

European Federation of Information and Communication Technologies for Agriculture and Agri-food Industries

Success factors for innovation and technology transfer



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CIGR V chair 2015-2018

CIGR Logistic WG chair

EFITA chair 2015-2017

INFITA chair 2015-2016

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General aspects of innovation

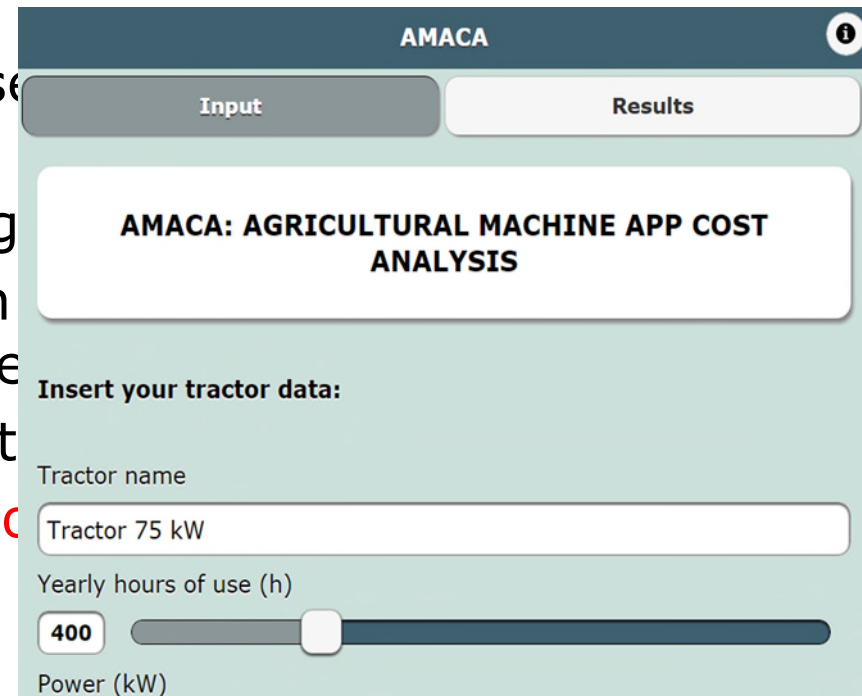


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How do we make impact in our research?

- Transforming research into **innovation**
- It's the technology
- The gap between adoption could be
- We should work to
- **Mobile apps a good transfer**



The screenshot shows the AMACA mobile application interface. At the top, there is a dark blue header with the text "AMACA" and an information icon. Below the header are two tabs: "Input" (selected) and "Results". The main content area has a white box with the title "AMACA: AGRICULTURAL MACHINE APP COST ANALYSIS". Underneath, there is a section titled "Insert your tractor data:" with three input fields: "Tractor name" (containing "Tractor 75 kW"), "Yearly hours of use (h)" (a slider set to 400), and "Power (kW)".

Florida Citrus disease:
50000 visitors/year on the web
9000000 visitors/year w/ mobile app



What is innovation?

- Innovation can be viewed as the application of better solutions that meet new requirements, inarticulated needs, or existing market needs. This is accomplished through more effective products, processes, services, technologies or ideas that are readily available to markets, governments, society and environment
- But innovation could also come from a new methodology, new theory (e.g. **management**)
- Or adoption of same technology in another domain



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An example of demand of innovation



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SEALED PRESSURIZED INK CARTRIDGE
MEDIUM POINT | BLACK INK

#S400CL CHROME BULLET
7 447609 41121 8

Ultra-hard Tungsten Carbide Ball

Stainless steel precision socket prevents leaking yet delivers uniform ink flow

Thixotropic ink in a hermetically sealed, pressurized reservoir writes three times longer than an ordinary ballpoint

Sliding float separates ink from pressurized gas

Gas Plug

This **Fisher Space Pen®** is the ultimate in dependability. Every pen is guaranteed to perform in temperatures from **30°F to 220°F**, under water, in zero gravity, at any angle, even upside down! Its reliability means that the pen "won't" let you down.

Our pens are the choice of ski patrols, search and rescue teams, law enforcement agencies, armed forces, and everyone who works odd hours, writes at odd angles or demands reliability from their writing instrument.

When man began space exploration, Paul Fisher realized that no other pen could perform in a gravity free vacuum or survive freezing and boiling temperatures. After countless scientific experiments, the sealed pressurized Fisher Space Pen® ink cartridge was developed. In 1967, after rigorous testing, NASA selected the pen for our US astronauts. It is now used on the International Space Station every day.

If you are not satisfied with your Fisher Space Pen, return it directly to us for repair or replacement.

Paul C. Fisher
Space Pen Inventor

fisher
SPACE PEN

FISHERSPACEPEN.COM
711 Yucca Street, Boulder City, NV 89005

Needs of a pen that can write in no-gravity environment



Vision and innovation – think out of the box



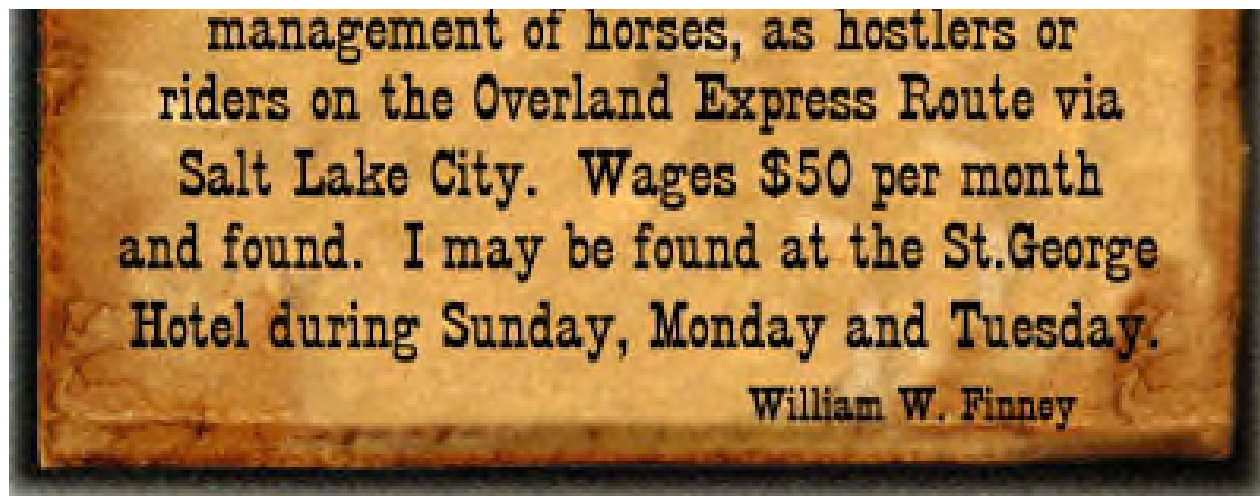
1860



1895



Are we buying horses today?



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Innovation adoption rate for technology – to reach 1 million users

- Radio – 58 years
- TV – 13 years
- Personal computers – 4 years
- Internet – 2 years
- Facebook – 1 year
- Mobile devices
- We live in **exponential times**
- The top 10 requested jobs in 2010 did not exist in 2004
- **Financial return on innovation in ICT should be fast**
- **Innovation in food design – should be fast as well – innovation, 3d printing could help**



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Lessons learned



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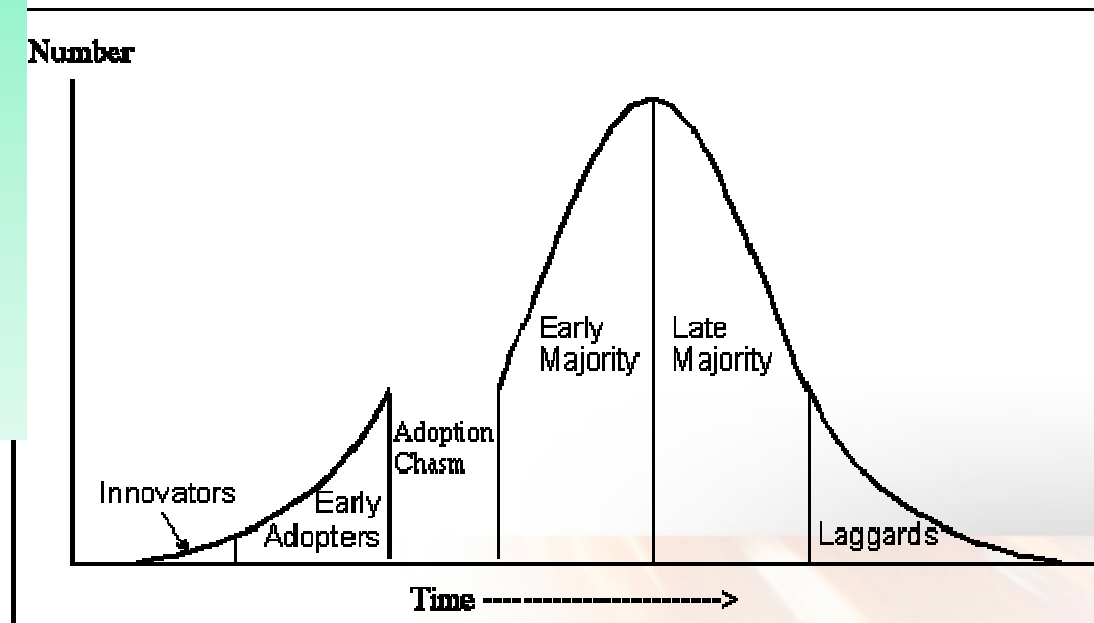


Lessons learned

- Innovation Make change
- Change is not avoidable
- Change is important
- World vision change as well



**How do we
react to
technological
challenges?**



To successfully implement an innovation we need:

And sometimes
Convergence.



Adoption

Education

Science and Technology

Institutions

Investment

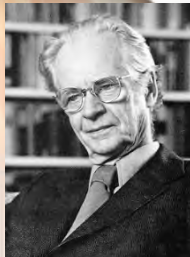
Visionary Leadership



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Convergence in education and technology → innovation methods

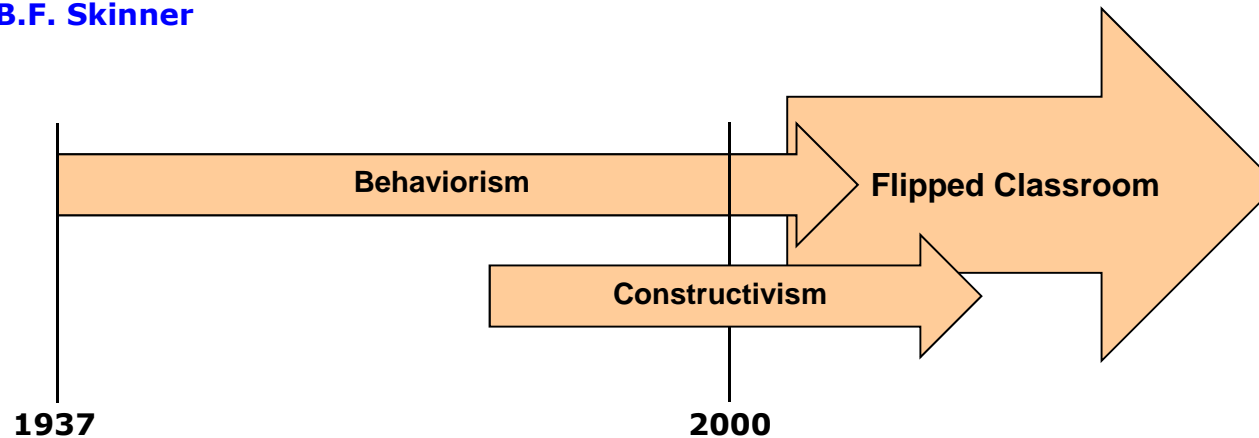


Teachers must learn how to teach... they need only to be taught more effective ways of teaching

B.F. Skinner



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Reflective abstraction, however, is based not on individual actions but on coordinated actions.

Jean Piaget



The role of education and training → adoption of innovation

“The Europe 2020 strategy also acknowledges that fundamental innovation and modernization of Education and Training are needed to promote innovation and to transform the EU into a competitive and inclusive economy.”

European Commission (2010) *Europe 2020: a strategy for smart, sustainable and inclusive growth* (COM [2010] 2020).



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Traditional vs. Flipped Classroom

Traditional Classroom

Lecture is delivered by the instructor

Homework is assigned to reinforce understanding



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Flipped Classroom

Students watch lectures Online

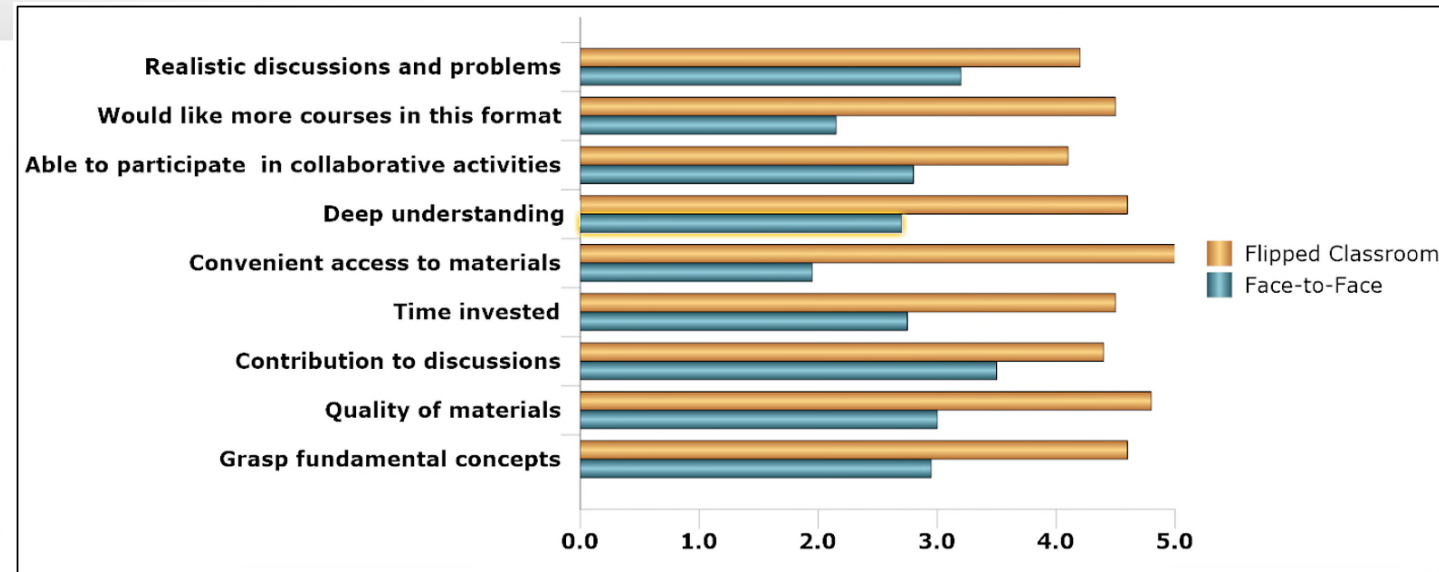
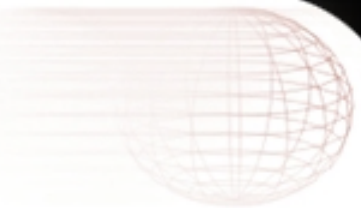
Classroom time devoted to higher order thinking tasks



Any TIME, Any WHERE, Any DEVICE



Student preference and performance



Summary Statistics for Student Evaluation*
(Highlighted scores are associated to the Flipped Classroom)

	Module 1		Module 2	
	Mean	Standard deviation	Mean	Standard Deviation
Group A	100	0	78.47	23.6
Group B	62.38	18.66	97.62	2.06

* One student from each group not completing the modules was removed from the analysis.

Success factors about technology use

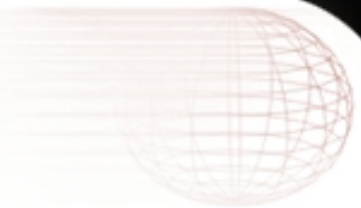
- **Clear vision** is essential → strategy
- Alignment of action to pursue objectives
- Think big
- Pay attention to technology development
- Change can come from anywhere → **don't rely too much on what you think is best (idea, technology)**
- Anticipate it
- Ask questions to yourself:
 - Does it improve competitiveness?
 - Does it improve sustainability?
 - How to market it?



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Lessons learned about innovation and technology transfer



- strategic approach - **Stakeholder involvement** –
 - Management
 - Workers
 - Marketing, etc.
- **Easy to innovate if learned from people that share the same level of risk**
- Anticipate change – be prepared – simulation could help
- Now flexibility in innovation is a key more than performance
- Not always good

Tradition is an innovation that was successful



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Technology/Science is only but one component

- Economics
- Risk
 - Health
 - Environment
- Consumer acceptance
- Education and training
- Technology Convergence
- **Regulation/subsidies**
- Intellectual property
- Local and global politics

- System approach is required



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“Infinite energy is people” ITALIA PAVILLION EXPO2017 ASTANA



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Thank you!

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