



# Smart specialization and social networks for diffusion of innovation

**Professor Pero Lučin, M.D., Ph.D**

European Interdisciplinary Studies:  
(New) Challenges for Europe in a Changing World/  
Knowledge – a Key Tool for a Better Europe  
Rijeka, October 20/21, 2014

# What is Smart Specialization?

? a new platform for massive discussion of political and bureaucratic elites



<http://anpsa.org.au/APOL12/dec98-7.html>

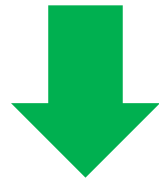
? a new platform for rethinking the future



## The goal is pretty high?



# What is smart and what is specialization?



1. Evidence based decisions
2. Bottom up partnership approach – not top down decision
3. Global perspective on actions, potential advantages and cooperation
4. Source in knowledge, services, technologies, talents and investors
5. Make region more visible to investors

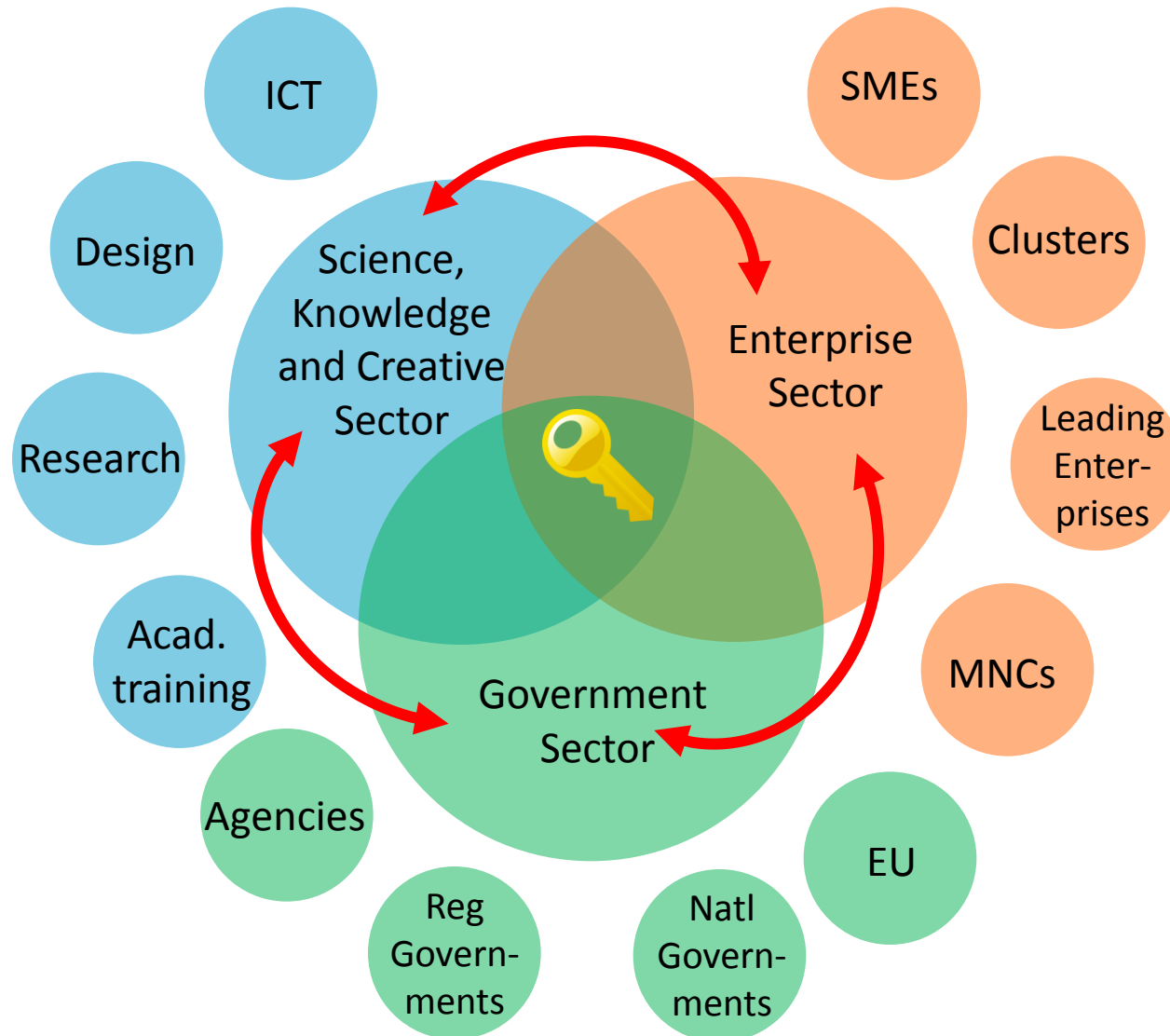


1. Priority setting in time of scarce resources
2. Excellence in something specific
3. Accumulation “critical mass” of resources
4. Cross sectorial approach – not necessarily focus on single sector
5. Response to economic and societal challenges

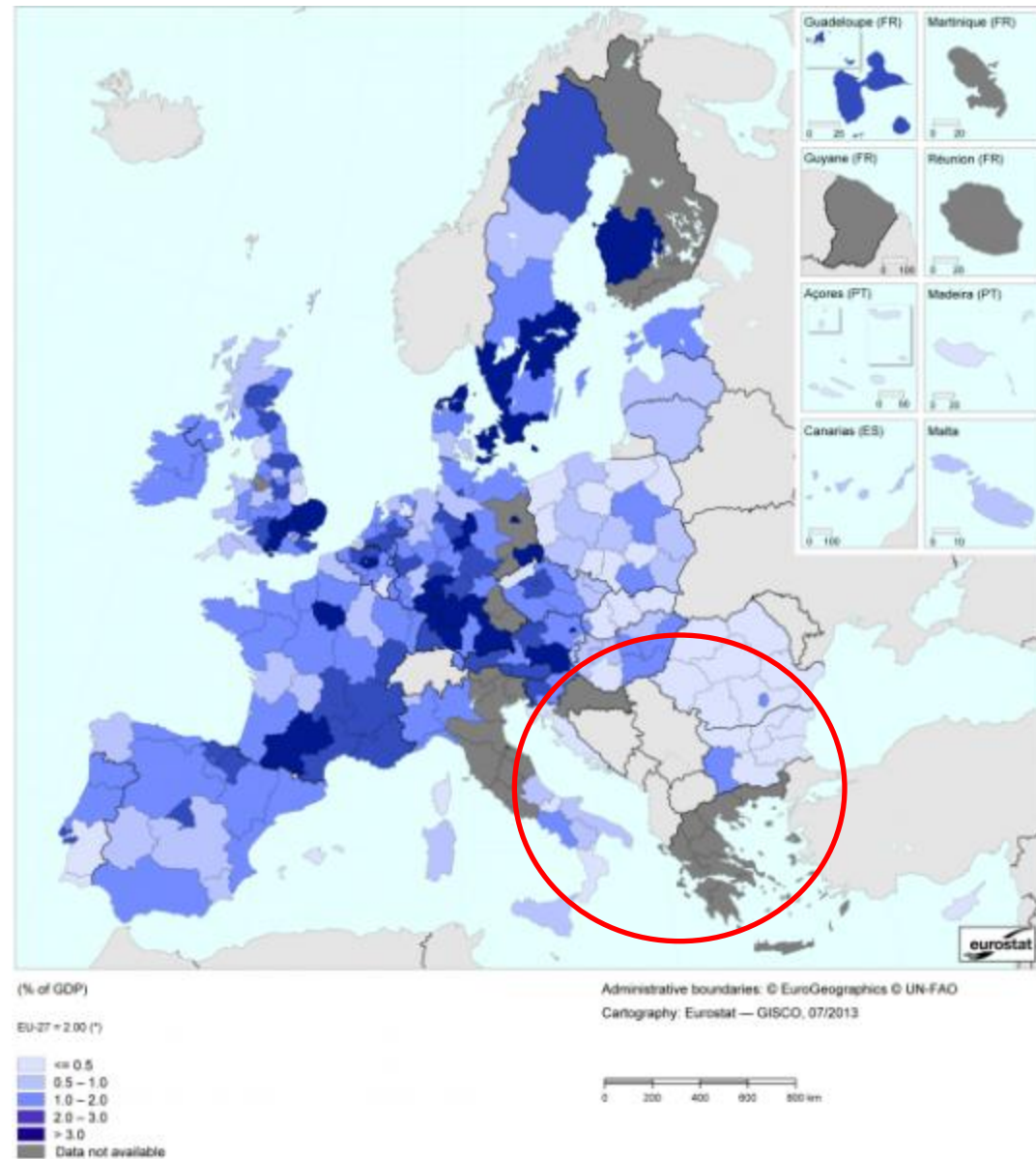
To exploit territorial potential through innovation

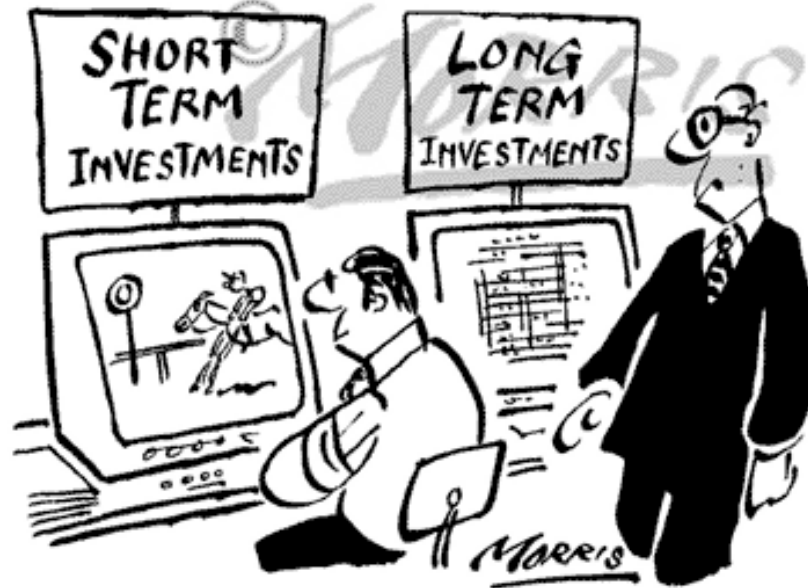
Source [http://www.earto.eu/fileadmin/content/01\\_Seminars\\_\\_\\_Conferences/AC\\_2013/2013\\_PRESENTATIONS/](http://www.earto.eu/fileadmin/content/01_Seminars___Conferences/AC_2013/2013_PRESENTATIONS/)

# What is the key?



# European regions for smart specialization





# Short-term/long term problem

Regional governments' /  
authorities' culture: partnerships  
with universities may be seen as  
risky due to unclear benefits of  
the outcomes and/or due to the  
**long-term** nature of the  
investment that the partnership  
requires



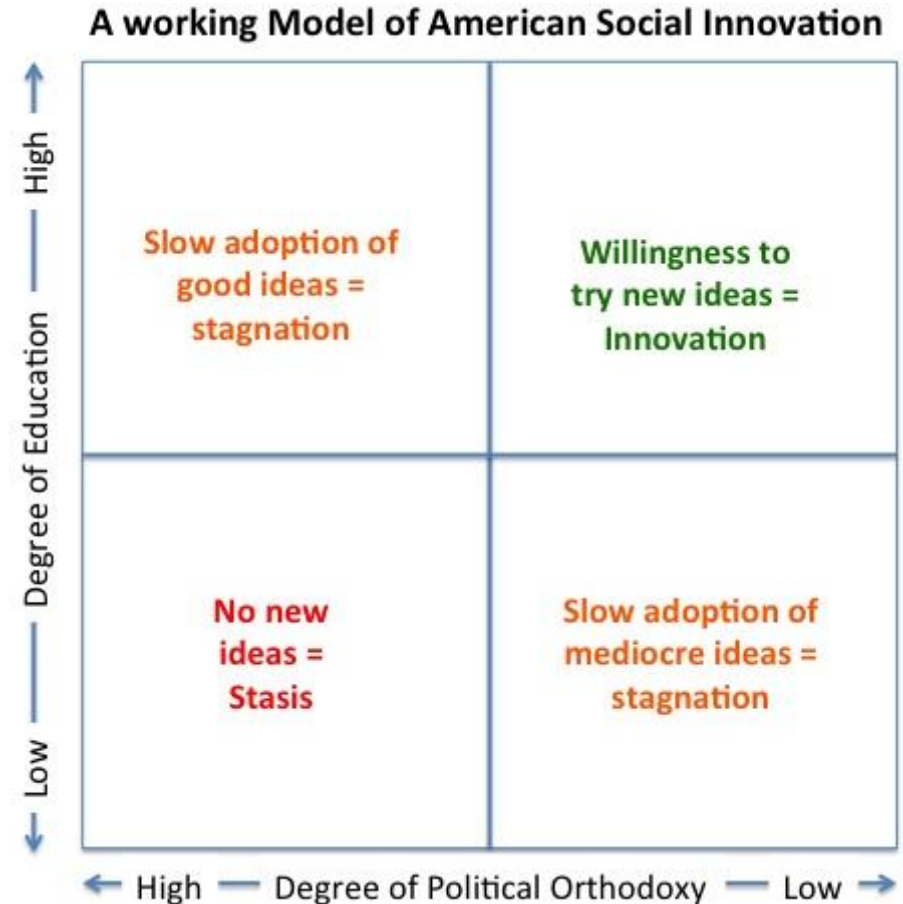
**shorter-term**  
periods/cycles of  
governments



# What does smart specialization thinking mean?

## Short-term

How to connect three pillars into effective system?

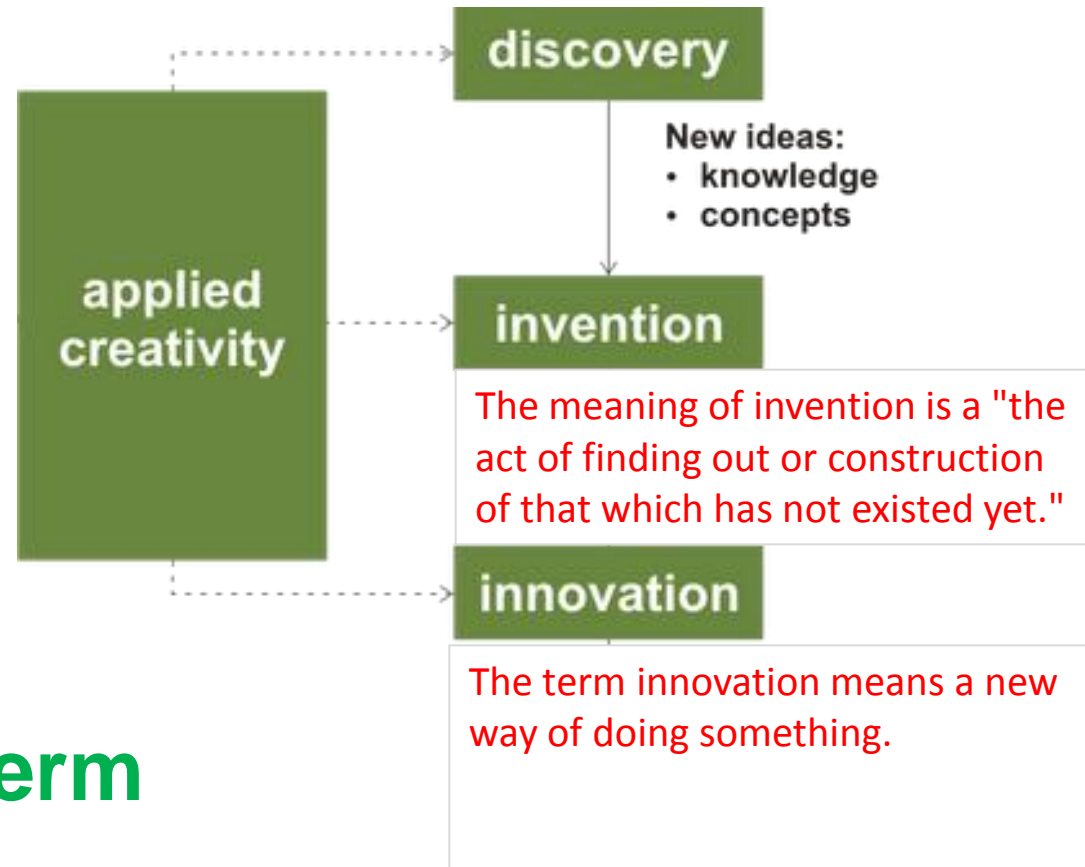


<http://randompoliticalmusings.blogspot.com/2012/06/working-model-of-american-social.html>

## What does smart specialization thinking mean?

### Short-term

How to mobilize science and innovation in order to create more jobs and employments?



### Short-term → Long term

Source: <http://resources.talcie.org/topi...> Cooger et al. (1990).

*What does smart specialization thinking mean?*

## Short-term

How to efficiently use factors of productivity and employment of the 20<sup>th</sup> century?



Land



Capital

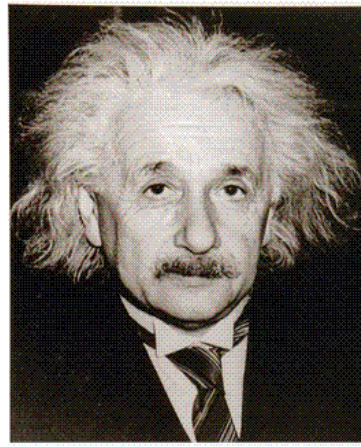


Labor

# *What does smart specialization thinking mean?*

## Long-term

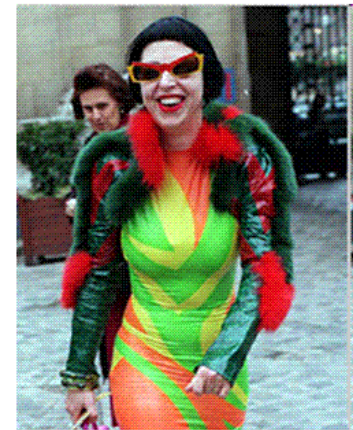
What are the factors of productivity and employment in the 21<sup>st</sup> century?



Intellectual  
Capital



Social  
Capital



Creative  
Capital

# *What does smart specialization thinking mean?*

## Short-term

What are 20<sup>th</sup> century jobs?

### CAREERS OF THE PAST

1. Switchboard operator
2. Bowling alley pinsetter
3. Elevator operator
4. Radio actors
5. Lamplighters

### EMERGING CAREERS

1. Sustainability officer
2. Teleworking coordinator
3. Medical nanotechnologist
4. App developer
5. Cyber security professional

<http://mccrindle.com.au/the-mccrindle-blog/future-proof-changing-job-market-jobs-past-careers-future>



# What does smart specialization thinking mean?

## Short-term

What are 20<sup>th</sup> century jobs?

### America's top 10 disappearing jobs

Job	Change	2012	%
Semi-conductor processors	-22,250	21,380	-57%
Pre-press technicians	-47,950	41,420	-54%
Word processors and typists	-112,640	96,560	-57%
Textile, knitting & weaving operators	-28,300	21,110	-60%
Computer operators	-101,080	71,560	-60%
Brick and stone mason helpers	-36,430	24,310	-60%
Machine operators, metals & plastics	-31,070	20,660	-60%
Plasterers & stucco	-33,250	21,040	-61%
Carpenters helpers	-62,030	35,870	-63%
Advertising and promotions managers	-52,670	28,420	-65%

<http://wingwams.blogspot.com/>

# What does smart specialization thinking mean?

## Long-term

What are the 21<sup>st</sup> century jobs?

### America's top 10 emerging jobs

Job	Change	2012	%
Skin care specialists	16,230	31,810	+104%
Personal care aides	534,190	985,230	+118%
Personal financial advisors	98,460	175,470	+128%
Coaches and scouts	114,080	201,800	+130%
Human resources specialists	225,830	394,380	+134%
Massage therapists	43,880	71,040	+162%
Interpreters and translators	31,720	50,320	+171%
Music directors and composers	15,960	24,940	+178%
Petroleum engineers	25,280	36,410	+227%
Operators, oil, gas and mining	44,870	57,180	+365%

<http://wingwams.blogspot.com/>

# Emerging Tech jobs with great futures

TEN EMERGING TECH JOBS WITH GREAT FUTURES



**Chief Digital Officer**

The CDO converts analog operations to digital ones, and is a leading influencer on mobility, social media, virtual goods and Web-based information management and marketing.

Baseline

TEN EMERGING TECH JOBS WITH GREAT FUTURES



**Chief Mobile Officer**

The CMO oversees the direction of all things mobile, including IT apps, voice/data communications and computing services.

Baseline

TEN EMERGING TECH JOBS WITH GREAT FUTURES



**Manager of Vendor Management**

This person is IT's liaison with suppliers of hardware, software and services. He or she also provides purchasing guidance for the technology department.

Baseline

TEN EMERGING TECH JOBS WITH GREAT FUTURES



**Video and Web Content Manager**

This manager is responsible for the organization's online presence: writing, editing and proofreading site content, and working closely with the tech team to maintain site standards.

Baseline

TEN EMERGING TECH JOBS WITH GREAT FUTURES



**ERP Project Manager**

The project manager directs database systems, transaction processing and other ERP matters, such as transaction processing security, resource monitoring and reporting, and software issues.

Baseline

TEN EMERGING TECH JOBS WITH GREAT FUTURES



**BYOD Support Supervisor**

This person is in charge of the overall coordination, control and maintenance of personal mobile devices in the company to ensure compatibility and integration with enterprise strategies.

Baseline

TEN EMERGING TECH JOBS WITH GREAT FUTURES



**Cloud Computing Architect**

The architect provides technical leadership and direction in implementing virtualized architectural projects, and works through the prioritization process with appropriate groups.

Baseline

TEN EMERGING TECH JOBS WITH GREAT FUTURES



**Metrics Manager**

The metrics manager focuses on the development of digital analytics capabilities and best practices.

Baseline

TEN EMERGING TECH JOBS WITH GREAT FUTURES



**Audio-Visual Technician**

Today's AV technicians operate, schedule and maintain audio-visual services, including the AV aspects of a company's external presence, such as Websites and blogs.

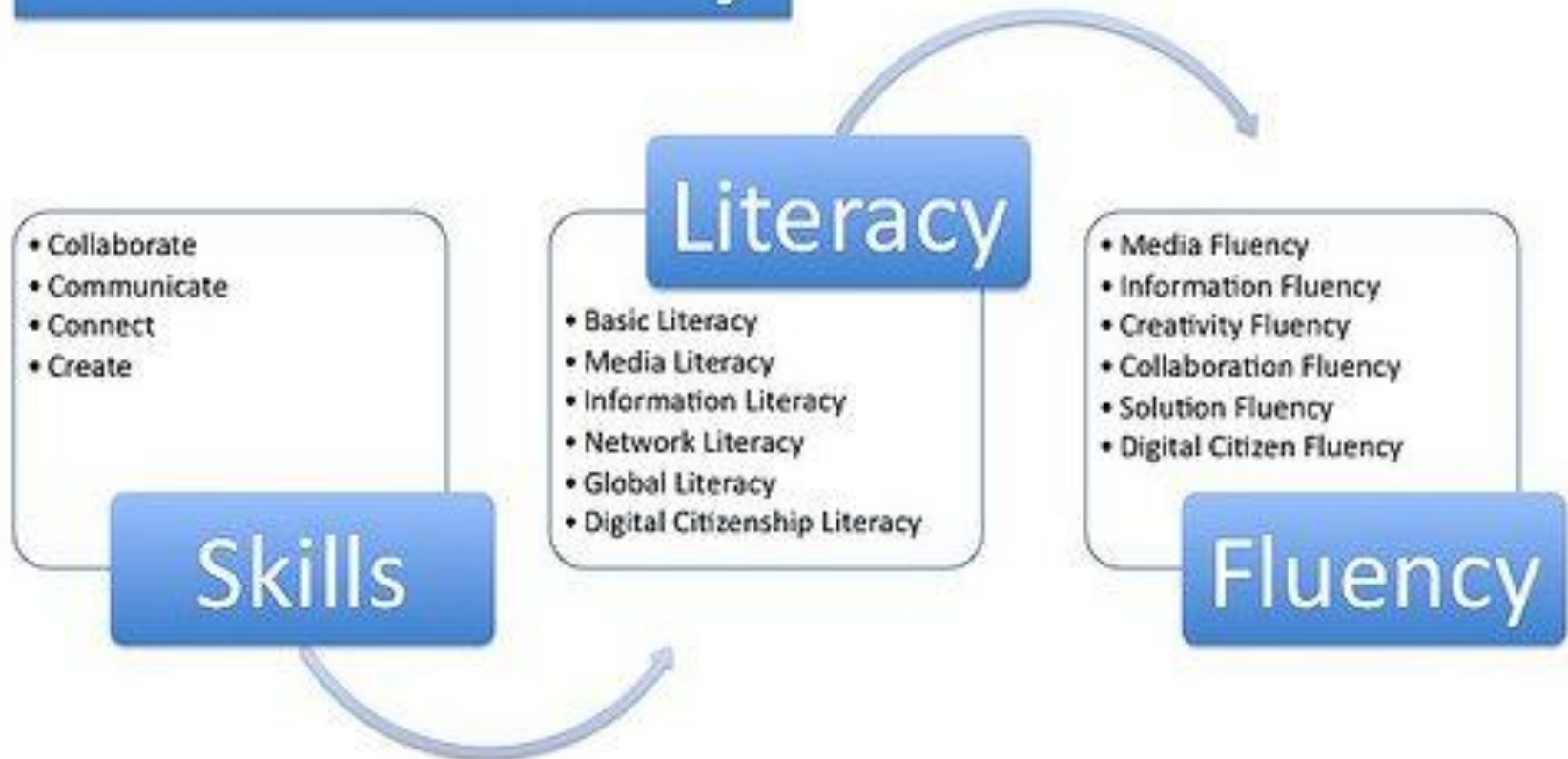
Baseline

<http://www.baselinemag.com/careers/slideshows/ten-emerging-tech-jobs-with-great-futures.html>

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# 21<sup>st</sup> Century



[http://www.all-ppt-templates.com/powerpoint-infographics-pack-sb.html?gclid=CN\\_ZkqG0tsECFSrpgodv1wA6Q](http://www.all-ppt-templates.com/powerpoint-infographics-pack-sb.html?gclid=CN_ZkqG0tsECFSrpgodv1wA6Q)

*What does smart specialization thinking mean?*

## Short-term

What is the 20<sup>th</sup> century mode of operation within the society?



*What does smart specialization thinking mean?*

## Long-term

What is the 21<sup>st</sup> century mode of operation within the society?

Social network for diffusion of ....  
knowledge  
innovation  
social values ....

and also ....

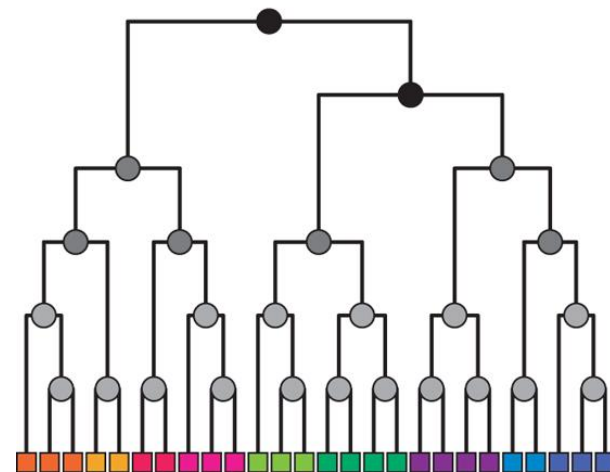
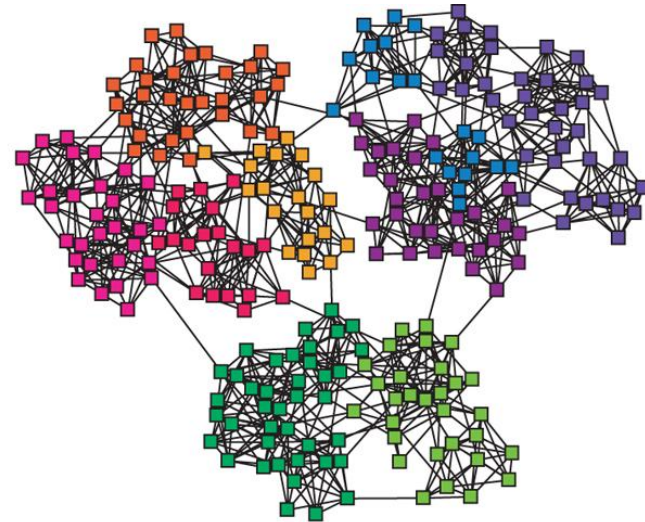
**smart specialization**



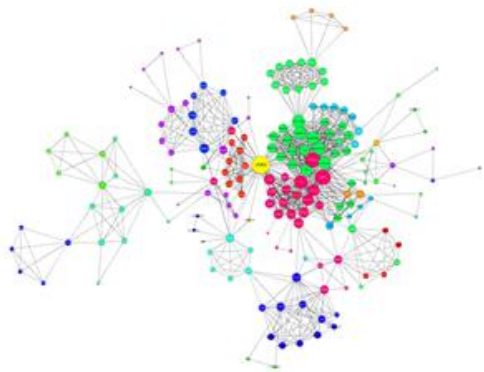
# Networks have in recent years emerged as an invaluable tool for describing and quantifying complex systems in many branches of science

Hierarchical structure and the prediction of missing links in networks

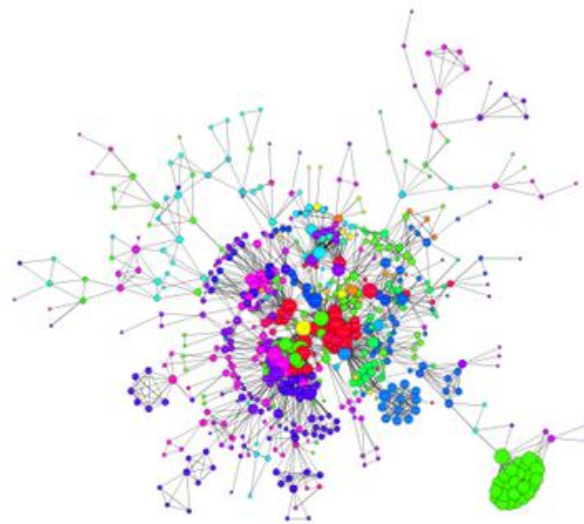
*Nature* **453**, 98-101 (1 May 2008)



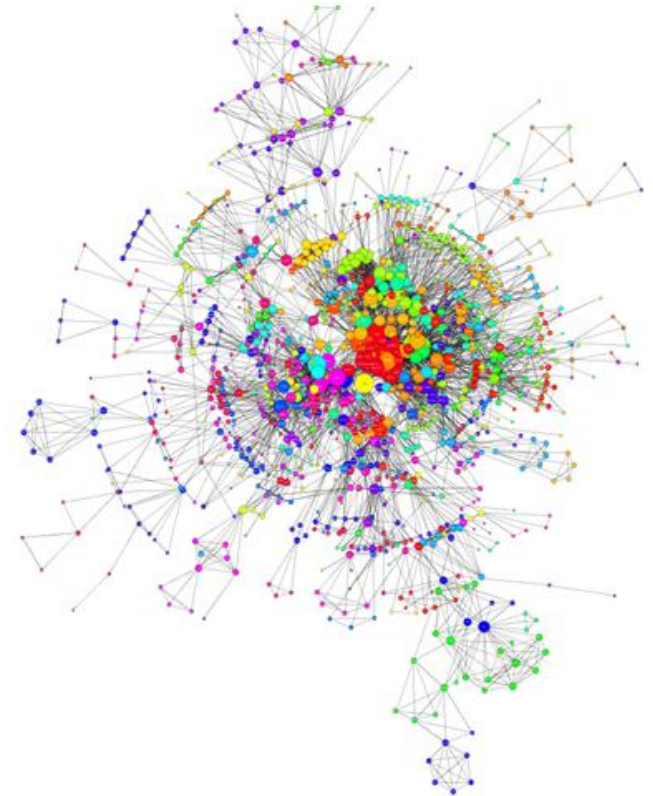
## .... and in the business



**2007-2008**



**2009-2010**

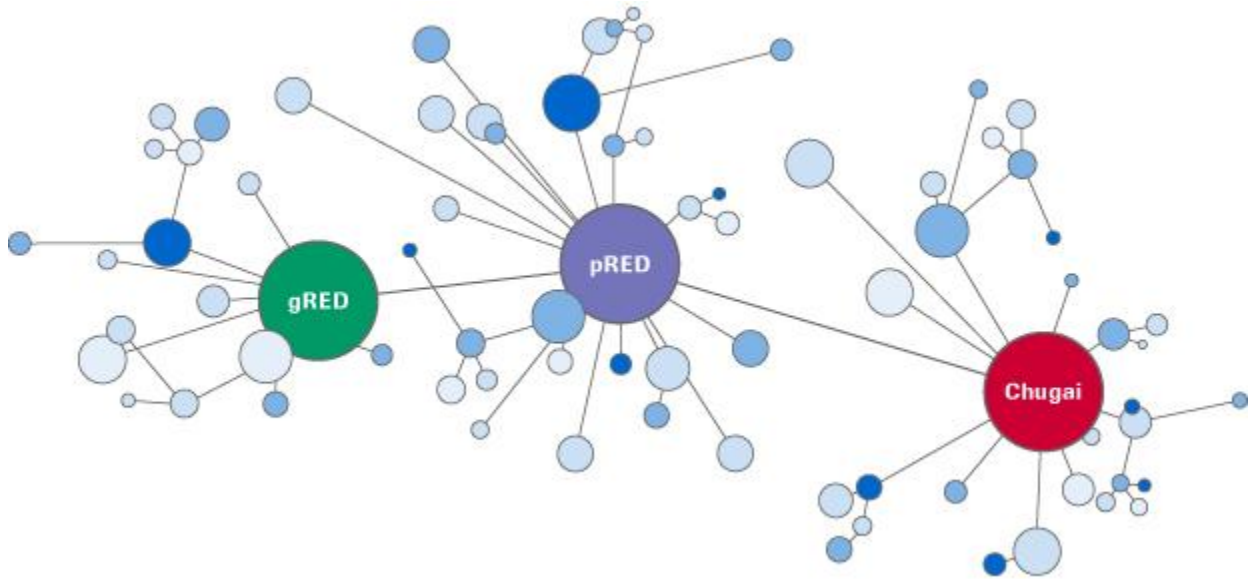
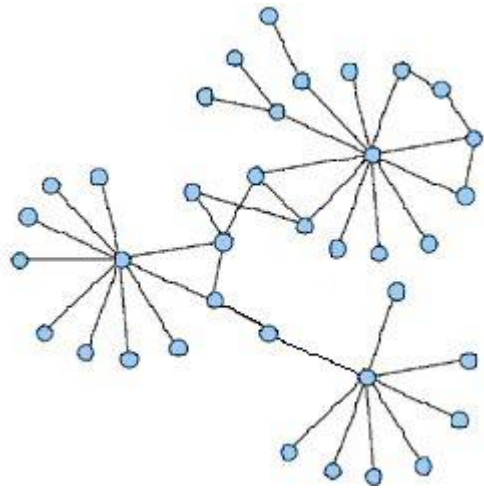


**2011-2012**

Apple's Internal Innovation Network Unraveled – Part 1 – Evolving Networks

<http://www.kenedict.com/apples-internal-innovation-network-unraveled-part-1-evolving-networks/>

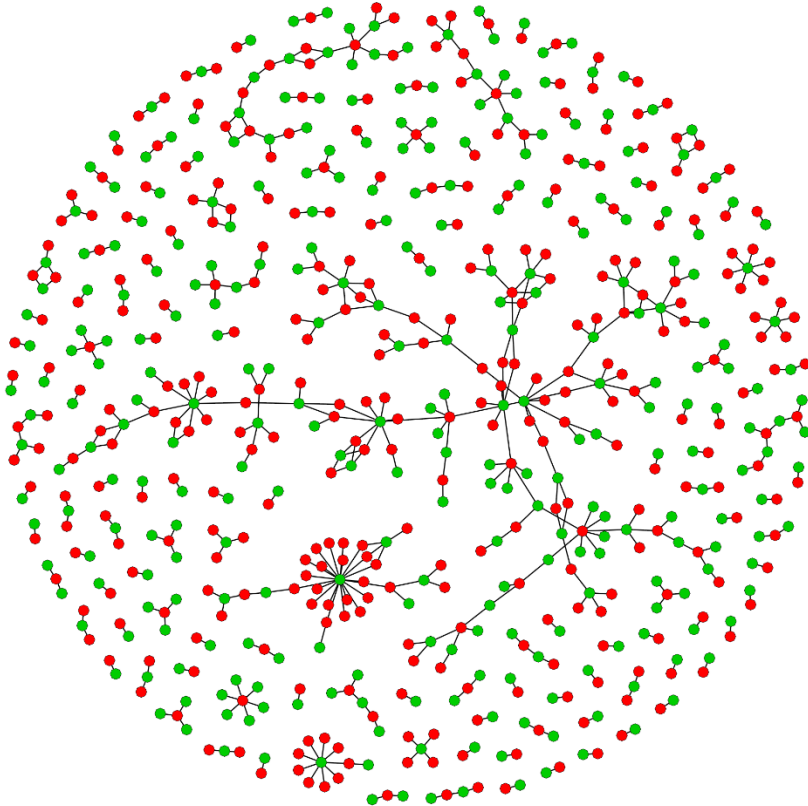
# Currently, networks are weak, small and underdeveloped



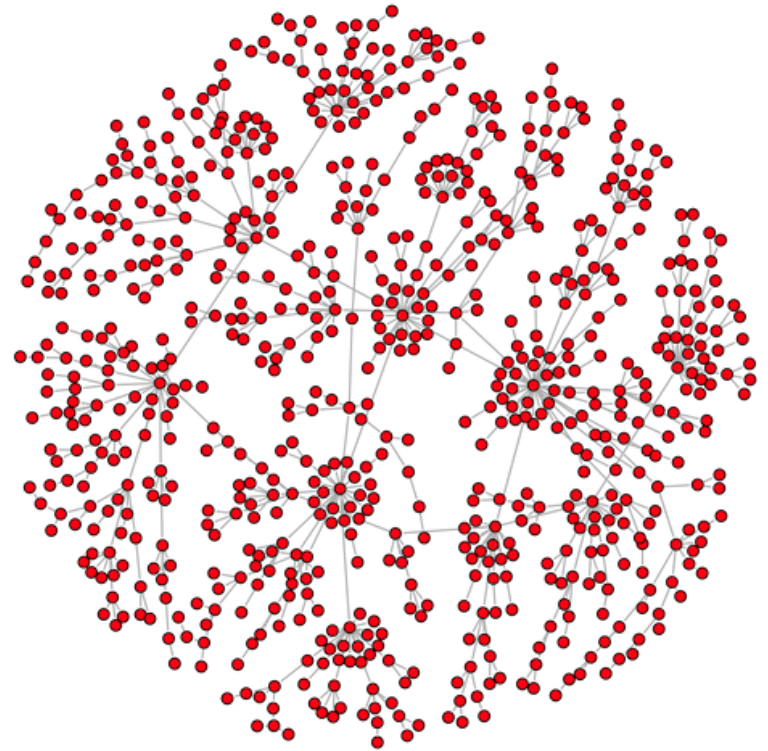
<http://timkastelle.org/blog/2009/06/mapping-innovation-networks/>



## For example, networks within an university



[http://www-public.telecom-sudparis.eu/~berger\\_o/weblog/2009/07/22/quick-analysis-of-the-social-network-of-the-gnome-projects-maintainers/](http://www-public.telecom-sudparis.eu/~berger_o/weblog/2009/07/22/quick-analysis-of-the-social-network-of-the-gnome-projects-maintainers/)

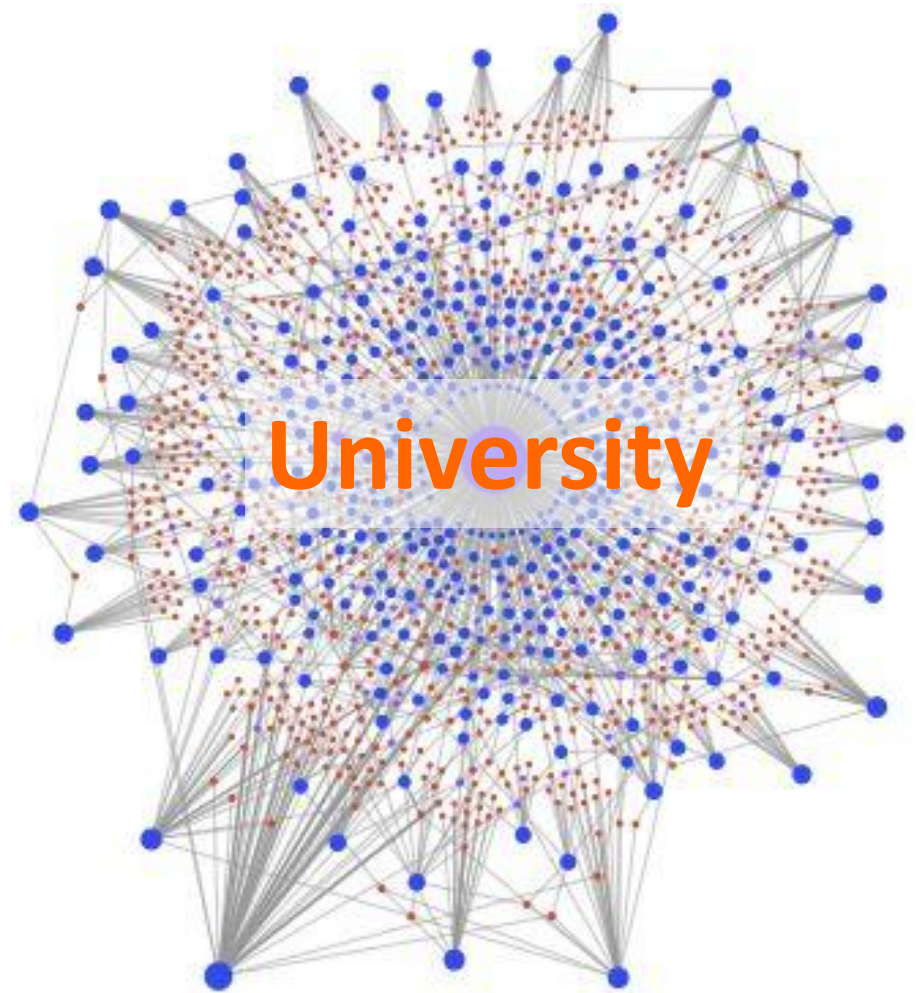


<http://www.quora.com/What-is-graph-density>

# Education and training systems are almost unnetworked



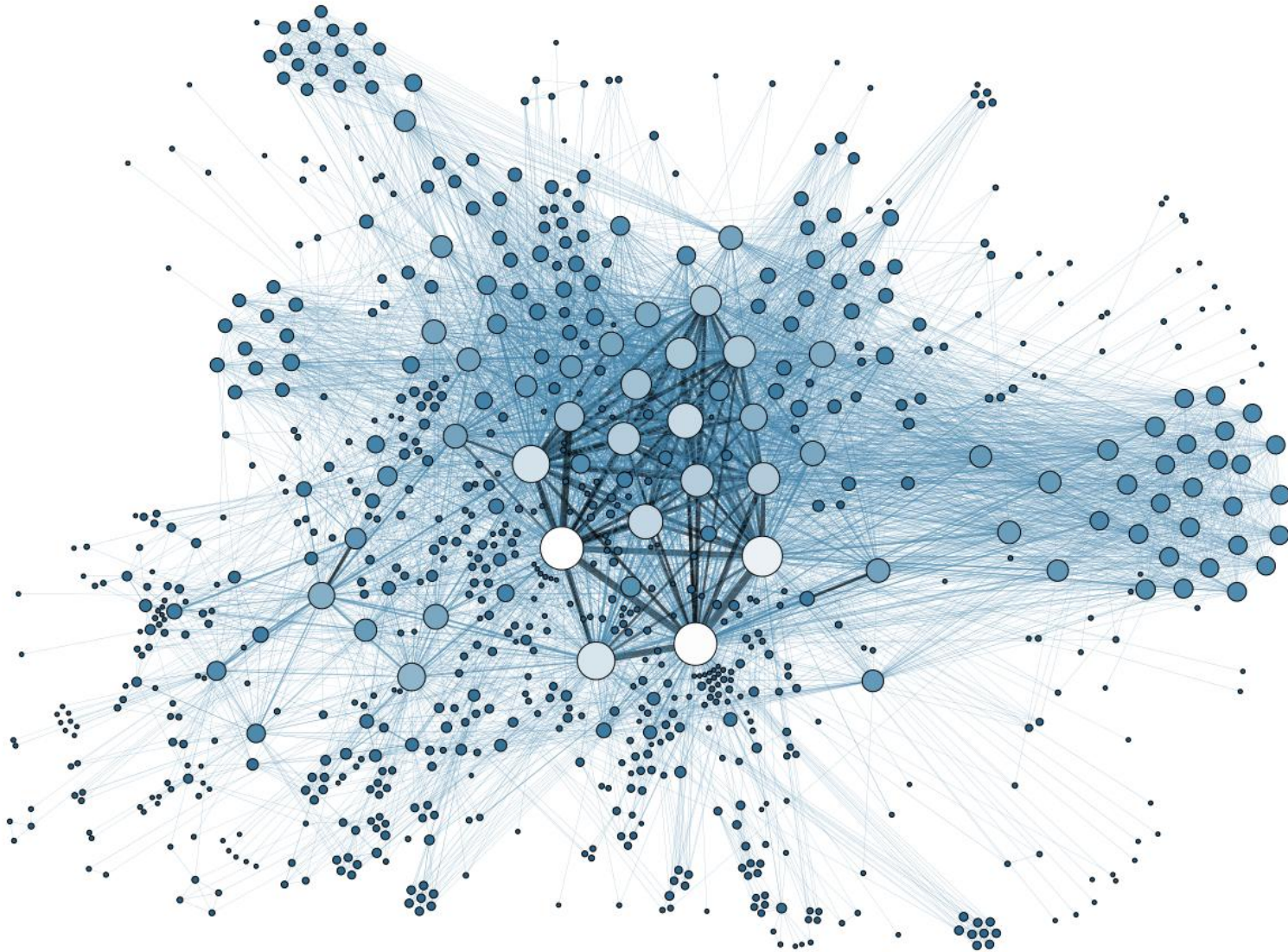
<http://blogs.cornell.edu/info2040/2012/09/26/7720/>



<http://blogs.cornell.edu/info2040/2012/09/26/7720/>



# Network should be much bigger and more complex



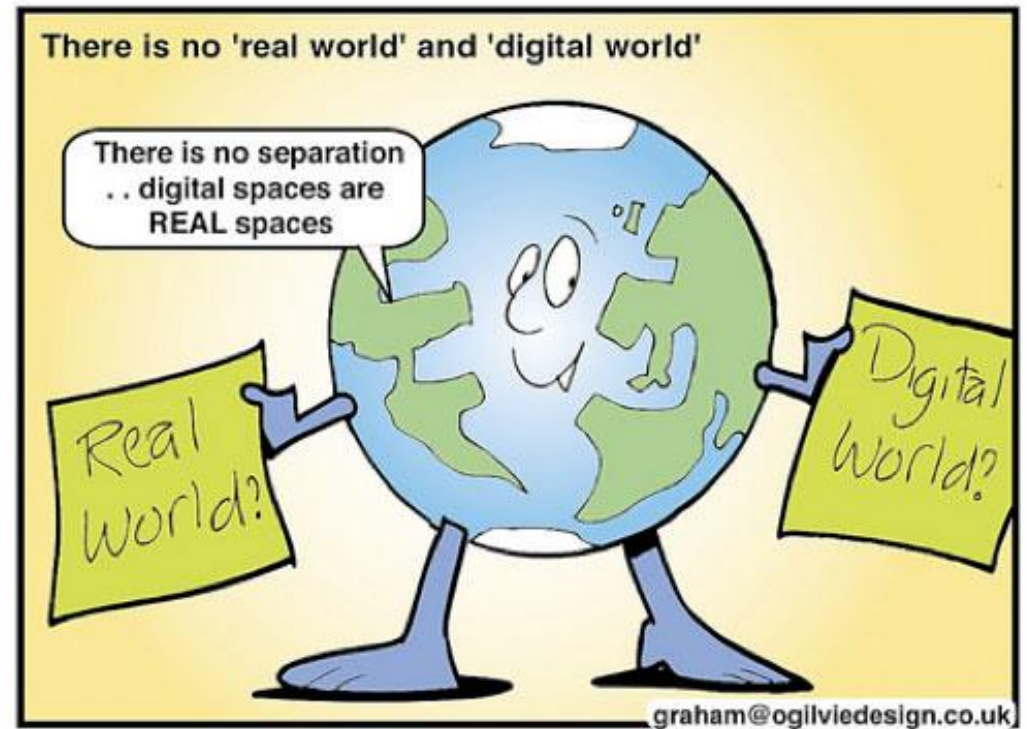
[http://4.bp.blogspot.com/-tUatwL13uZM/U7KdprKVnFI/AAAAAAAAANog/1oED0ELsg9k/s1600/Social\\_Network\\_Freindship\\_Paradox\\_Puzzle.png](http://4.bp.blogspot.com/-tUatwL13uZM/U7KdprKVnFI/AAAAAAAAANog/1oED0ELsg9k/s1600/Social_Network_Freindship_Paradox_Puzzle.png)

*What is required for construction of an efficient innovation network?*

## Short-term

To understand principles of the diffusion of innovation within the social group and within the entire society

There is no segregation of “real world” and “digital world”



<http://www.core-ed.org/thought-leadership/articles/digital-citizenship-school-and-home>

# *What is required for construction of an efficient innovation network?*

## Short-term

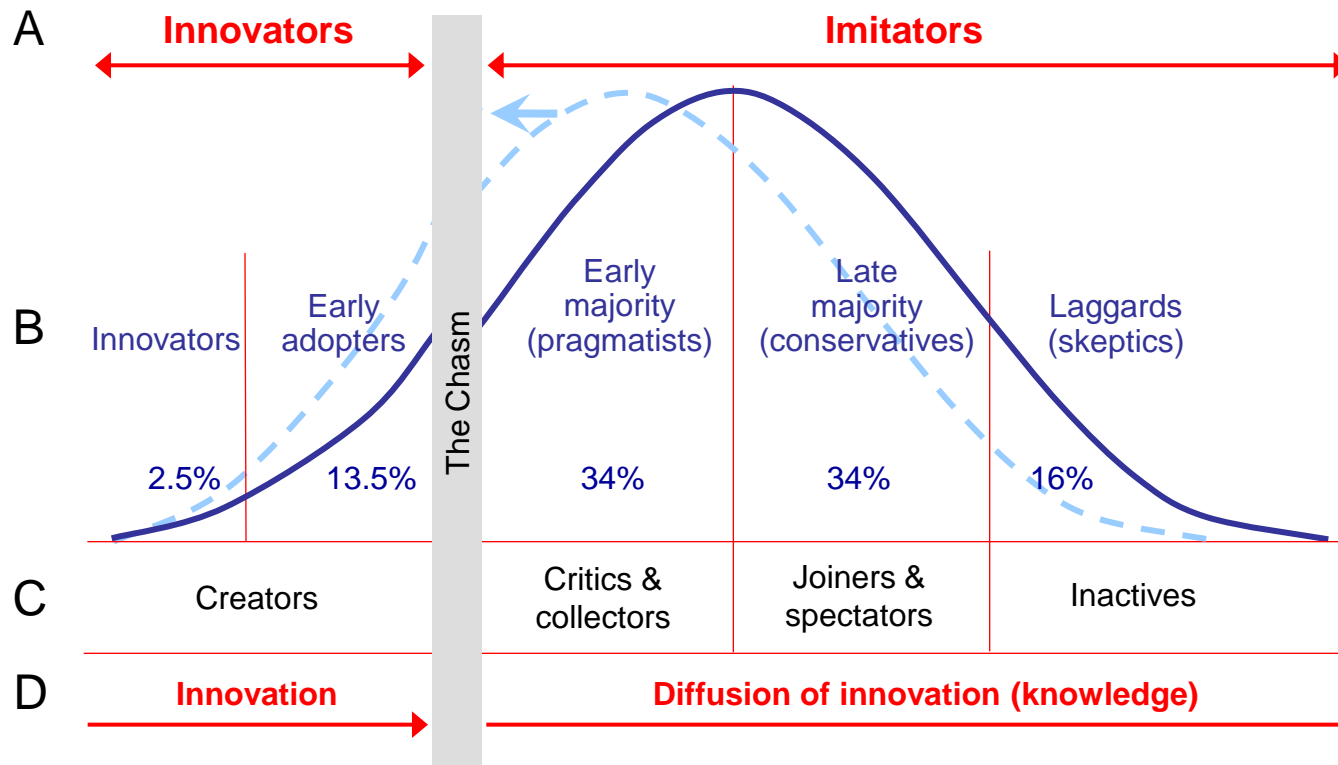
To understand principles of the diffusion of innovation within the social group and within the entire society

Process of learning is much faster



*"You've wasted a lot of time. It's all on my blog."*

# What is required for diffusion of innovation?

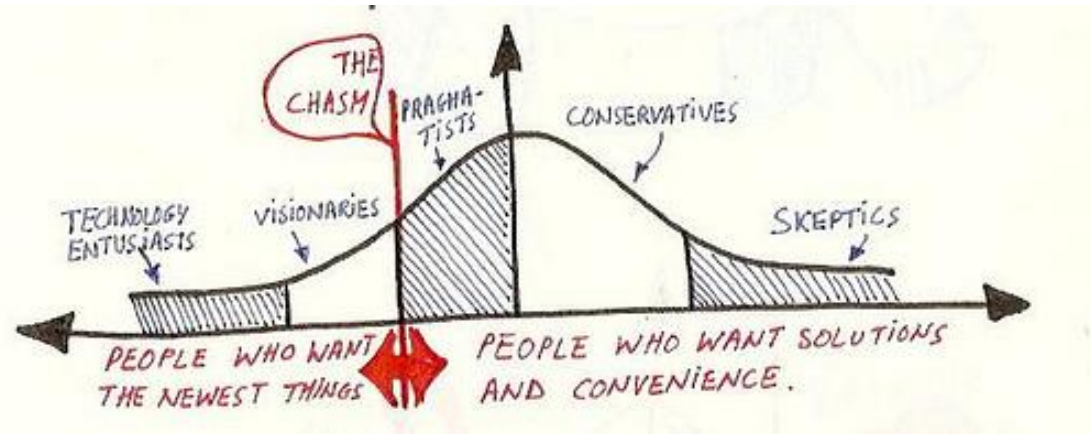




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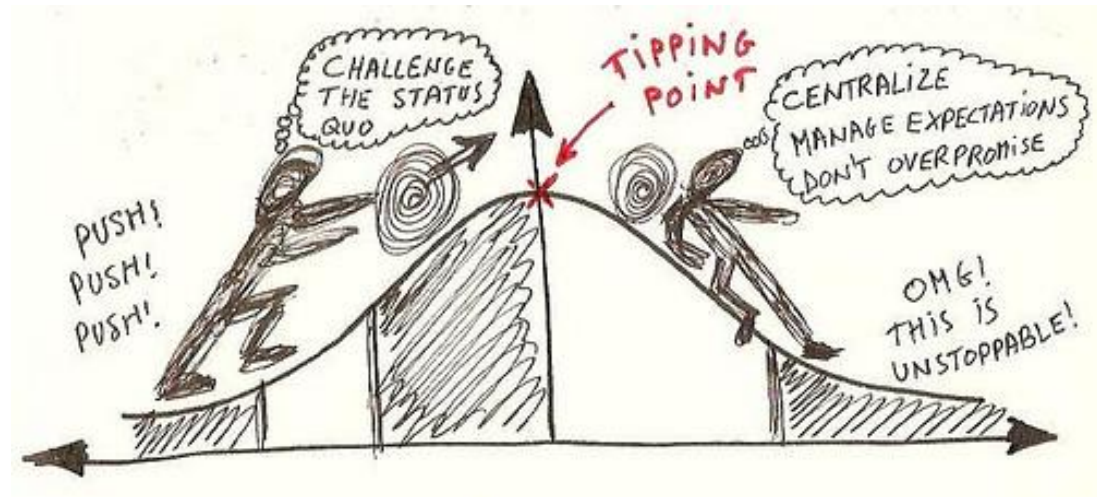


<http://www.reply-mc.com/people/evrett-rogers/>

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<http://www.reply-mc.com/people/evrett-rogers/>

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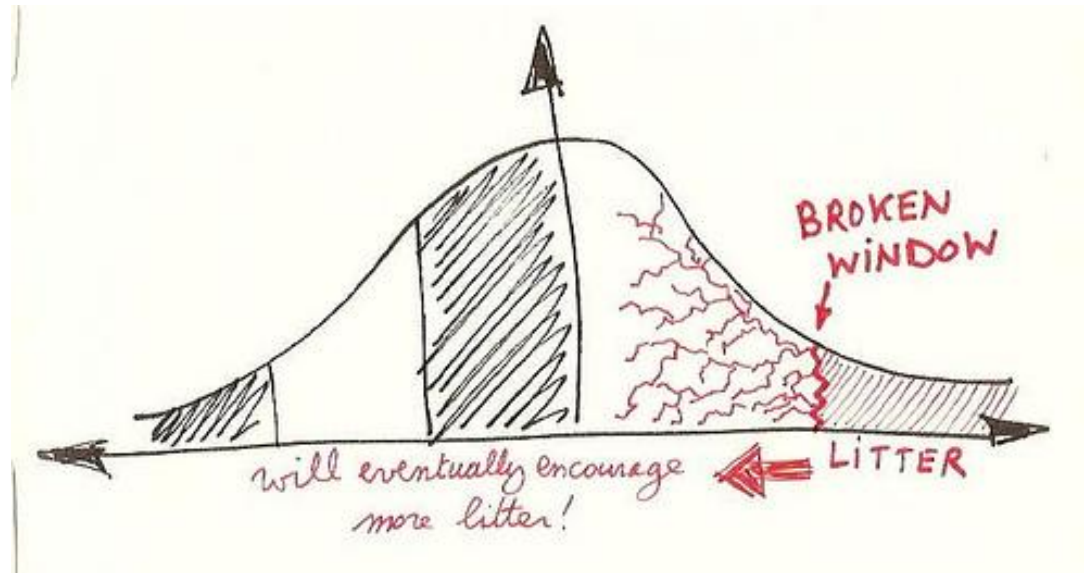
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# What is required for construction of an efficient innovation network?

## Short-term

To understand principles of the diffusion of innovation within the social group and within the entire society



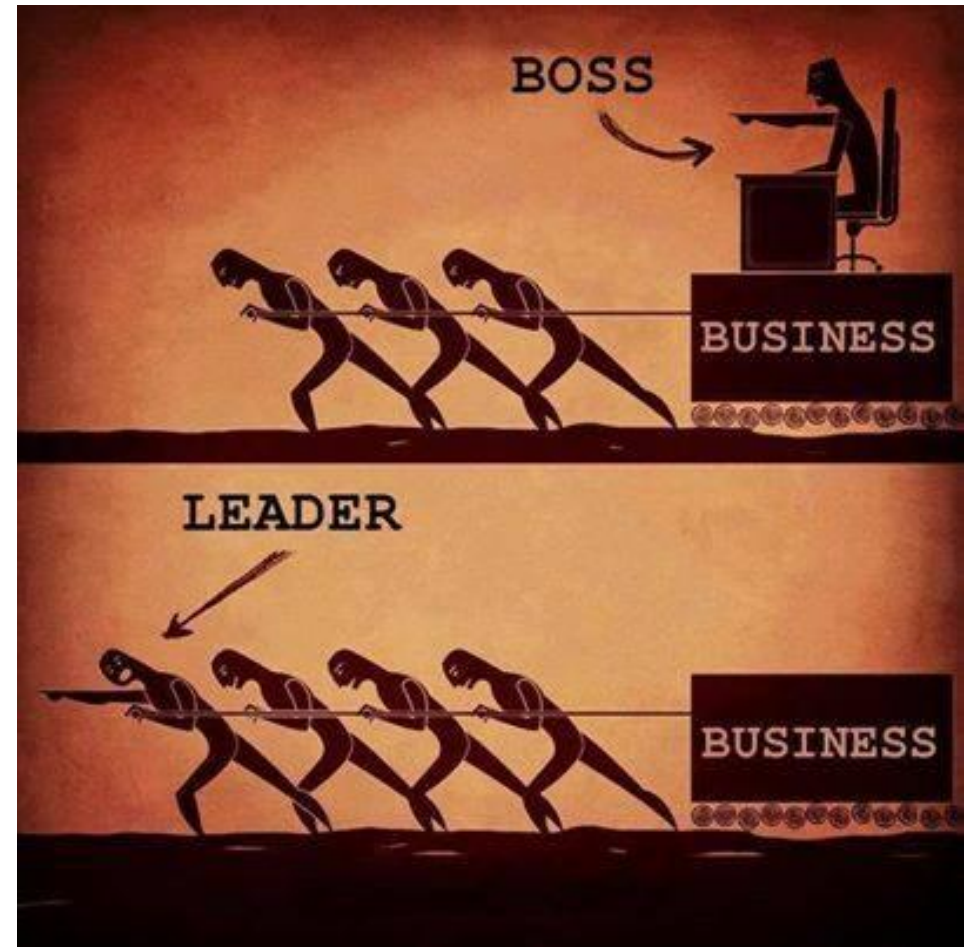
<http://www.reply-mc.com/people/evrett-rogers/>



*What is required for construction of an efficient innovation network?*

## Short-term

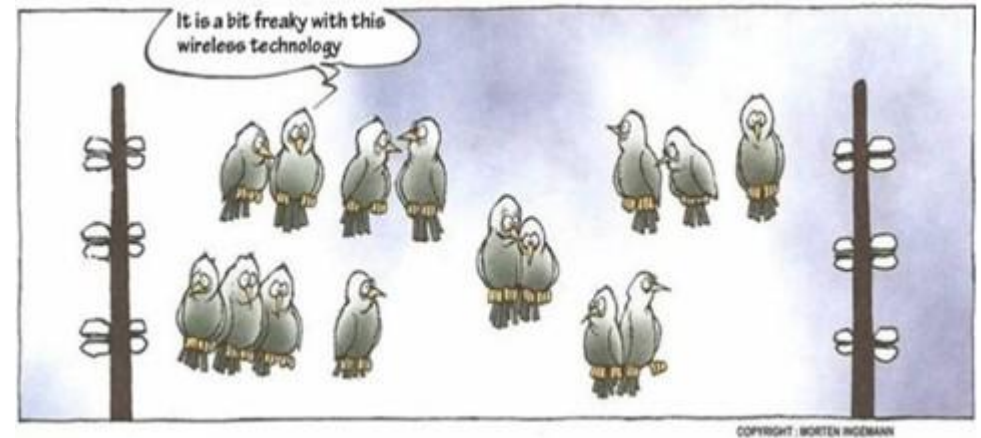
Training of leaders for construction of social networks for diffusion of innovations



# *What is required for construction of an efficient innovation network?*

## Short-term

Development and implementation of policies for construction of social networks for diffusion of innovations



Investment in the development of social networks for diffusion of innovations = investment in the **infrastructure** for 21<sup>st</sup> century

# *What is required for construction of an efficient innovation network?*

## Long-term

Training of people for construction of social networks and efficient participation in social networks for diffusion of innovations and smart specialization.



lifelong learners  
primary school pupils  
secondary school students  
tertiary students



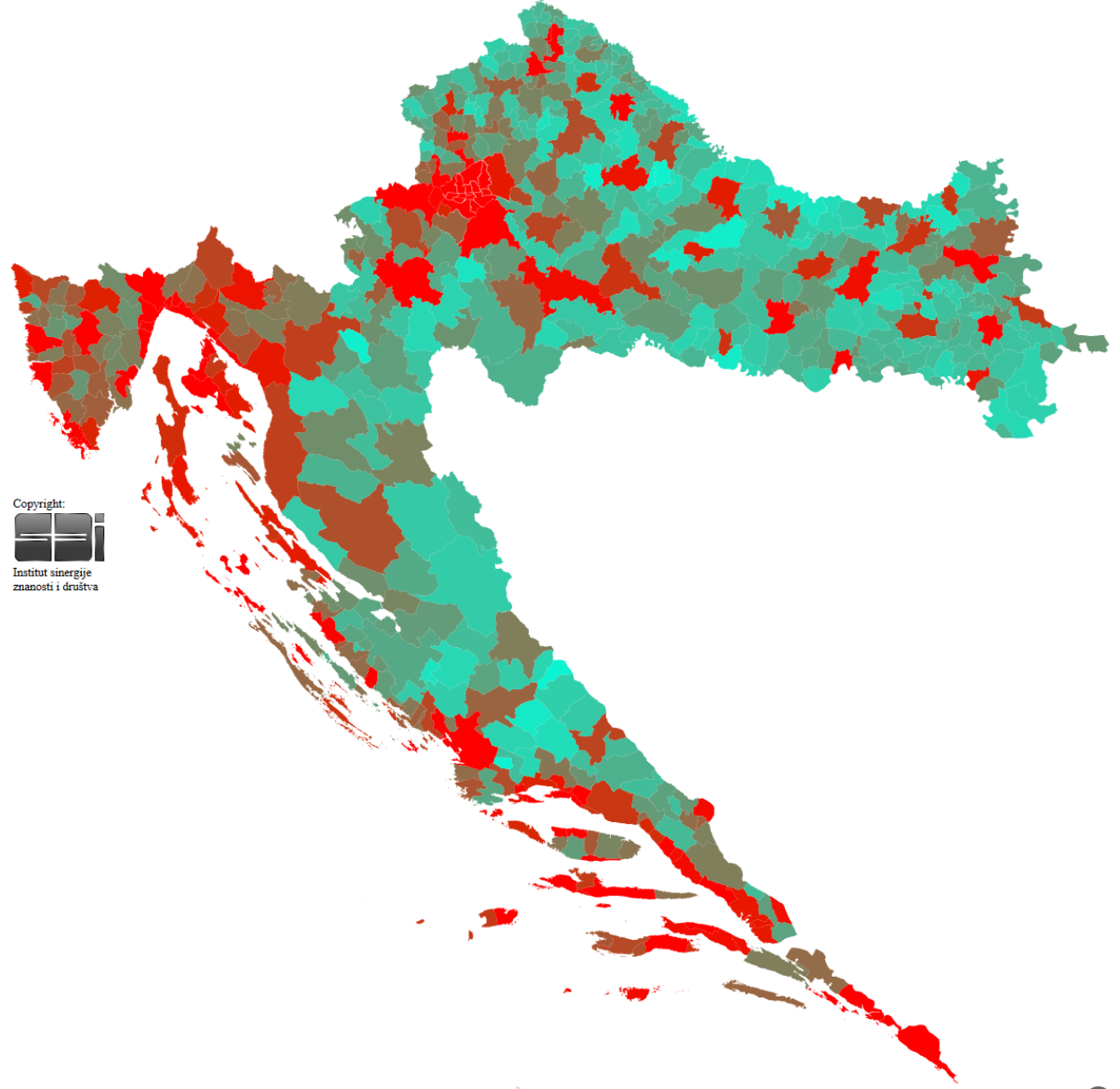
teachers  
educators  
trainers



leaders  
school principals  
HE leaders

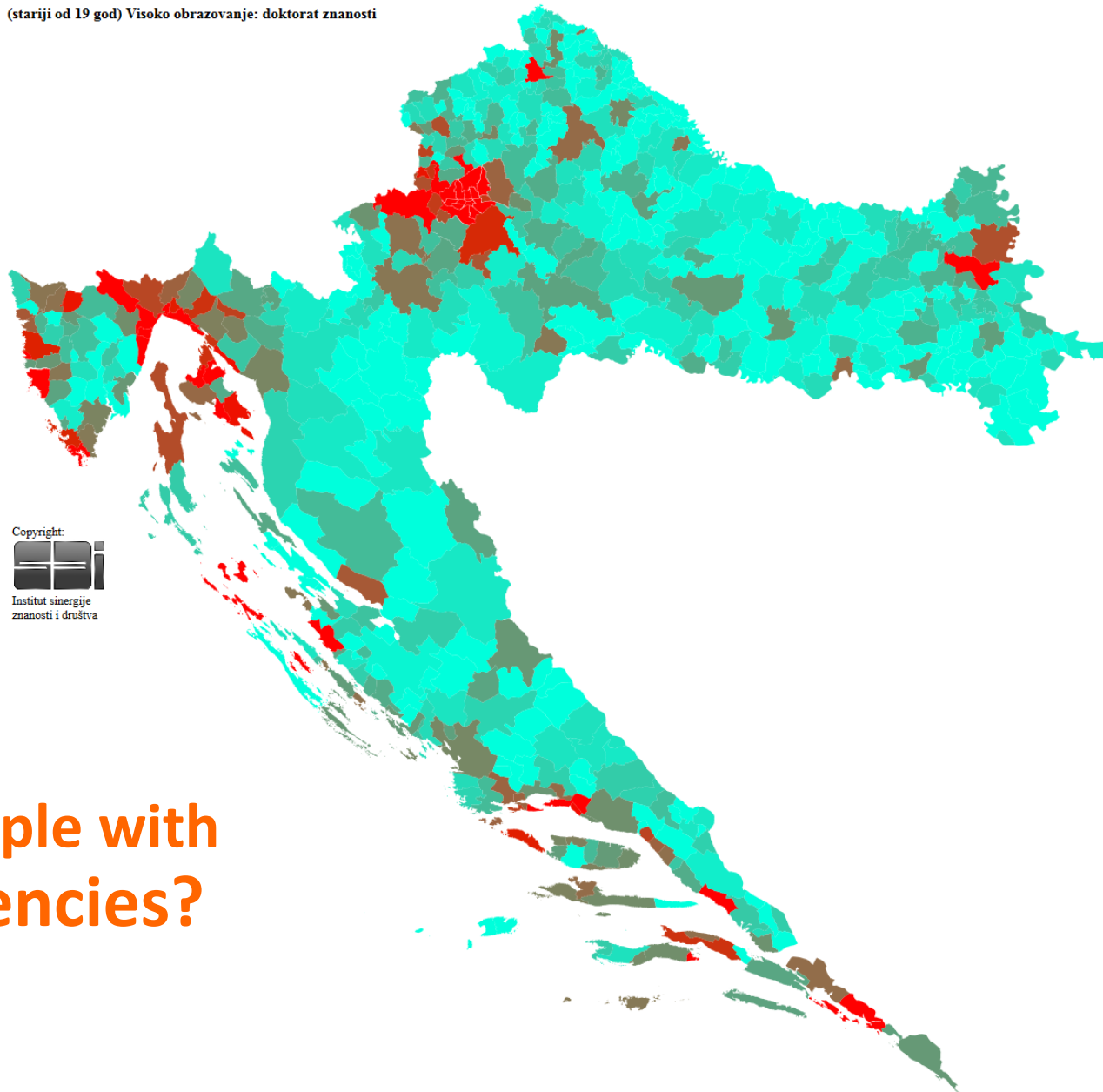
0.0% 10.0%

(stariji od 19 god) Visoko obrazovanje: fakulteti, umjetničke akademije, svi sveučilišni studiji po Bologni te magistarski znanstveni, stručni i umjetnički studij



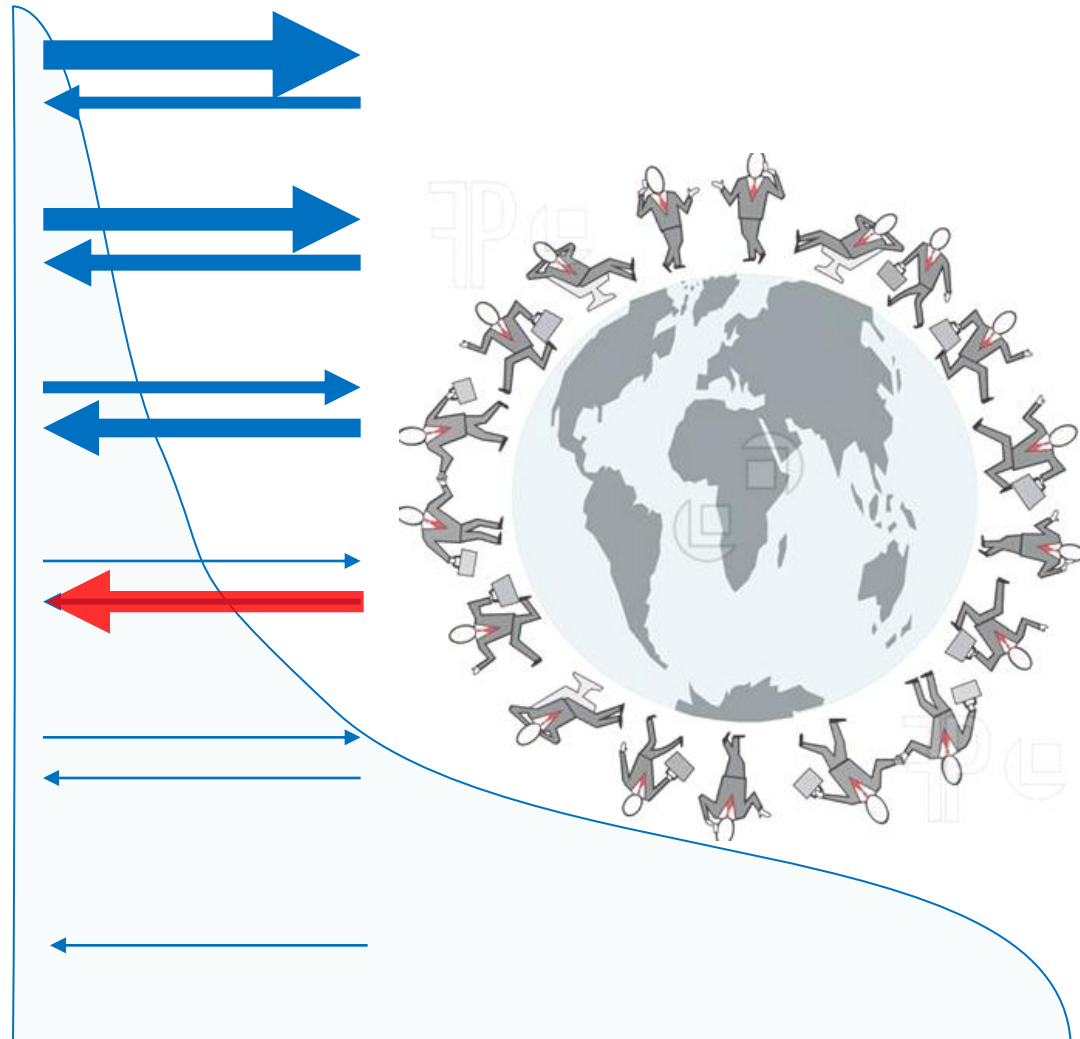
Where are the highly  
educated?

0.0% 0.3%  
(stariji od 19 god) Visoko obrazovanje: doktorat znanosti



Where are the people with  
research competencies?

# Technology transfer

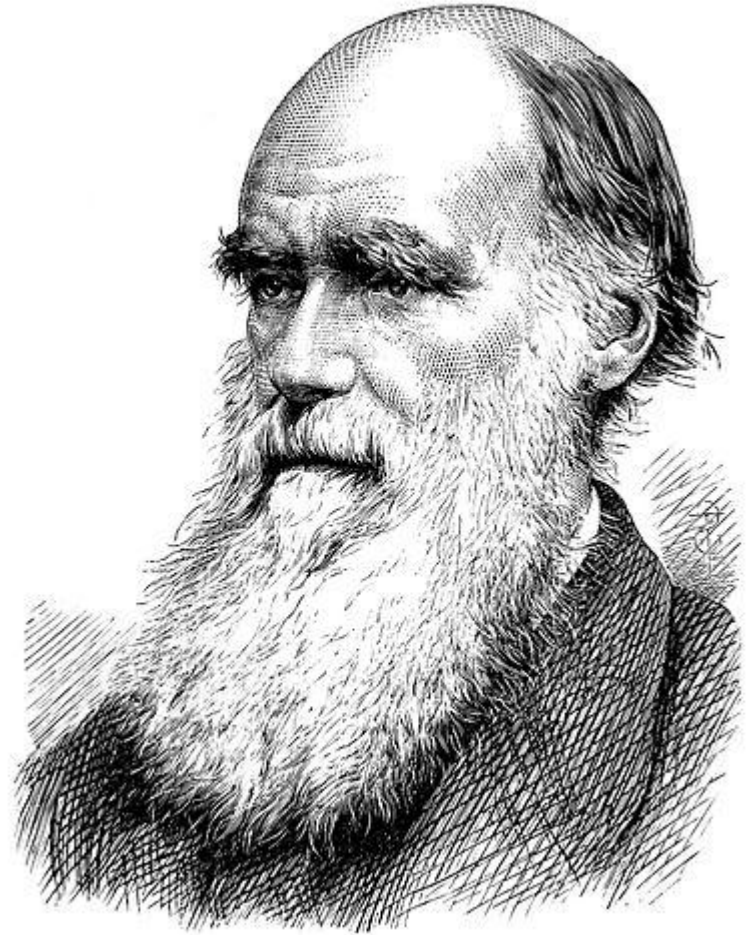




# Adaptation is essential for survival

It is not the strongest of the species that survive, nor the most intelligent, **but the one most responsive to changes**

*- Charles Darwin*



## Everyone should adapt - evolution



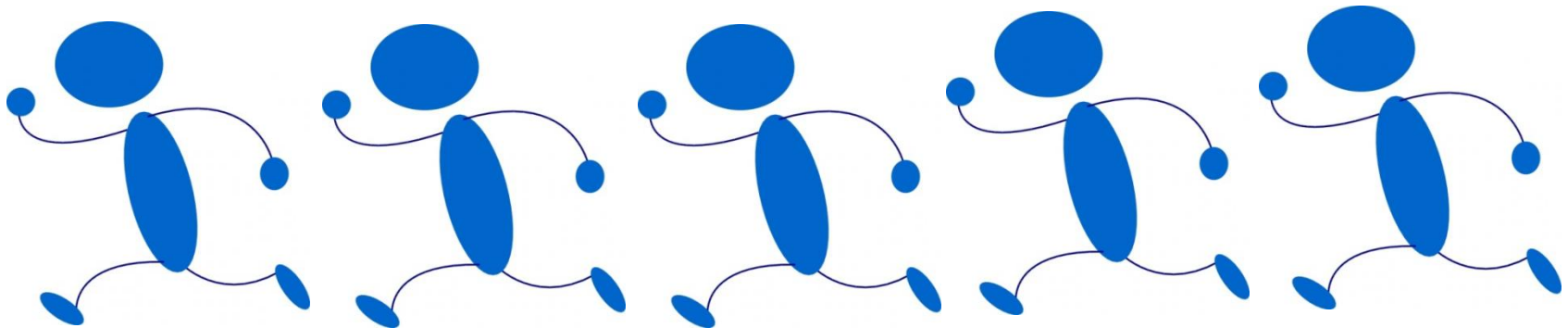
Every morning in Africa, a gazelle wakes up. It knows it must outrun the fastest lion or it will be killed.



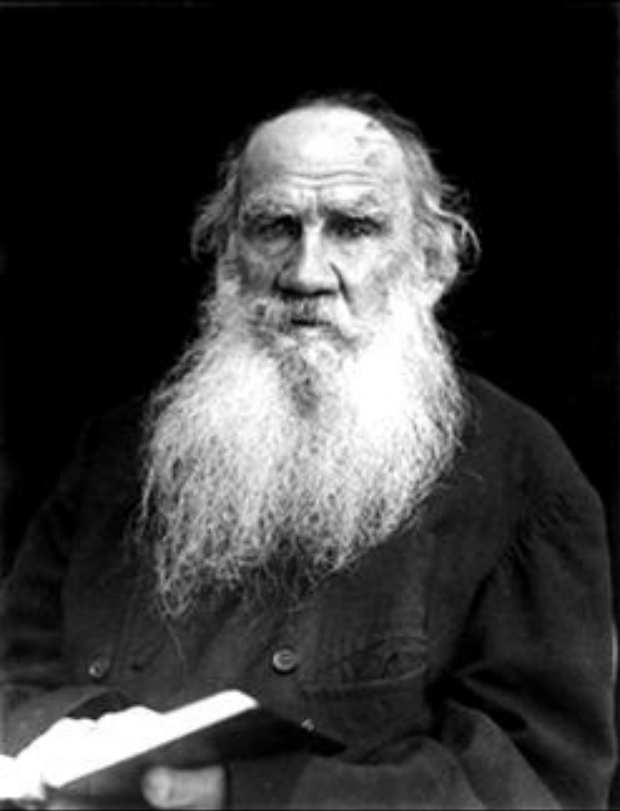
Every morning in Africa, a lion wakes up. It knows that it must run faster than the slowest gazelle or it will starve.



## We should also run - evolution



It doesn't matter whether you're a lion or a gazelle -  
when the sun comes up, you'd better be running.



Everyone thinks of changing the world, but no  
one thinks of changing himself.

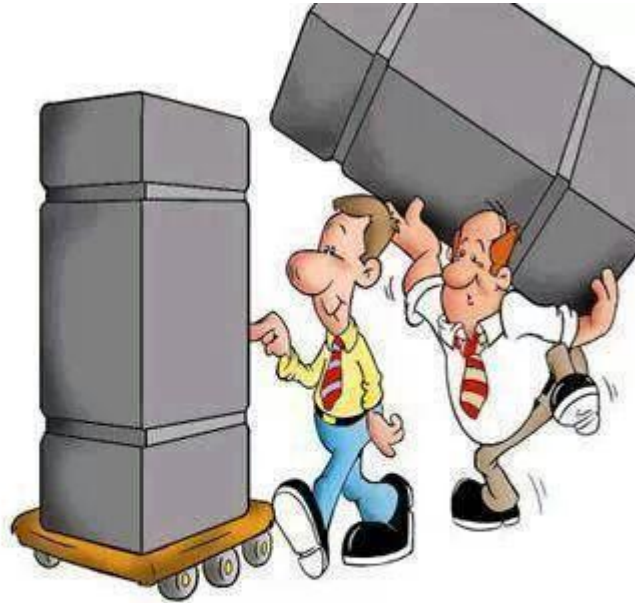
(Leo Tolstoy)

izquotes.com



# Hvala vam na pažnji!

[pero.lucin@uniri.hr](mailto:pero.lucin@uniri.hr)



*Work Smarter*  
*Not Harder*