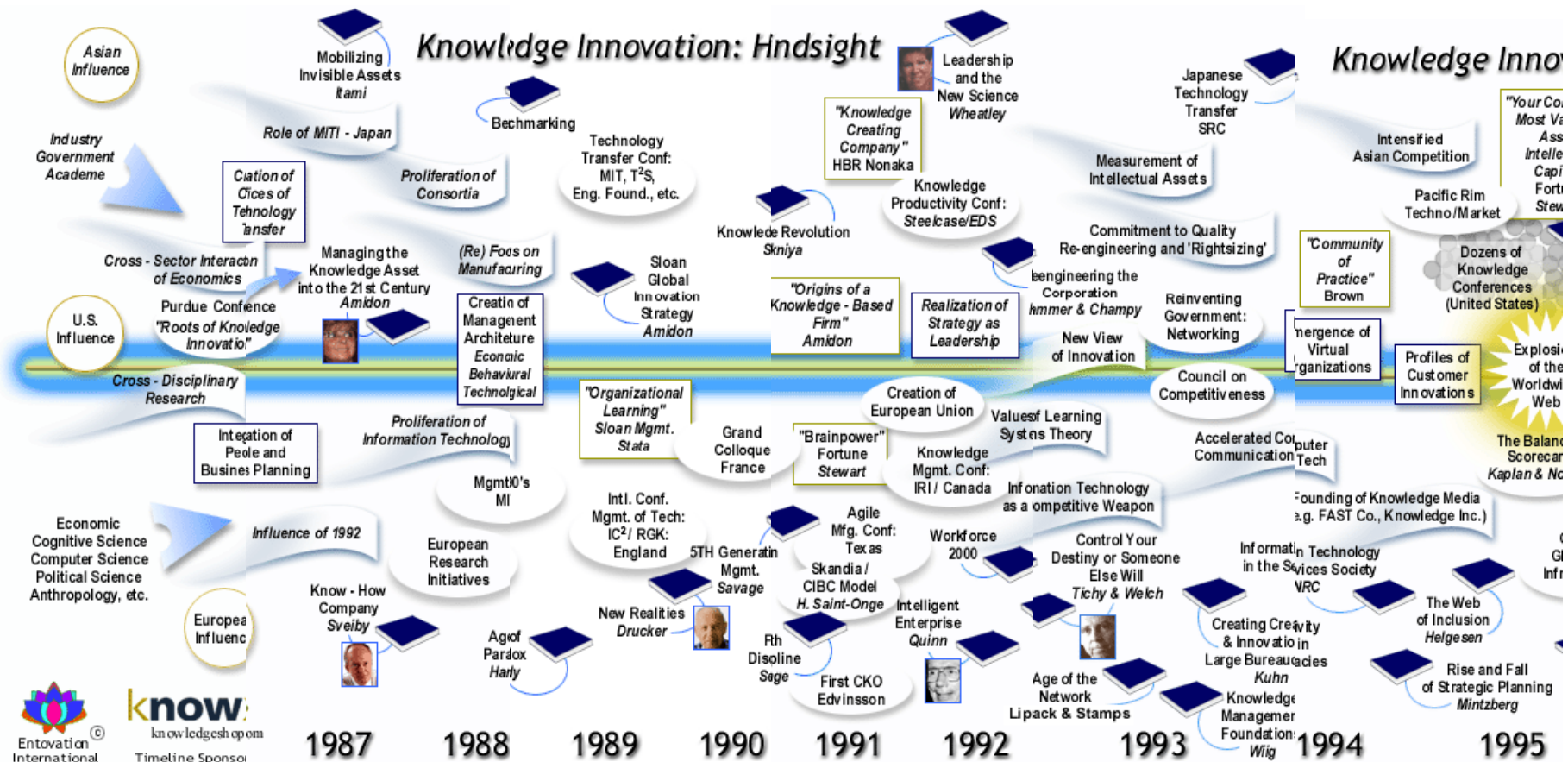
<http://www.entovation.com/kleadmap/index.htm>



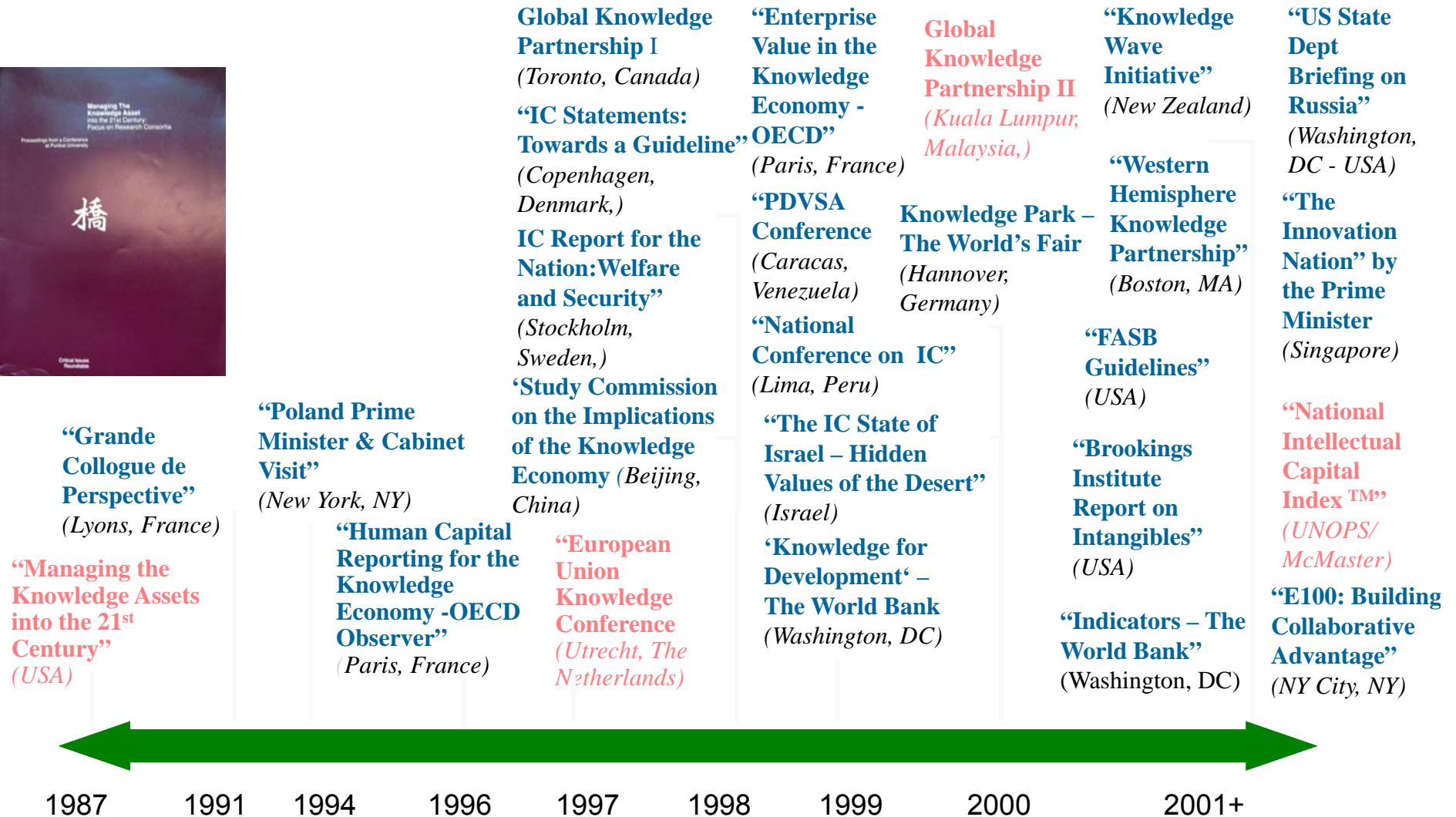
Where we have been...



25 Years of Perspective



Knowledge Economy *Roots...*



What's 'it' all about...really?

- **tech·nol·o·gy**/tek'näləjē/ Noun: The application of scientific knowledge for practical purposes, esp. in industry: "computer technology"; "recycling technologies"; Machinery and equipment developed from such scientific knowledge.
- **trans·fer**/trans'fər/ Verb: Move (someone or something) from one place to another. Noun: An act of moving something or someone to another place
- **in·no·va·tion**/inə'vāshən/ Noun: The action or process of innovating. A new method, idea, product, etc: "technological innovations". Synonyms: novelty – newness; OR the process by which an idea or invention is translated into a good or service for which people will pay, or something that results from ...



Definition:

Knowledge Innovation

The creation, evolution, exchange and application of new ideas into marketable goods and services for:

- the success of an **enterprise**
- the vitality of a **nation's economy**
- the advancement of **society**

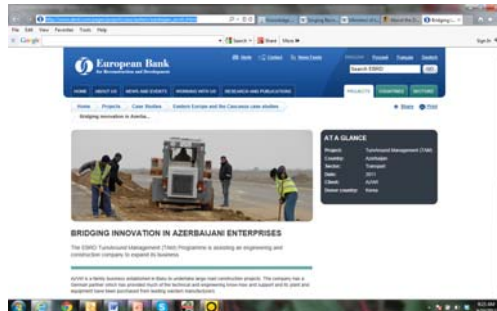


Simplified:

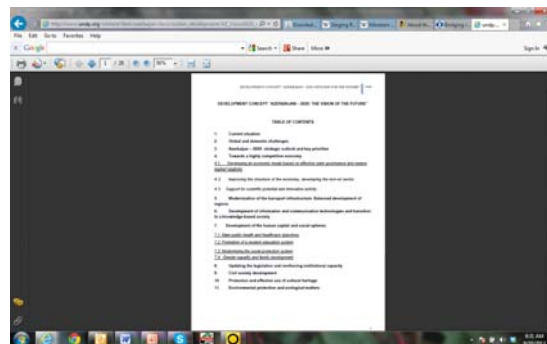
“Innovation: *Preserving the best of our past...and rearranging the rest to take advantage of the future.*”



From Azerbaijan...



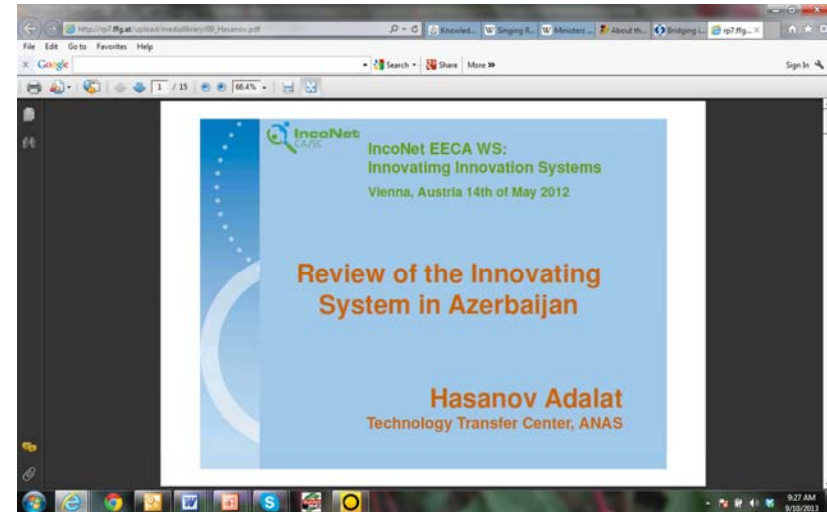
http://www.ebrd.com/pages/project/case/easter/n/azerbajan_azvirt.shtml



http://www.undp.org/content/dam/azerbaijan/docs/sustainable_development/AZ_Vision2020_government_draft_en.pdf



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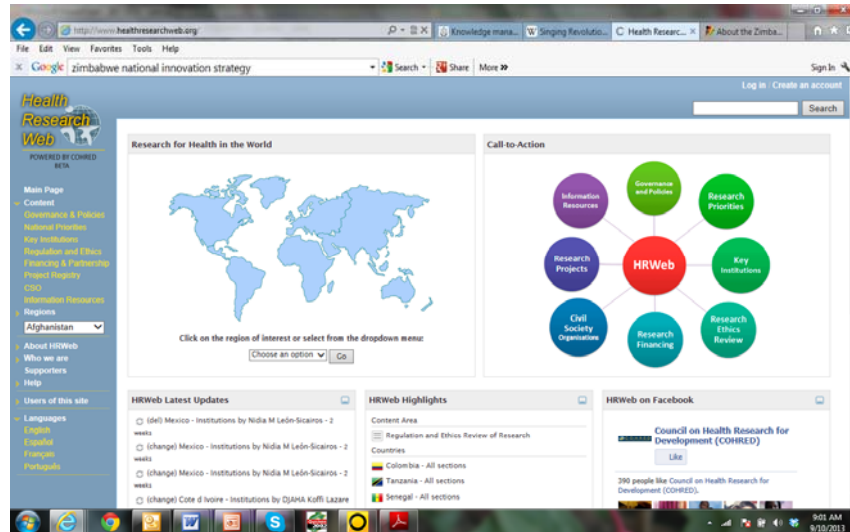


http://rp7.ffg.at/upload/medialibrary/09_Hasanov.pdf



<http://www.italtrade.com/countries/asia/azerbaijan/showroom/24080.htm>

...To Zimbabwe



http://www.healthresearchweb.org/files/Zimbabwe_sciencetechpolicydocumentnew.pdf



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<http://www.zimbabwehumancapital.org>



In addition to a President, 2 VP's, Prime Minister, 2 Deputy PM's, there are 31 Ministers.

National Innovation Strategies: Findings

- ✓ Most nations – industrialized, developing and emerging – have developed [some form of NIS](#) tracking indicators with available information.
- ✓ Many have elevated an [Executive Secretariat/Ministry of Innovation](#) reporting to the President or Prime Minister, coupled with Education, Economic Affairs an/or Community Development.
- ✓ Larger countries have State or [regional approaches](#) with sub-communities – ‘zones of innovation’
- ✓ Many countries have launched [strategies across nations](#) – *beyond* the formal regional structures (e.g., EU, ASEAN, African Union et al) *and beyond* what are known as international trade missions.
- ✓ New [performance measures](#) are under development in societal organizations (e.g., the UN, World Bank, and OECD) as well as most technology firms and consultancies.
- ✓ [Competitive innovation reports](#) abound for geographic, regional and even cross-border virtual communities (e.g., Sister Cities, Transdisciplinary Innovation Consortium, Investing Across Borders)..
- ✓ Major [rethinking University IP policies](#) – including Chief Academic Innovation Officers - with a focus on building the ‘flow of knowledge’ across stakeholders.
- ✓ New field of [Knowledge/Innovation Economics](#) has emerged – learning to measure the ‘intangible value’.



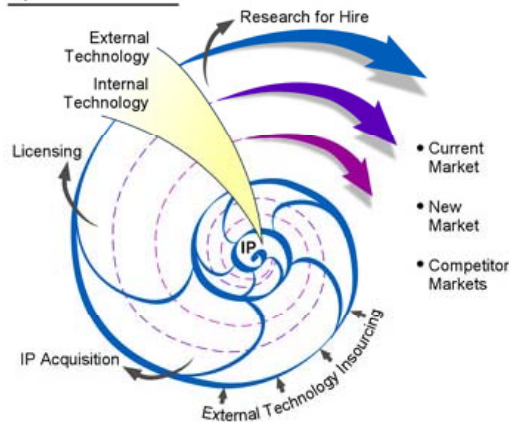
Theory *vs.* Practice

*Note: Today's management theories are tomorrow's
ESSENTIAL management practice.*



CORE #1-4: Concept Trends

Open Innovation



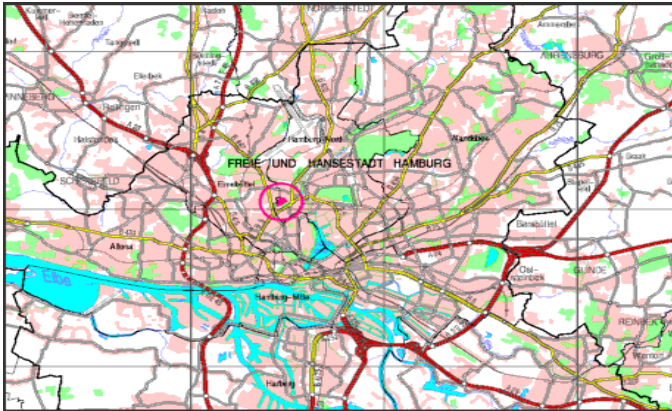
<http://www.psicorp.com>

- **#1** Strategic Planning to
Innovation Strategy
- **#2** Triple Bottom Line [TBL] to the
Triple Knowledge Lens [TKL]
- **#3** Knowledge Management to a
Knowledge Innovation System
- **#4** Innovation Value Chains to
Innovation Value Eco-Systems

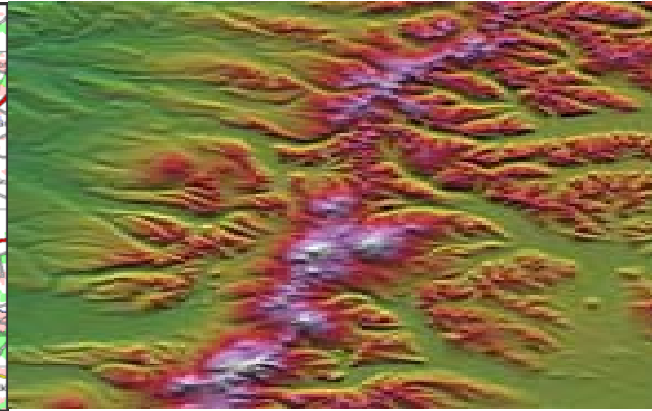


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Small World Network Patterns



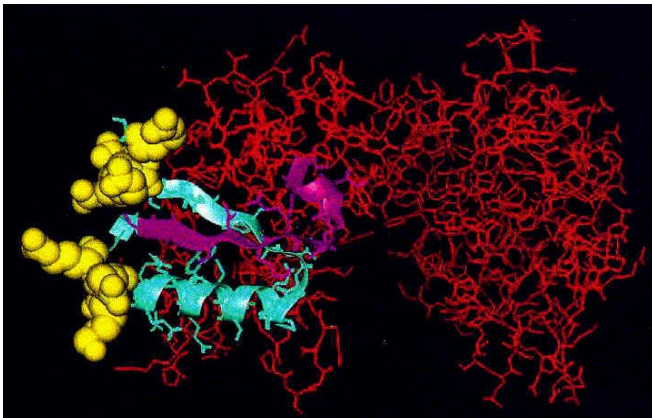
City Network



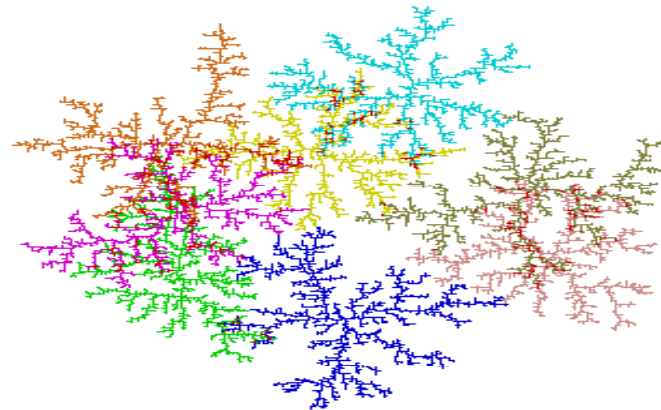
Topographic Network



Tree Network



Protein Network



Neural Network



Synaptic Network



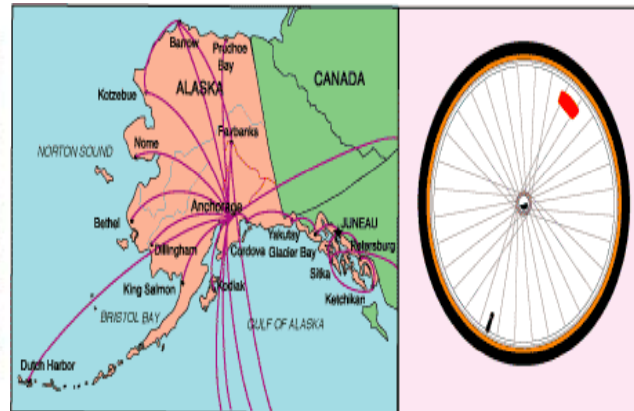
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Small World Network Patterns



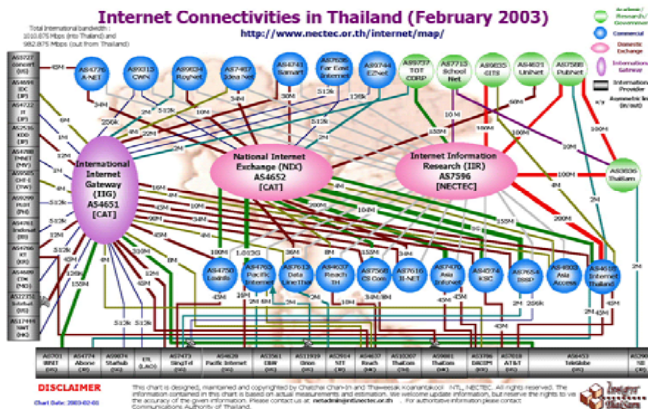
Transportation Network



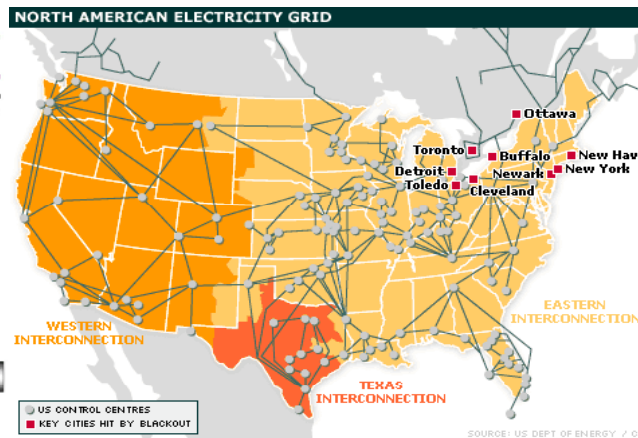
Airline Hub & Spoke Network



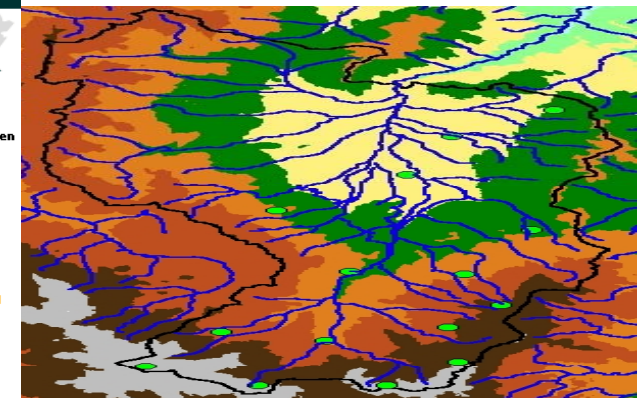
Energy Pipeline Network



Internet Connections Network



Electricity Grid Network



River Network



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Google: Innovation Eco-Systems

innovation eco-system - Google Search - Windows Internet Explorer

http://www.google.com/search?q=innovation+eco-system&hl=en&qscrl=1&nord=1&rlz=1T4RNTN_enUS371US372&site=webhp&prmd=imvns&tbrr

Google innovation eco-system Search More >> Sign In

bing innovation eco-system

innovation eco-system - Google Search

Search instead for innovation eco-system

Images
Maps
Videos
News
Shopping
More

All results
By subject

Any size
Large
Medium
Icon
Larger than...
Exactly...

Any color
Full color
Black and white

Any type

Page 2

Done

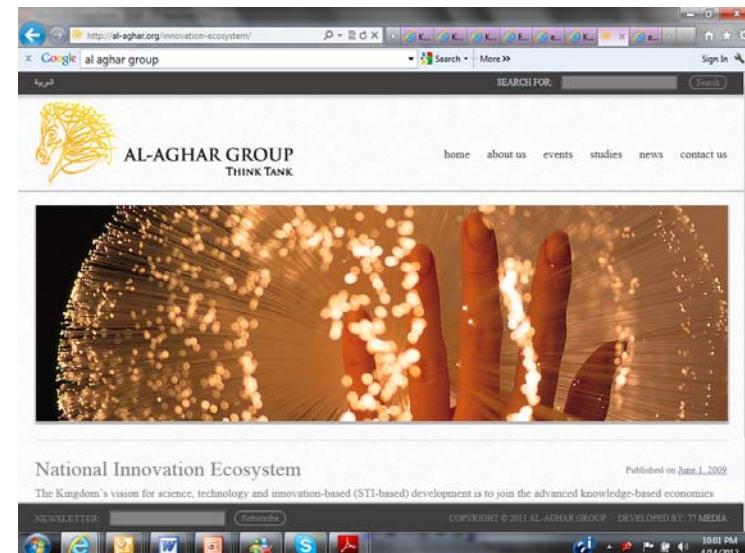
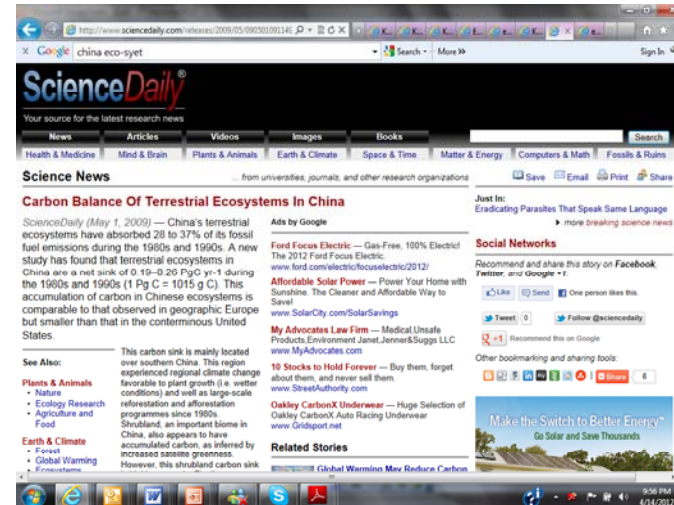
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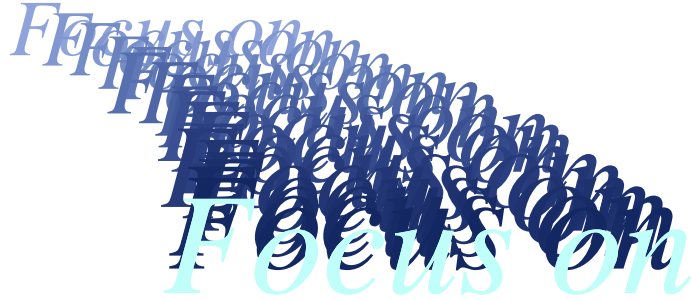
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Global Eco-System Initiatives





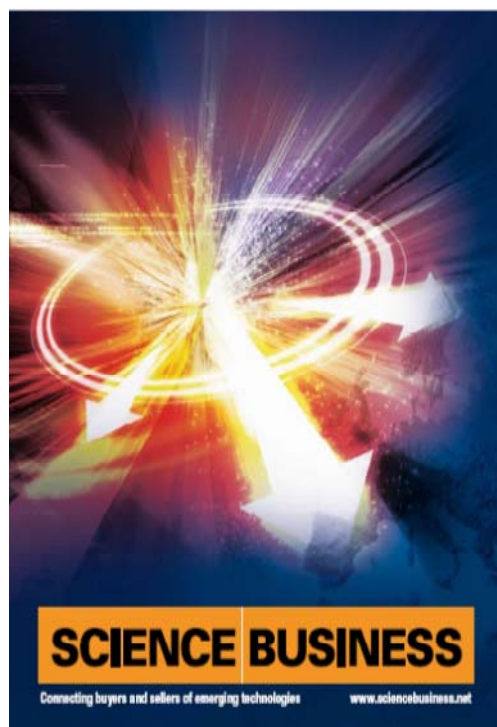
Where We Are...



Zone Thinking - Throughout the EU and abroad...

Innovation: The Demand Side

New ways to create markets and jobs in Europe



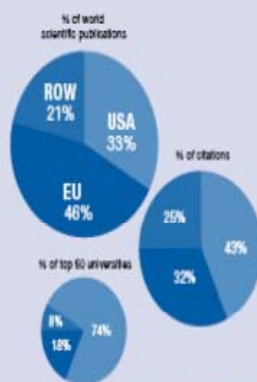
only 20 per cent of students in the world. And Europe is home to only nine of the top 50. The financial results are worse: professors, the tech-transfer offices and the 17 per cent as many patents much lower income."

is academic attitude - which is borne and realities of the greater in Leary, founder and director of Future Pathways Ltd. "On using universities more for

Ramon Olla, CEO and chairman of Epsom Europe, agrees: "When I was a telecommunications student 40 per cent of the students wanted to be entrepreneurs. Today, in the same university, just 15 per cent want to be entrepreneurs. The rest want to go to the business school, just because they can get a better salary. In my country, Spain, for many years entrepreneurs were looked on as people who avoid paying tax."

"We have brilliant people, but brilliant people who are very badly paid. And we will continue to be badly paid until we generate the right social climate."

EU research: Quantity, not quality



→ Solution 4 Create 'Free Innovation Zones': a way to foster technology clusters

What does it take to get some action? In Brussels, the technocrats so far are thinking big: big budgets, big directives, big political fights that may, in the end, accomplish nothing. Here's an alternative approach: start small and build on successes.

First, success: despite the macroeconomic problems, there is no shortage of bright spots across Europe. It is very important to "celebrate our successes whilst pinpointing and addressing our weaknesses", says INSEAD's Dutta. "I'm sometimes put off by negative sentiment, and I think that is something that has to be changed. A lot is going wrong. But a lot is going right, and we need to focus on that."

Second, start small. Pick some specialized technology clusters and give them special regulatory status - or, more properly, de-regulatory status. These could be based on the model of Free Trade Zones or Free Economic Zones used elsewhere in the world: ports, cities or regions that have special low tariffs, regulatory fast-tracks and investment incentives. Apply that to the technology world, to nurture specific, narrow sectors of emerging technology across Europe, or clusters of technology centred on specific universities. Call them, in the words of Microsoft's Courtois, "free innovation zones" - FIZs.



"We have brilliant people, but brilliant people who are very badly paid. And we will continue to be badly paid until we generate the right social climate."
- Ramon Olla

Here's how it would work, according to suggestions from panelists at the roundtable:

Step 1: Designate a specific sector or region for special treatment as a Free Innovation Zone. This could be a particular emerging technology: in the energy field, for instance, hydrogen fuel cell R&D, low-carbon office-building technology or new car-engine designs - a field in which Europe has great technology already in the works, and a strong possibility for global success. Alternatively, it could be a specific region, a cluster of business, investors and researchers centred around a strong university lab.

Step 2: Review regulations that get in the way of that sector or region growing faster - or consider rule-changes that could speed its growth (such as, in the field of low-carbon technologies, the UK government's exemption of carbon-neutral homes from stamp duty).

Step 3: Provide a mechanism for inventors in the zone to get help with patent protection. This could be a special fund to defray the costs of application.

Step 4: Provide tax incentives for investors and businesses to get more deeply involved with researchers in the zone.

Step 5: Set a special regime for labour mobility in the zone. This could mean suspending the normal tenure or pay rules that deter many academics from working with industry. It could mean a special visa system, so bright engineers or scientists from other countries - even from India or China - can participate in the zone, contributing their talents.

<http://www.sciencebusiness.net>



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Explicit Study of KIZ: Phase I – Background



Publication available upon request.



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A Knowledge Innovation® Zone (KIZ)

A world-wide phenomenon

- **Physical Geography** –
Knowledge Park, Region,
Corridor, Internet Village,
Innovation Nation...
- **Industry Geography** –
Companies, Clusters,
Collaboratories
- **Cyber Geography** –
Virtual Space



www.inthekzone.com



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What will you Measure?

THE TRIPLE KNOWLEDGE LENS MODEL



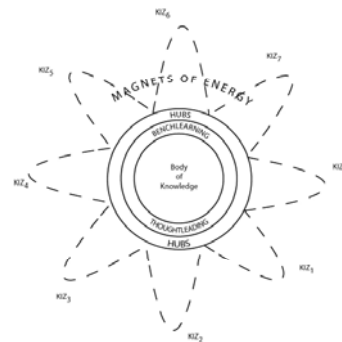
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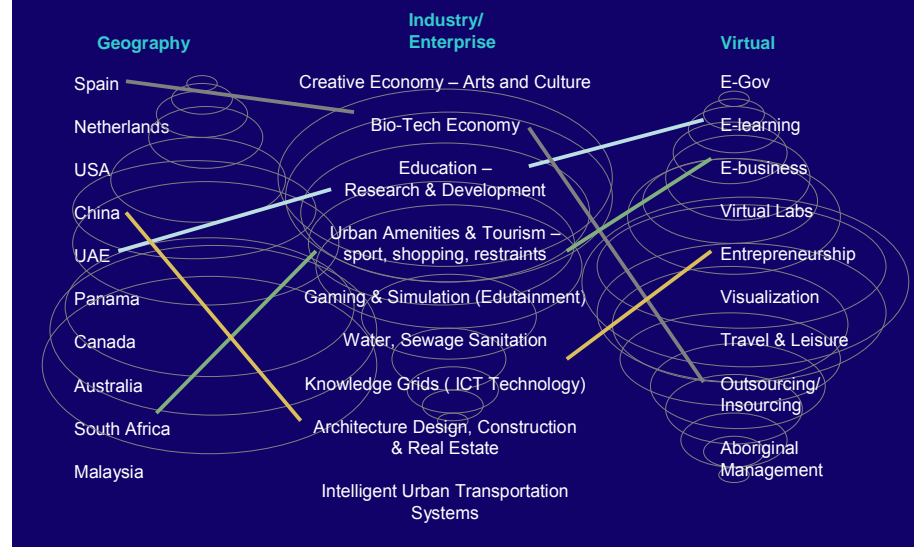
How to prototype solutions?

Knowledge Innovation[®] Zones



Knowledge Innovation[®]

KIZ Prototyping Arena - Sample

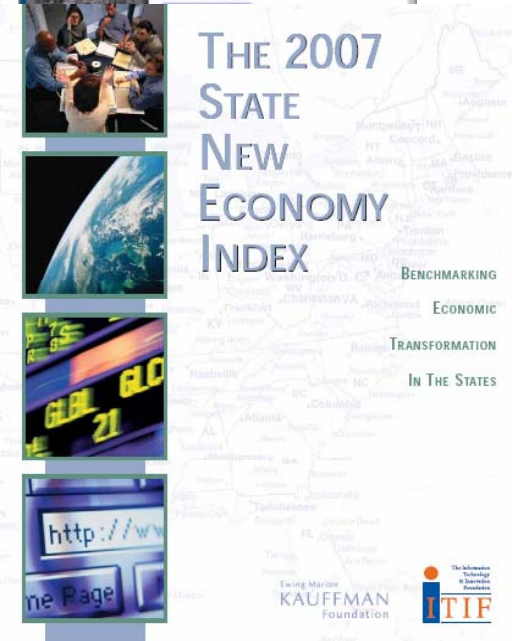
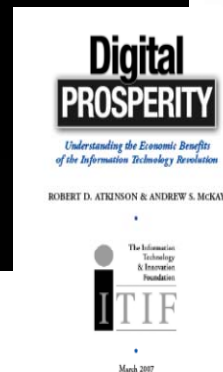
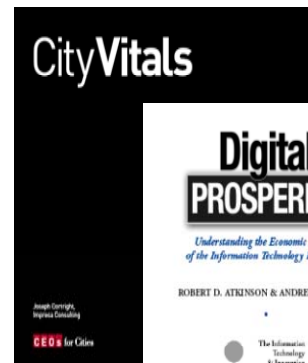
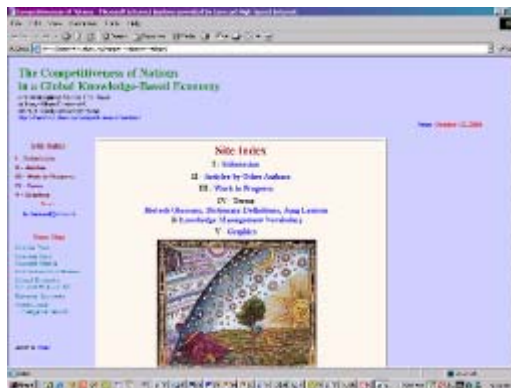


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Some KIZs are better than others...



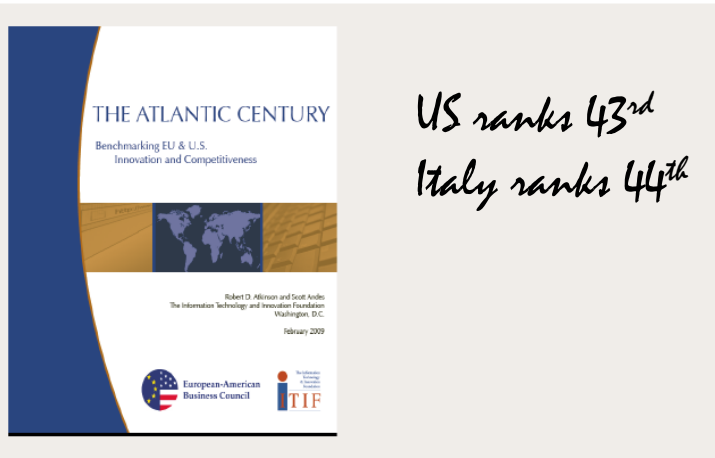
www.inthekzone.com



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See Handout for specific examples...

ITIF – Atlantic Century II



But, if Massachusetts were a country, it ranks #1 in the world – ahead of Finland, Sweden, Singapore, Denmark, Japan, and South Korea

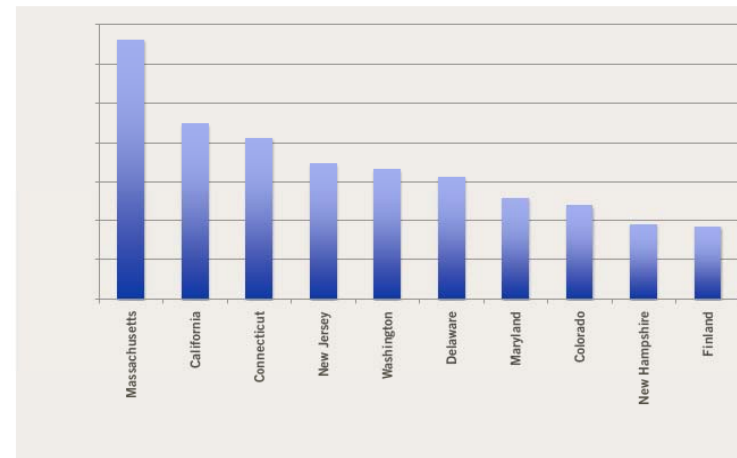
THE INFORMATION TECHNOLOGY & INNOVATION FOUNDATION

Overall Rank

1. Singapore
2. Finland
3. Sweden
4. United States
5. South Korea
6. United Kingdom
7. Canada
8. Denmark
9. NAFTA*
10. Netherlands

Change Rank (1999-2011)

1. China
2. South Korea
3. Cyprus
4. Slovenia
5. Estonia
6. Czech Republic
7. Latvia
8. Singapore
9. EU-10**
10. Portugal



THE INFORMATION TECHNOLOGY & INNOVATION FOUNDATION

<http://www.itif.org/publications/atlantic-century-ii-benchmarking-eu-us-innovation-and-competitiveness>



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Boston Innovation Tour - Italy



Welcome Italy to Boston

- 50 Italian Executives
- 4 Regions of Northern Italy
- 1-8 October 2011
- 10 Modules
- 6 CEO Case Stories/Studies
- E100 Dr. Piero Formica, Dean,
International Entrepreneurship Academy



YouTube Animoto:

<http://www.youtube.com/watch?v=TbMIqR73a8A&feature=feedu>

VIMEO Film:

<http://vimeo.com/31654385>



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Modules

- #1** MIT
- #2** Boston Innovation District
- #3** Harvard University
- #4** Kendall Square Dialogue
- #5** Babson College & Olin College of Engineering
- #6** IBM/Consulates
- #7** Legal Sea Foods, Inc. Quality Control Center
- #8** MOITI – Getting Grounded
- #9** The Collaboration Gene
- #10** Best of Boston

Case Stories/Study

Legal Sea Foods, Inc; Boston Scientific; Z Corporation; Patriot's Place; Ocean Spray Cranberries; Participant Strategy Competition; Mindtree Consulting

Video: <http://vimeo.com/31654385>



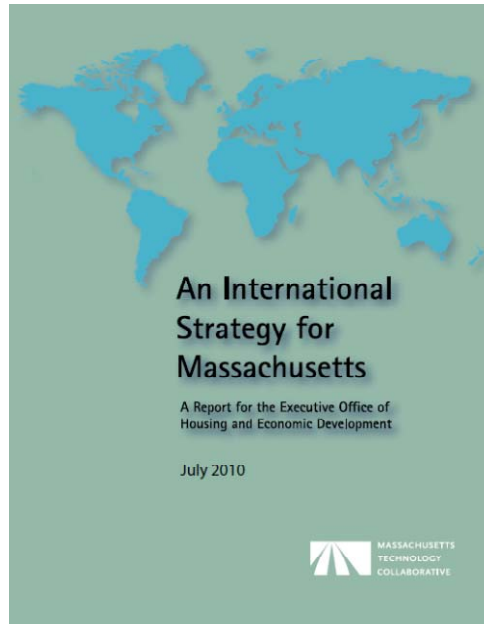
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Welcome Italy to Boston:

Harnessing Collaborative Advantage



Global with an Aligned Strategy



- **Premise:**

- Job creation is tied to our ability to connect to and succeed in *global markets*.
- The State is *well-positioned* as a center of innovation, a leader in key-growth areas and home to world-class universities and research.
- The State can advance efforts by forging *collaboration* between the public and private sectors.

- **Quick Payback:**

- Improved *communications* to known opportunities
- Increased exports or attract foreign partners
- Improved *efficiency* in international programs
- Forum for identifying and implementing *new ideas*
- Promise for attracting *additional resources*

- **Recommendations:**

- Focused conferences for foreign audiences; reverse trade missions; overseas ambassadors; overseas alumni events; cross-national survey of international students; innovation research capability; and influence on Federal policy

http://www.masstech.org/international/international_home.html

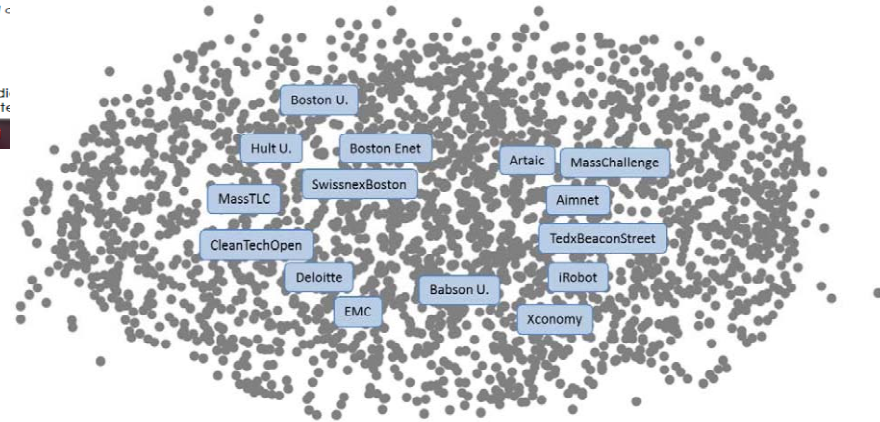
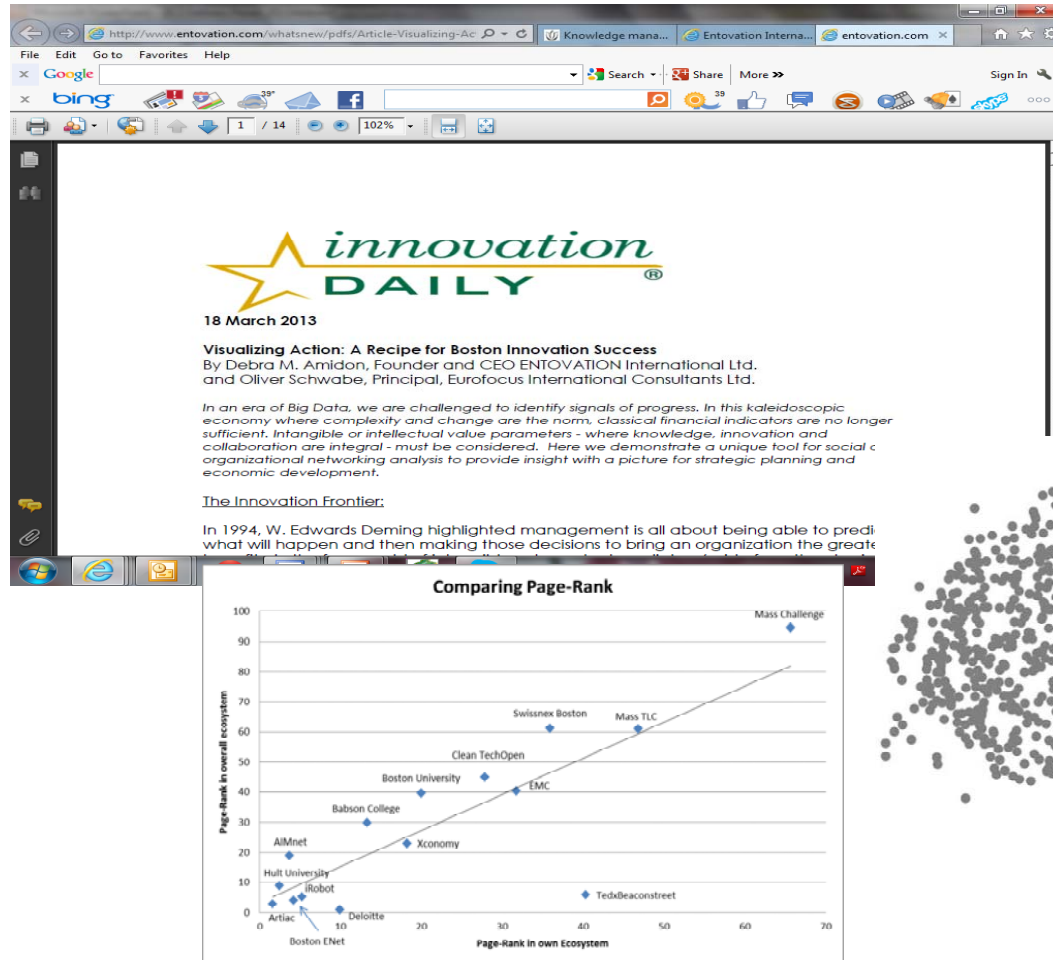
What if...

the Baltics Dynamics had an International Strategy?



Visualizing Action: The New V-Factor

- **Volume**
- **Velocity**
- **Variety**
- **Variability**
- **Vision**
- **Visualization**
- **Value/Valuation**



<http://www.entovation.com/whatsnew/pdfs/Article-Visualizing-Action-InnovationDAILY.pdf>



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Network Predictor: *IC² Diagnostic*



<http://www.ic2.utexas.edu/blog/>

Performance Diagnostic for

<http://www.ic2.utexas.edu/blog/>

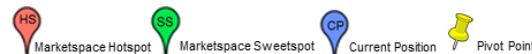
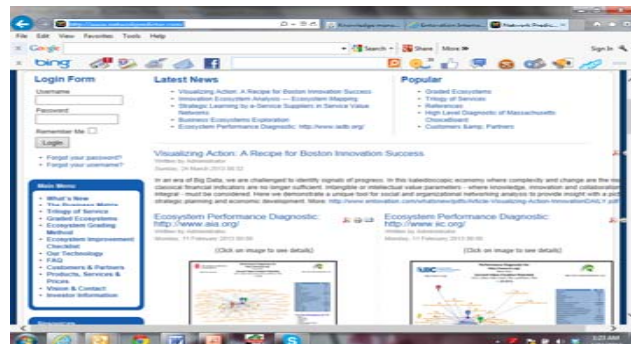
February 2013

Current Value Creation Potential

$$VCCa = (Ndea \times Ndia \times Ncea \times PPa \times a) / (PRmax / PPa) = 4\%$$



<http://www.networkpredictor.com>



Graph Metric	Value
Graph Type	Directed
Vertices	221
Unique Edges	354
Edges With Duplicates	0
Total Edges	354
Self-Loops	21
Redundant Vertex-Pair Ratio	0.04548571
Redundant Edge Ratio	0.08737201
Connected Components	1
Single-Vertex Connected Components	0
Maximum Vertices in a Connected Component	221
Maximum Edges in a Connected Component	354
Maximum Geodesic Distance (Diameter)	7
Average Geodesic Distance	3.217545
Graph Density	0.00603827
Modularity	Not Applicable
NodeXL Version	1.0.1.226
Minimum In-Degree	1
Maximum In-Degree	13
Average In-Degree	1.621
Median In-Degree	1.000

Score <http://marketinggrader.com> = 60%

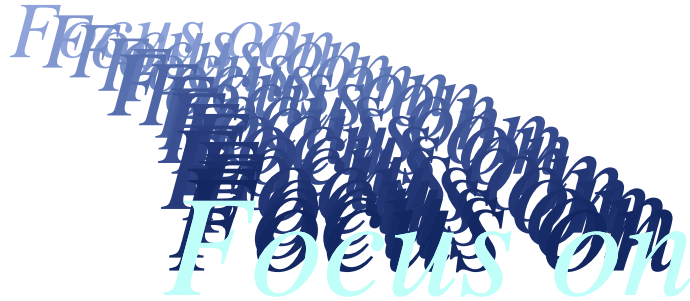
- Blog +
- RSS Feed +
- Facebook +
- Twitter +
- 3,740 pages indexed
- mozRank 5.1
- 342 sites backlinked
- 25+ authoritative pages pointing

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<http://www.euro-focus.com> / <http://www.networkpredictor.com>

<http://www.networkpredictor.com/>



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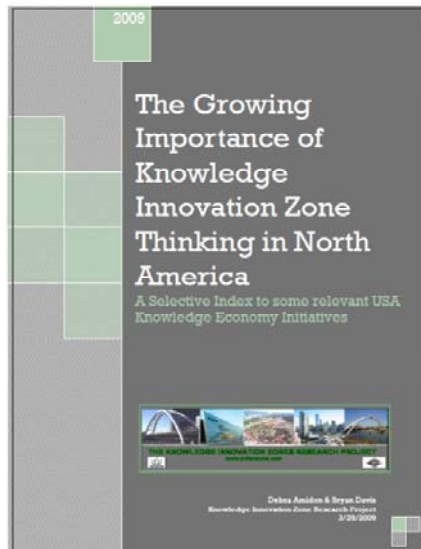


Aspirations Forward



Aspiration #1:

National/Global Innovation Commonwealth

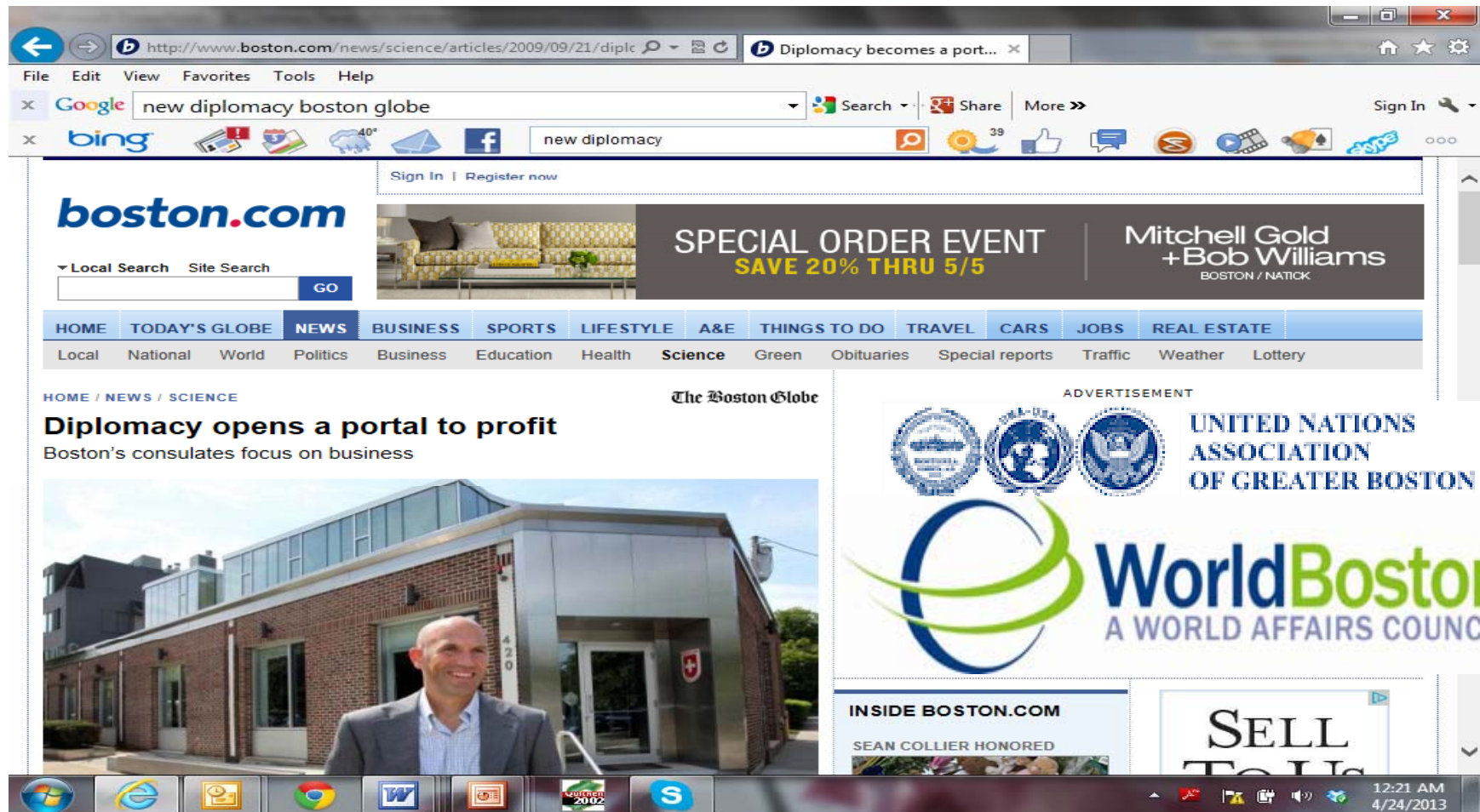


- California
- Illinois
- Kansas
- Louisiana
- Maine
- Maryland
- Massachusetts
- Michigan
- Minnesota
- Nebraska
- New England
- New Jersey
- New York
- North Carolina
- Ohio
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- South Dakota
- Missouri
- Tennessee
- Texas
- Virginia
- Washington State
- Wisconsin



Aspiration #2:

Embassy/Consulate Infrastructure

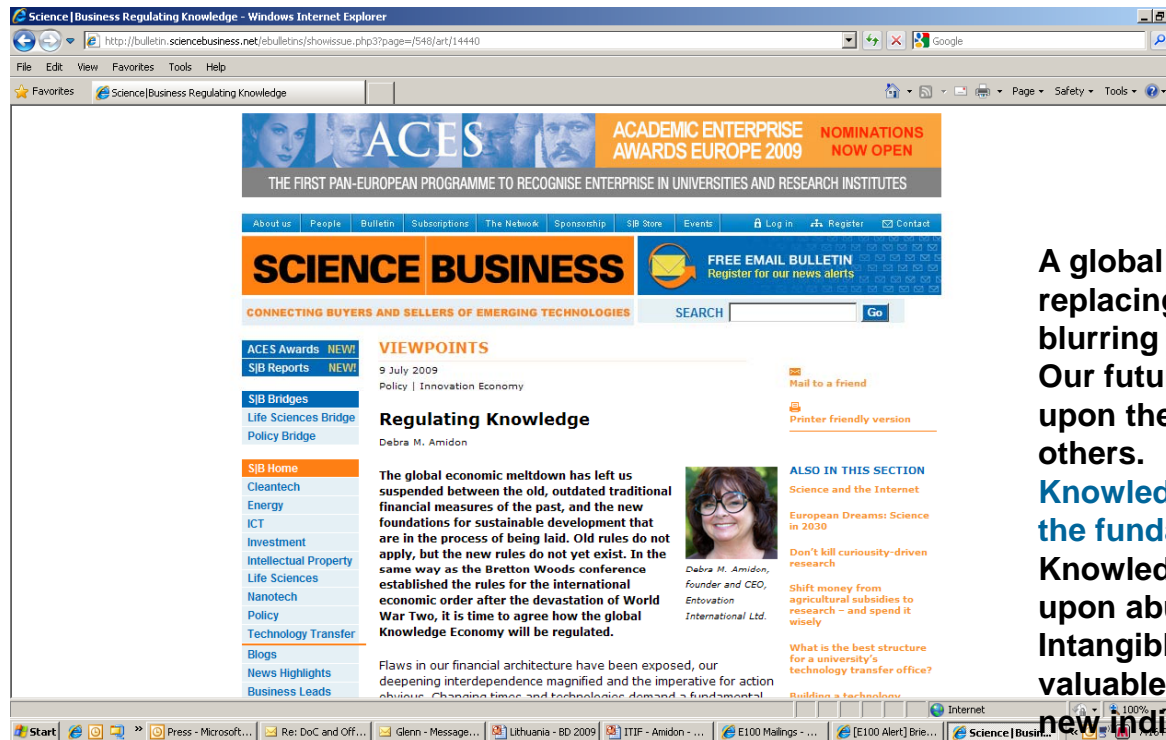


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http://www.boston.com/news/science/articles/2009/09/21/diplomacy_becomes_a_portal_to_profits_in_bostons_leading_edge_consulates/

Aspiration #3:

World Knowledge Collaboration Index



A global knowledge commonwealth is replacing the world of nations and blurring geographic boundaries. Our future is increasingly dependent upon the knowledge and success of others.

Knowledge is valuable; and innovation is the fundamental platform for progress. Knowledge creates an economy based upon abundance, not material scarcity. Intangible knowledge assets are more valuable than tangible assets and require new indicators of performance.

To thrive amidst a chaotic, complex and unpredictable knowledge economy, people need to be inspired to action of good intent.

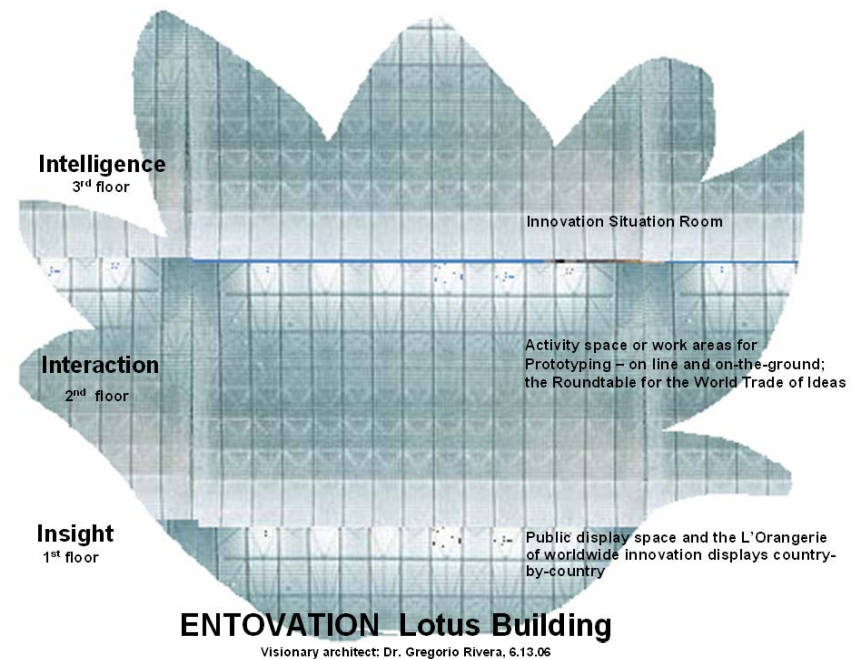
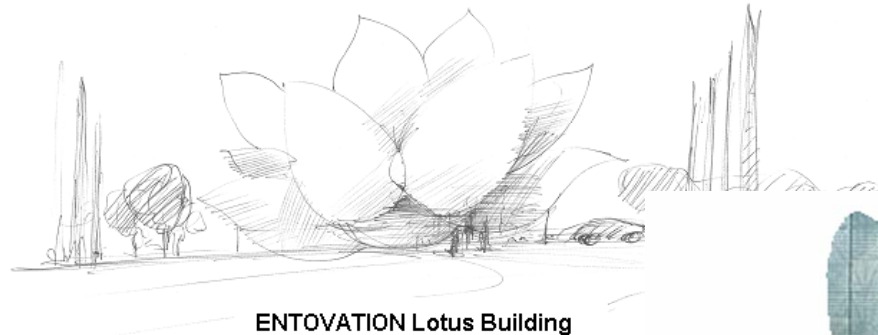
<http://bulletin.sciencebusiness.net>



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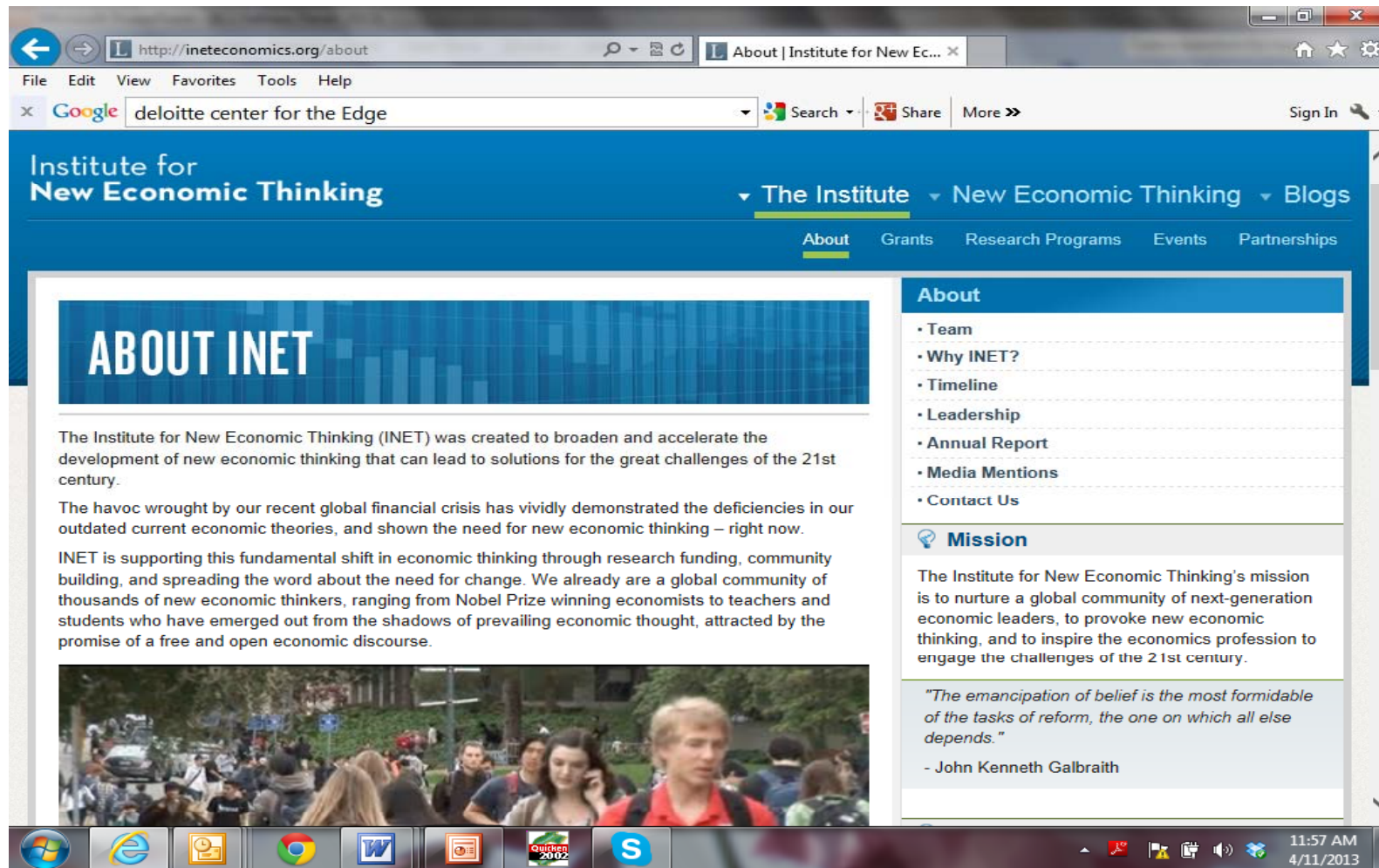
Aspiration #4:

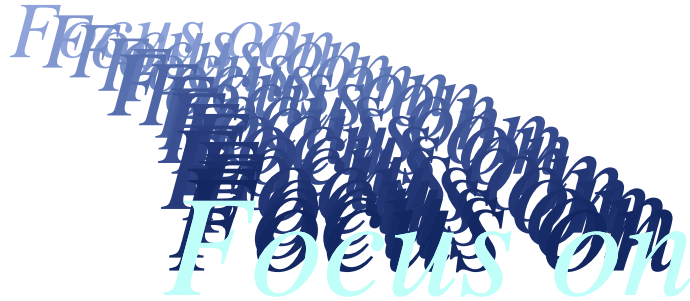
Innovation Intelligence Situation Room



Aspiration #5:

Millennium Bretton Woods





CORE #5: Competitive to Collaborative Advantage

- We have reached the law of diminishing returns in competitive strategy. Today, we need a leadership strategy – where one collaborates to compete.



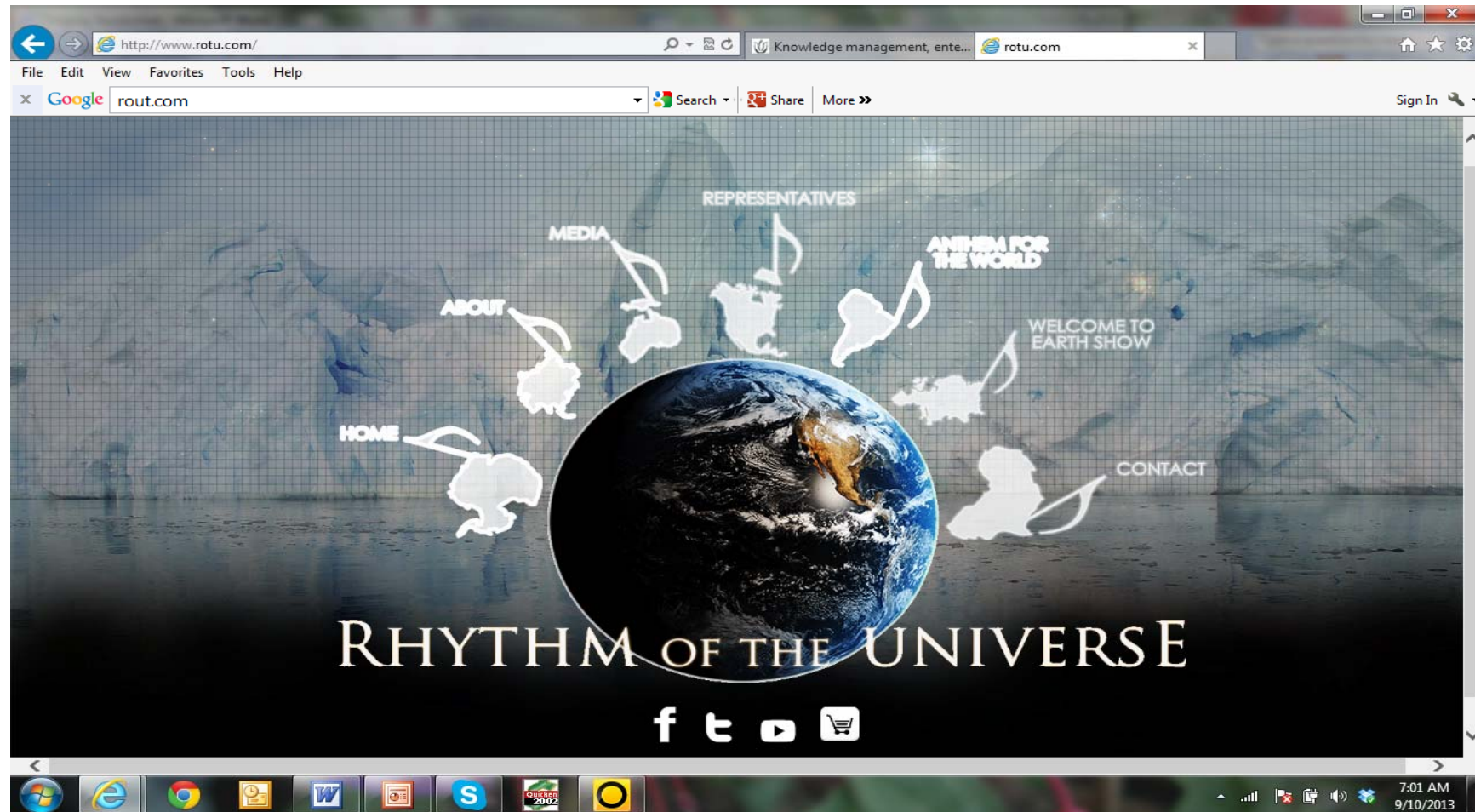
The Art of Collaborative Advantage



- Problem
- Benefits
- Solution
- So what?



Rhythm of the Universe



<http://www.rotu.com>

<http://www.youtube.com/watch?v=USWaTIn5bEs>



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<http://www.youtube.com/watch?v=4I5gY20GI0M>

Our Current Reality

OLD Economy

- Money rules
- Financial Capital
- Competitive Advantage

NEW Economy

- Knowledge rules
- Intellectual Capital
- Collaborative Advantage

NOTE: Before there is a flow of financial instruments (money), there is a flow of knowledge. We need to create an environment where we address the impediments and facilitators for the 'flow of knowledge'.



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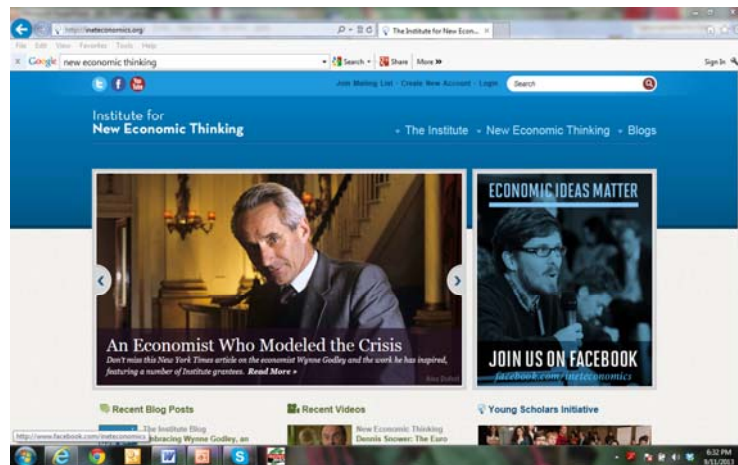
What if...INNOVATION became our Common Language?



Discussions have already begun...

G8 and G20 Discussions

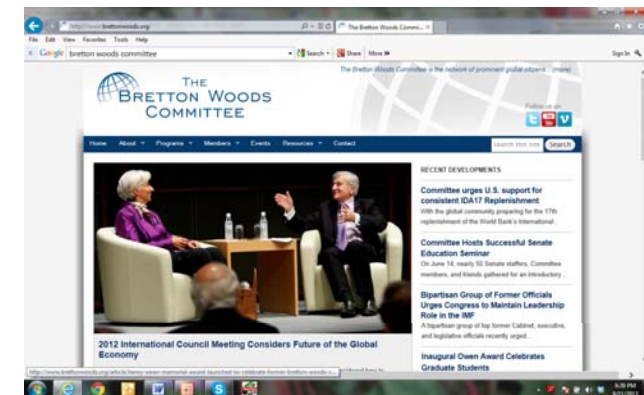
Institute for New Economic Thinking



<http://ineteconomics.org/>



Bretton Woods Committee



<http://www.brettonwoods.org/>

But...

Will the RIGHT people be at the table?



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Moving Forward...

I am interested in exploring with those who might like to:

- ✓ Creating a *BD 'Zone of Innovation'* with a KIZ prototyping arena.



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- ✓ Scoping prospects for a *Baltic Innovation Tour* [aka Boston].



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- ✓ Creating a *BD 'Zone of Innovation'* with a KIZ prototyping arena.
- ✓ Scoping prospects for a *Baltic Innovation Tour* [aka Boston].
- ✓ Developing plans for the flow of Intellectual Capital – *IC Bretton Woods*.



Declaration of Interdependence

- Preamble
- We Believe...
- We Agree...
- We Resolve...



We will transcend traditional boundaries to accomplish what we and others cannot do alone. Further, we will make more effective use of knowledge innovation as a lever to generate sustainable growth and increased standard of living across our local, regional and global economies.



From Vision to Execution...



*“We are creating a **new economic world order** based upon the flow of knowledge, (not technology), innovation (not solutions), value-systems (not chains), stakeholder success, (not satisfaction), and international collaboration (not competition).”*

— “Global Momentum of Knowledge Strategy” 1999

NOW is the time...



Let us innovate our Future together



Benchmarking National Innovation Systems: *Dynamic positioning for Industrialized, Developing and Emerging Economies*

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