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**PFNS**

DEPARTMAN ZA RATARSTVO I  
POVRTARSTVO



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

**DISPAA**

DIPARTIMENTO DI SCIENZE DELLE  
PRODUZIONE AGROALIMENTARI  
E DELL'AMBIENTE



UNIVERSITÄT FÜR  
BODENKULTUR  
WIEN

**BOKU**

DEPARTMENT FÜR WASSER-  
ATMOSPHERE-UMWELT



EUROPEAN  
COMMISSION

**Horizon 2020**

EUROPEAN UNION FUNDING  
FOR RESEARCH & INNOVATION

**Workshop  
2018**

*SERBIA FOR EXCELL, WORKSHOP, 2018*

## Faculty of Agriculture, Novi Sad: Strategic plan in research and education (2018-2021)

**Cupina B.**



University of Novi Sad, faculty of Agriculture



# Overview

- Introduction
- Trends and challenges
- Ambitions
- Research
- Education
- Internationalization
- Implementation and progress







**Use of the national and EU programs - reform of HE and RD**

Tempus Cards Project UM\_JEP\_40043\_2006  
"Support Network for Improvement of the Strategic Planning"



**First document SP - Project output-template!**  
**Few documents approved by FTRC**  
**Dean application -proposed plan/action (2018-2021)**





# Introduction

21<sup>st</sup> Century HEI around the world have been struggling under two different types of pressure:

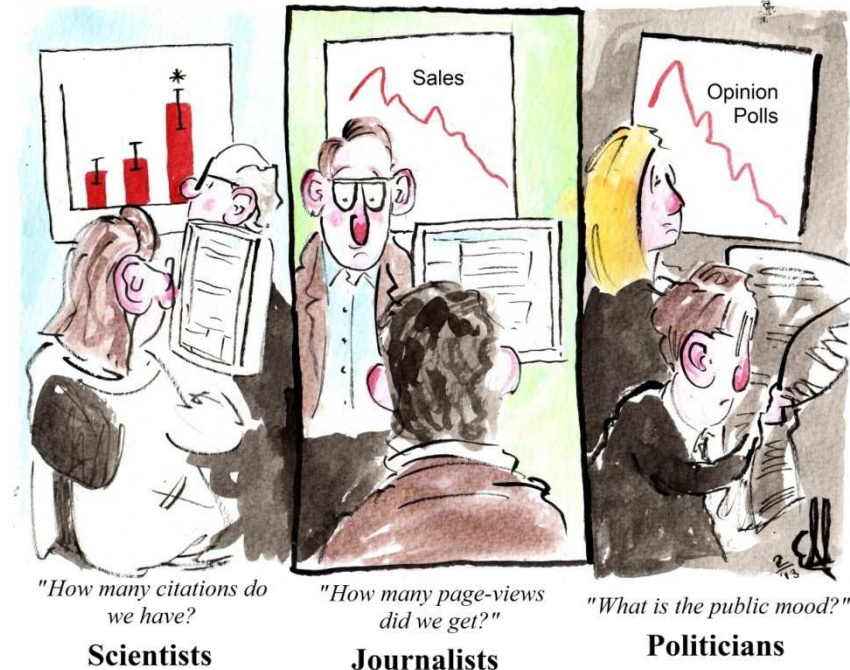
- financial, as the provision of public funds has been decreasing
- political, economic and social demands on HE, which have been increasing



**HEI are taking on more responsibility for their own future planning and they need to further strengthen their capacity for strategic performance**

Lothar Zechlin, International Encyclopedia of Education, Elsevier, 2008

Assessing the impact of research:



**A system under pressure!!!**



Current situation at FAUNS is partly consequence of previous activities!

### Key points

- Quality of education and research
- Regional and international cooperation



There are positive results in some aspects of the previous plan?!







## FACTS & FIGURES



+ 3500



+ 200 + 150

Graduated student + 9500

MSc +1500

Vet. Med. +480

PhD +900

BSc-14 programs

MSc-16

PhD-3

H2020-4

No publications in last 5 year average - +100

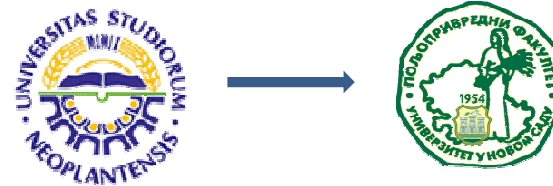
Some strengths-hold on





2017: FAUNS: 251-300

2018: FAUNS: 201-250 (241)



Criteria:

Academic reputation-59.7

H-index-55.4

Citation per paper-69.1

Position of strategic partners?!

BOKU-39...Florence-101-150



Universitas21-Ranking of National Higher Education System

Criteria...

Resources and outputs (economic dev.)-Serbia-first place



Resources: Serbia | Rank 1  
Environment: United States | Rank 1  
Connectivity: Ukraine | Rank 1  
Output: Serbia | Rank 1





Investment in the research?! Serbia-0.3 GDP  
International (EU) funding - more important!!!

FAUNS - Financial position - Annual turnover - 8 mil EUR  
- 60% public service (25% int. projects)  
- 40 % own budget

Positive balance - always under pressure - challenge!!!



# Trend and challenges

## Research:

- Global issue-growing population-by 2050-9 billion-save natural resources (agriculture-soil and water)

Urbanisation vs. Rural development  
Sust. agriculture prod.?!



Interdisciplinary approach-fundamental and applied research  
Supported by national and EU project



- EU priority - linkage strong scientific centres with research inst. to contribute innovation and public-private partnership.

Balance between fundamental and applied research (final product)



# Trend and challenges

Agroecologist Education for Sustainable Development of Farming and Food Systems

C. A. Francis,\* E. S. Jensen, G. Lieblein, and T. A. Breland

Published in Agron. J. 109:23–32 (2017)

## SIX PROPOSITIONS ABOUT THE FUTURE OF AGRICULTURE AND FOOD

- Recognize and Accommodate to Natural Resource Limits and Global Climate Change
- Adapt to Human Population in Balance with Available Resources
- Develop Systems that Rely on Appropriate Technologies and Local Resources
- Replace “Monoculture Mentality” with Diverse and Creative Thinking
- Overcome Institutional Stagnation in Education and Research Planning
- Evolve from Short-term “Anthropocentric” Focus to “Ecosystems” Thinking



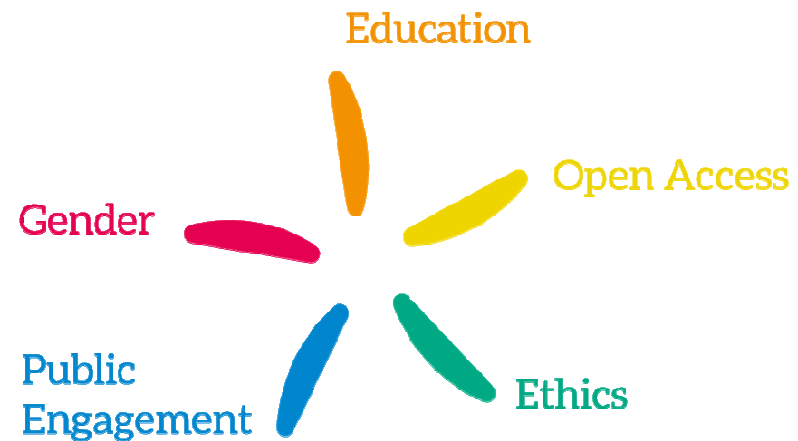
# Responsible Research and Innovation

RRI is a transformative emerging principle of research and innovation policy.

Aim - involving as much of a society as possible (professional and general public) in research and innovation in order fulfill its needs;

Key aspects identified by the EC

- public engagement
- gender equality
- open access
- science education
- ethics
- governance in research and innovation



**At Faculty of Agriculture**



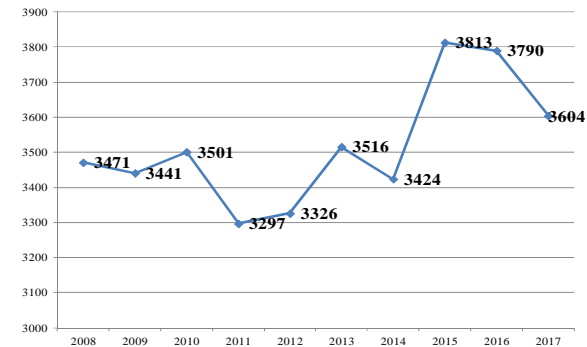
# Trend and challenges

## Education

Number of BSc, MSc and PhD students?

Number-difficult to predict (demographic data indicate to decline)

RS: 1997-120 000; 1998-76000; 1999-72000...



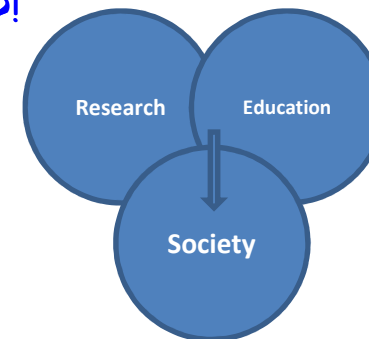
Global demands for higher education is increasing greatly! Changes in the job market!?

Technology causing revolution in education

- Online education - opportunity and challenge!
- Blended learning - online + face-to-face supervision?! New skills (Tempus-CASA)

Quality of education?!

Small-scale education - close contact between staff and students?!



**Society - Research and education for society!**

Applied research-improving transfer of knowledge to SME



# Trend and challenges

## Changing the names?!

Steven Evett, ASA president  
Article CSA news: Does it matter what we call it?, 2018



Dep. of Agr. - change the name in Dep. of Plant and Soil Sciences?!

Does the agronomic science disappear?!

Meteorology, Agroclimatology, Agricultural Engineering, Hydrology, Natural Resources Research, Crop Science,



***agronomy***

Tied to the science and practice of agronomy!

Agronomic modeling Soil Science, Plant Science, water management...

Phytomedicine, landscape arch. Univ. life Sc., Bologna dec.?!



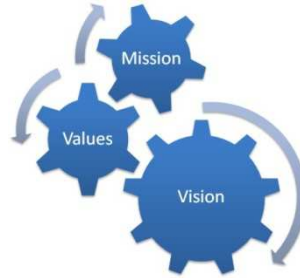
# Our ambitions

- Synergy by combining education with fundamental and applied research (agriculture and related sciences)
- Continue and improve position in the region and beyond
- Cooperation with strategic partners





# Our ambitions



“Agriculture is the highest application of the pure science, it touches the lives of all men and the very environment in which we live”

Anonymous



“To explore the potential of nature to improve quality of life” Wageningen

“Feed the world-save the globe” ISA, Lille

Environmental friendly production  
Socially acceptable  
Economically visible

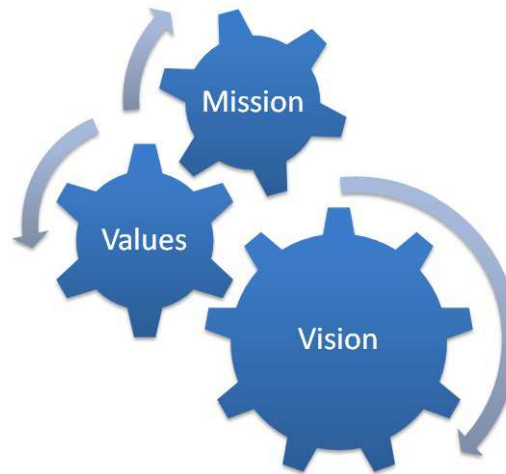
Resilience - agro-ecosystem, economic and social systems,



## Our ambitions

### Mission

The Faculty of Agriculture in Novi Sad is an institution of higher education and scientific research whose mission is to stimulate high-quality educational processes, development of scientific disciplines and dissemination of knowledge gained in economy and society. The Faculty of Agriculture carries out its mission in three interrelated groups of activity: higher education, scientific research, and knowledge application on the field of economy.



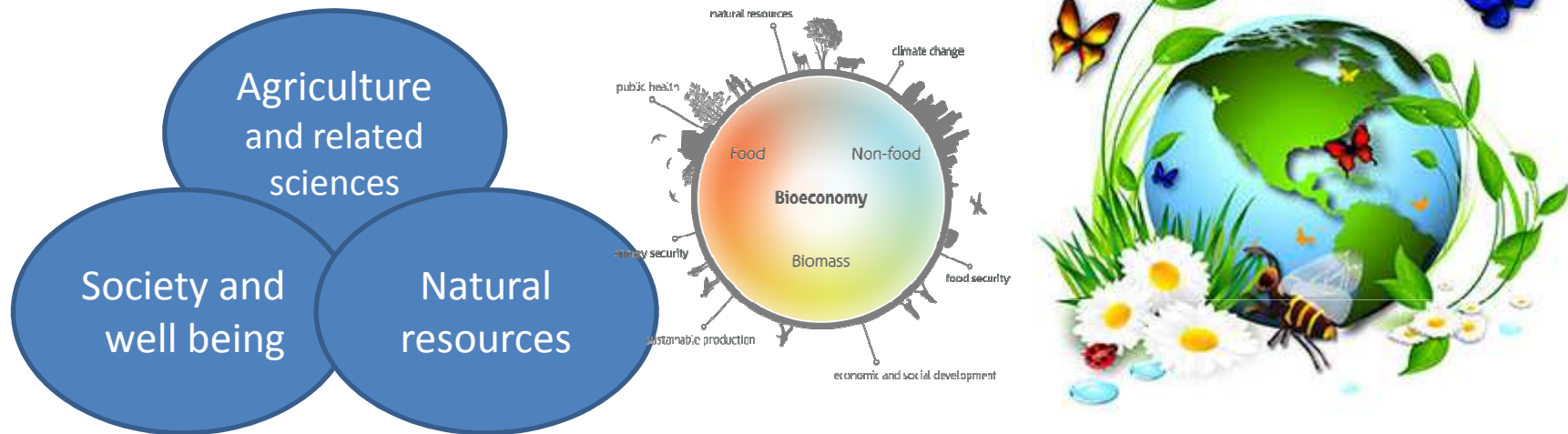
### Vision

Being an equal partner in the united European space of higher education, the Faculty of Agriculture has a vision to achieve the highest levels of excellence, i.e. the highest position in the company of the best. Its orientation towards modern study programs and high-quality studies creates conditions for faster growth and development followed by realistic perception of the necessity of education in specific environments



# Our ambitions

Bio based economy and increased importance of natural resources



With knowledge of soil, water, ecosystem, climate, social, economics...



We are learning to deal more effectively agriculture and changes with ecosystem


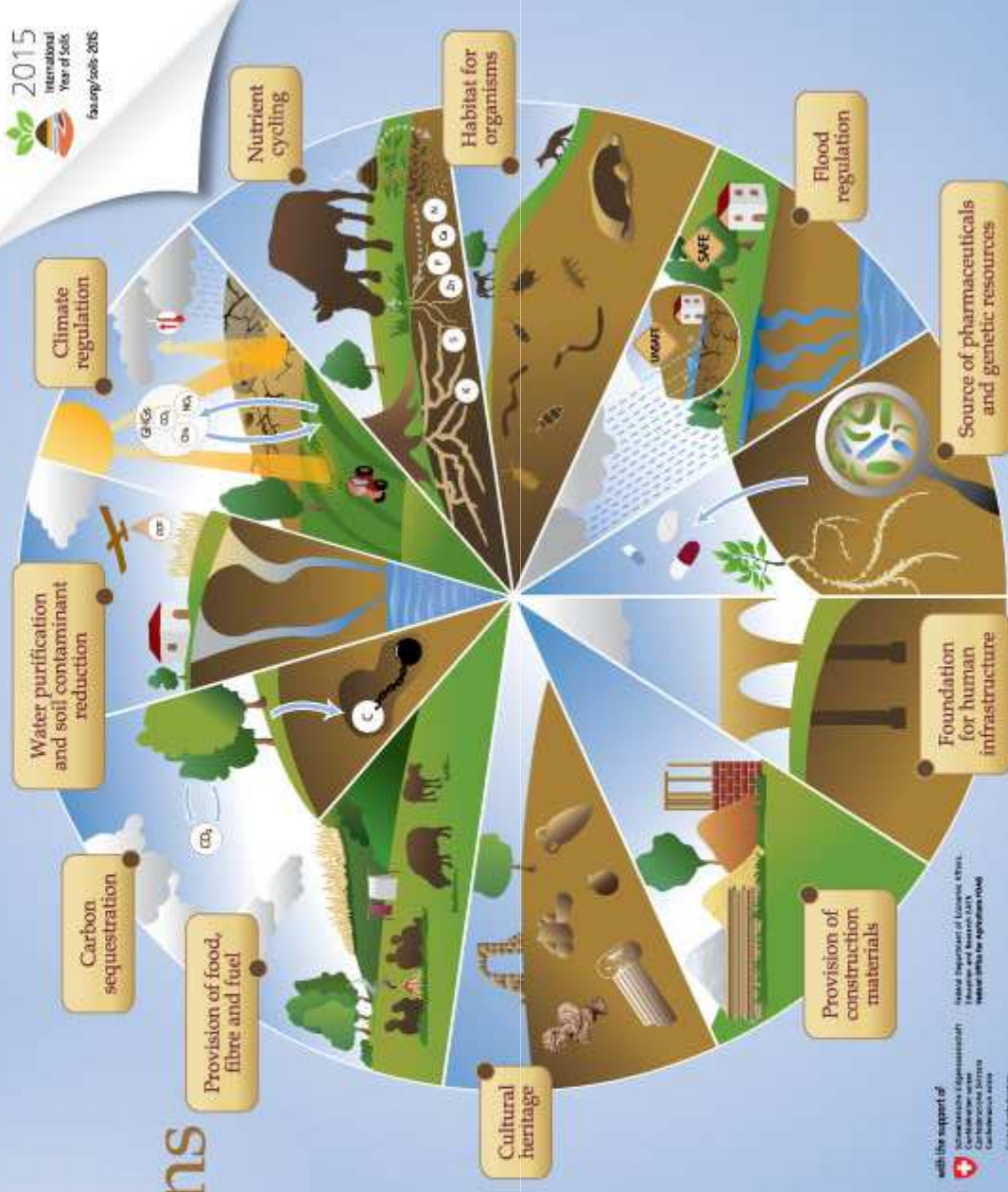


Complex challenges - integrated approach



# Soil

Soils deliver ecosystem services that enable life on Earth



Food and Agriculture  
Organization of the  
United Nations

with the support of

General Department of Economic Affairs  
Education and Research Unit  
Federal Office for Agriculture (FOAG)





1. To be research driven institution that provide high-quality scientific knowledge and expertise to the potential stakeholders

Focus on large multidisciplinary projects with more synergy between f. and a.  
research attracting and training talented researchers

2. Education should be improved to be world-class or...

Relationship between research and education  
education in order to reach new target groups, including professionals

3. Strength of economic impact by enhancing economic and societal value of our knowledge

4. Improve ties to local, regional, European and global partners

Explicit choice of strategically important and prominent partners



# Our ambitions

- Translation of innovations into useful commercial products and services
- Facilitate start-up and spin offs and offer our partners infrastructure

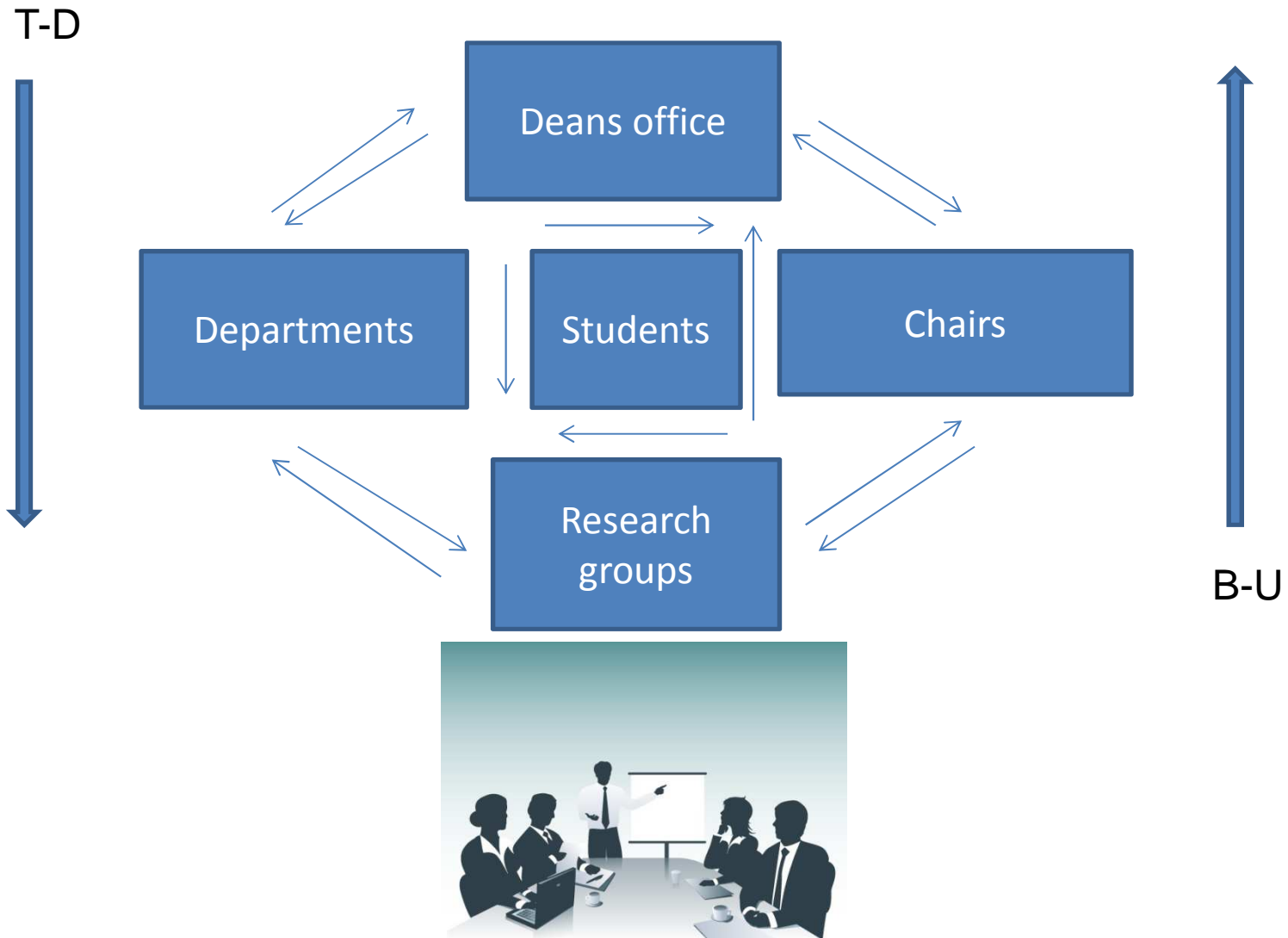




How to achieve ambitions?!

Assumptions?!

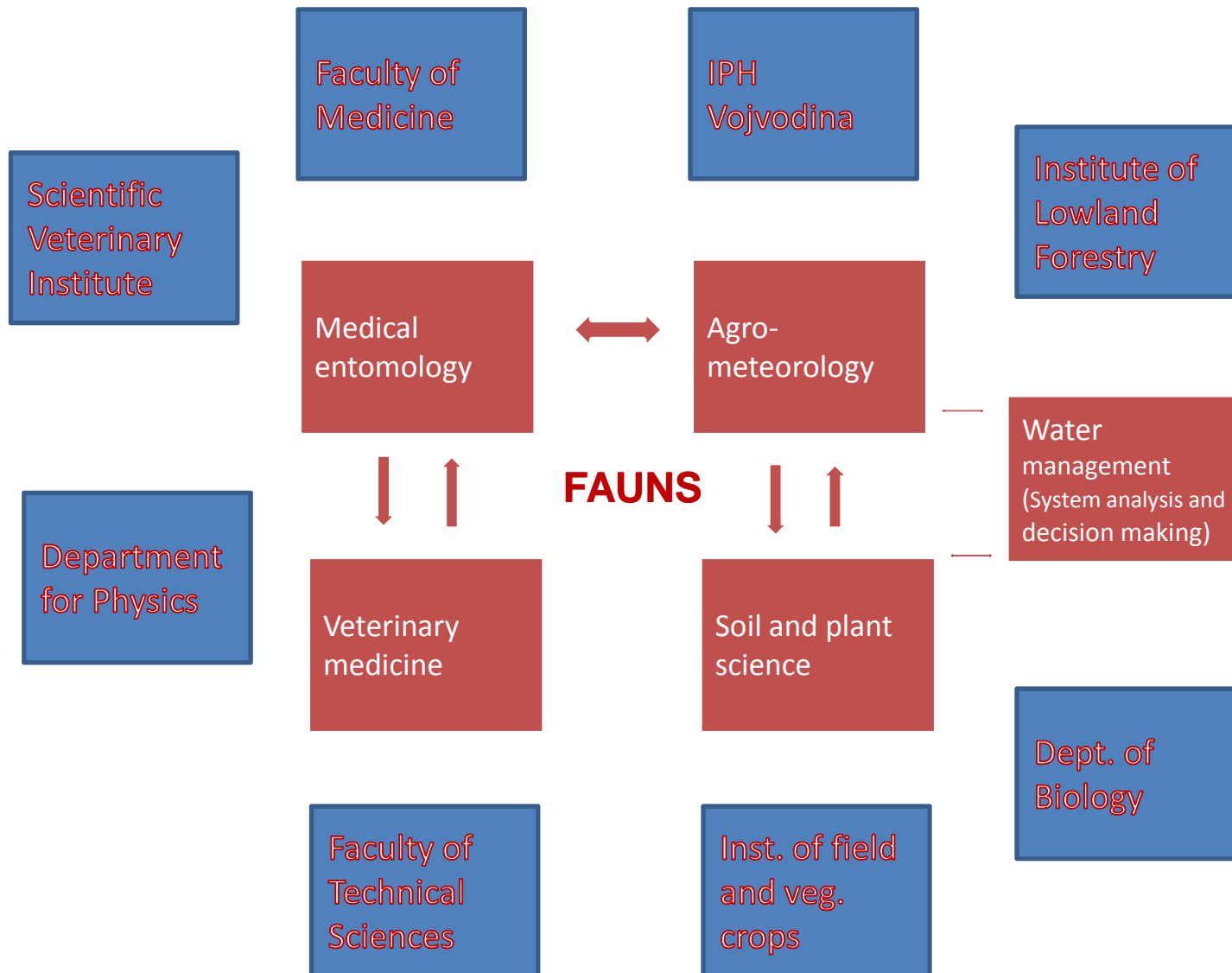
Improve communication -internal/external!!!  
internal





Improve communication  
internal

**Research Groups - FAUNS** ↔ **UNS and beyond...**

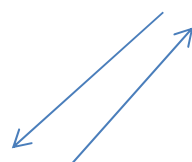




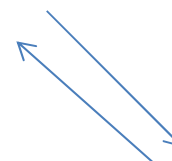
Improve communication!!!  
External



FAUNS  
Expertise center



Government  
Provincial sec. for agr.  
Ministry of agr.



Society  
Civic org. and individuals

Participation in the strategy!  
Define focus and priorities!  
Promotion of HFP!  
Specific problems-SOM, subsidies...

Public debate, conferences, WS, Journals...

FAUNS-bridge between industry and consumers  
by providing objective information, based on  
scientific research! (RRI)



## Commitments through

- Serbian Ministry of ESTD (40% of projects are financed through)
- Vojvodina Province Secretariat STD (15% of project are financed and co-finance through)

other strategic development initiatives...

- Serbian Ministry of Agriculture...
- Vojvodina Province Secretariat of Agriculture
- Local communities
- Regional partners
- EU partners...



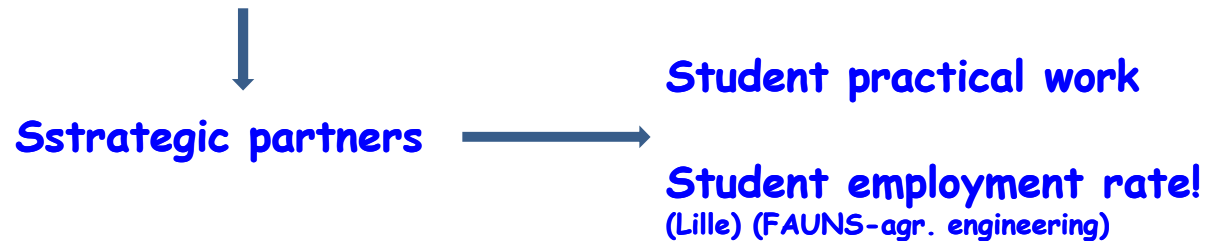
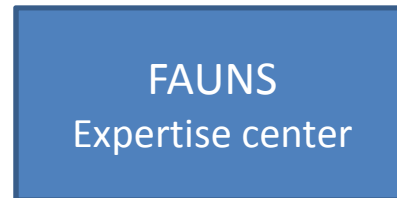


Improve communication!!!  
External

Professional partnership

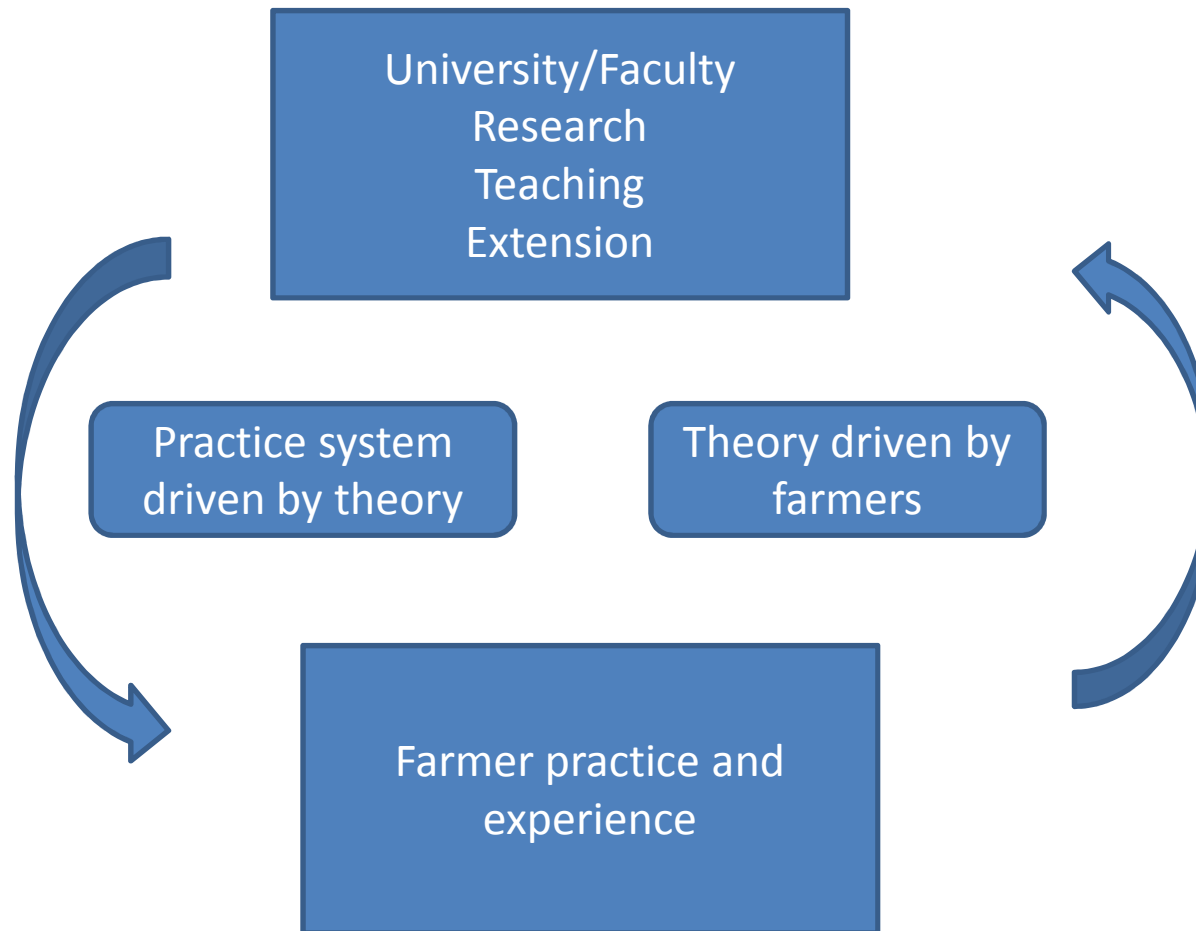
- Research-partners
- Education-partners

Research-education-internship-employment





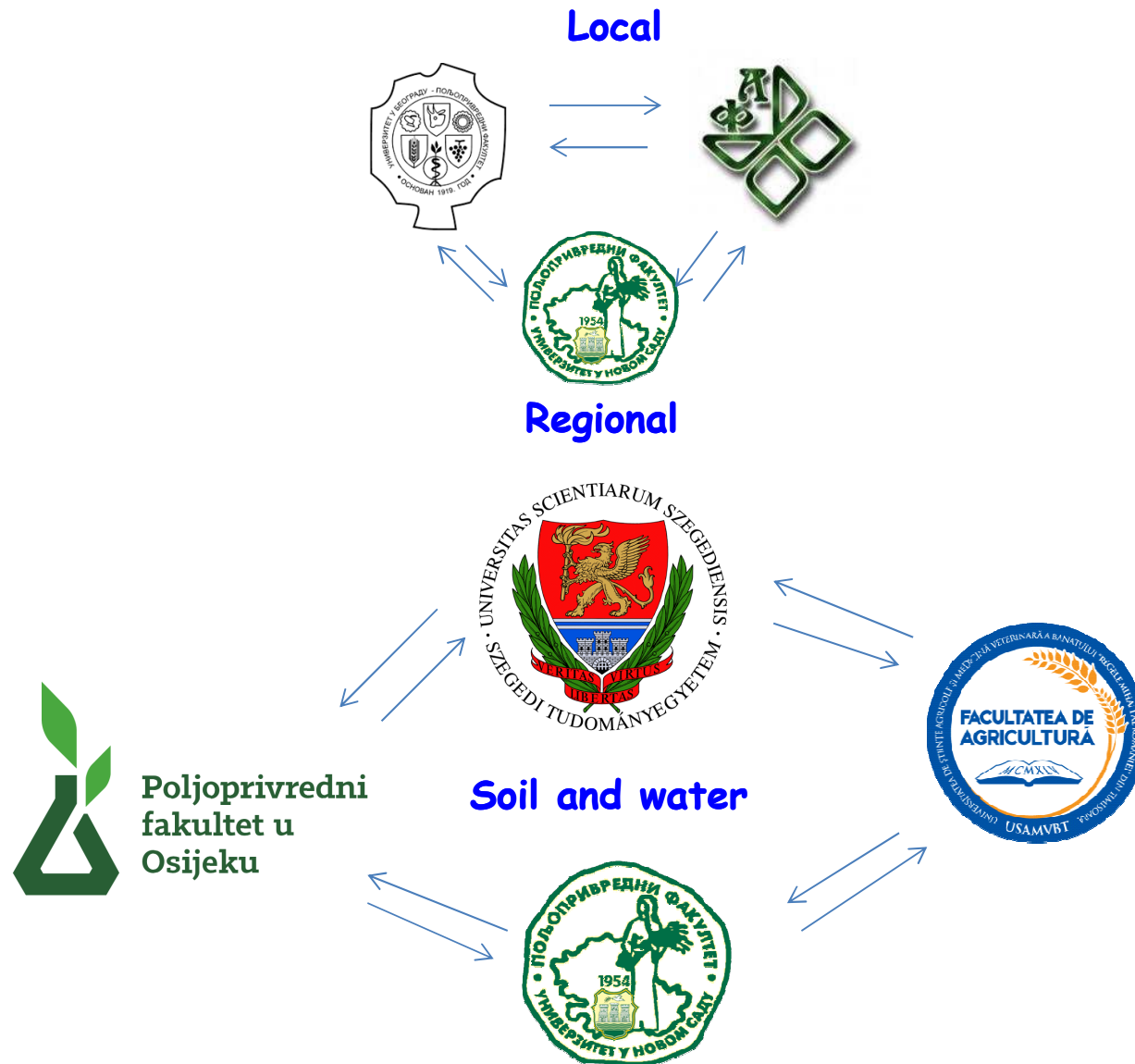
Active feedback cycle and knowledge loop  
Where science meets practice ASA





## Strategic Partners

Explicit choice of strategically important and prominent partners





## Europe

Networking in the field of teaching and research



2012  
ICA regional network for

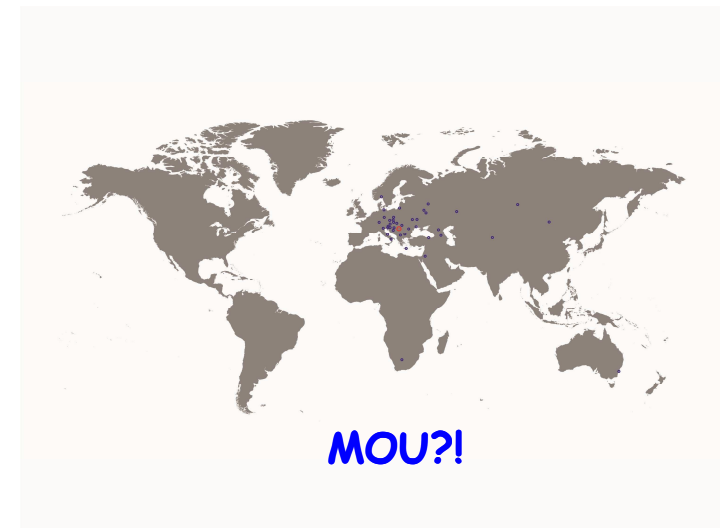


Silk Road Agricultural Education and Research  
Education Alliance



Increase active membership in the societies!!!

Global



MOU?!



# Research

The names of the departments reflect the most important research areas of the faculty

8 departments - focus on different areas of expertise

Diversity-an essential quality in agriculture - background knowledge

training

life experience

expertise to solving problems



- Department of field and vegetable crops
- Department of fruit growing, viticulture, horticulture and landscape architecture
- Department of plant and environment protection
- Department of animal husbandry
- Department of water management
- Department of agricultural engineering
- Department of agricultural economics
- Department of veterinary medicine





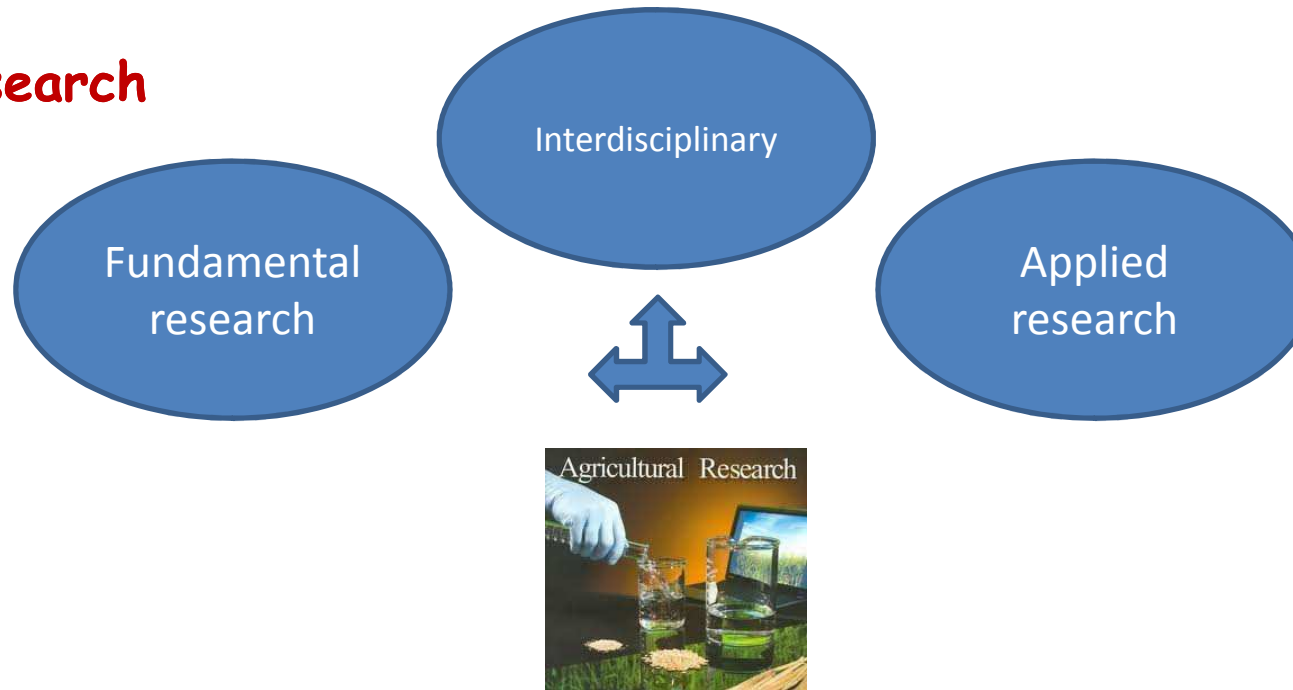
## Research

- The Faculty's research portfolio ranges from the pure to the applied and focuses on global issues including social organisation, environmental sustainability and energy generation.





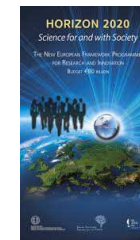
## Research



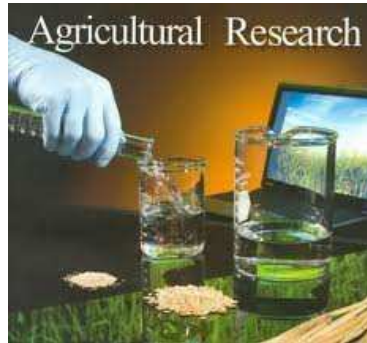
Agriculture and related sciences

Professional and market-driven research with added value

Teaching staff-should be recognizable!!!







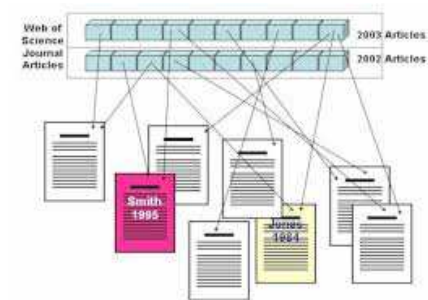
## Research intensification and priority issues

### Objectives

- To be recognised locally, nationally and internationally as a wide-ranging, multidisciplinary fac. that delivers inventive and outstanding research.
- Improvement the quality of research activity and outputs and to provide a stimulating env. and enabling infrastructure to allow staff to achieve their highest potential.
- To improve competitiveness as a regional and international research-driven faculty committed to achieve excellence in research activity.



# Research strategy - measures



- Continuously improve the quality of our research
- Establish database for targets and performance indicators:
  - number of n. and int. projects (budget)
  - published papers (rj)
  - citation index
  - knowledge transfer projects...
  - mobility's (young staff mobility's) People-the most important resource!!!
  - number of staff acting as editorial boards member
  - number of research prizes and awards
  - LLL research based activities organized (workshops, seminars ...)
  - number and type of presentations on international conferences,
  - membership in program/scientific committees, charring of the sessions, membership in international scientific organizations/committees/bodies
  - purchase and utilization capacity of capital equipment...



# Research

- Establish release of yearly report of achievements based on monitored performance indicators (presentation available on WEB)
- Promote research excellence and raise the international profile of our research.
- To attract, develop and keep outstanding staff and postgraduate students.

- Promote and support multi-disciplinary and cross-disciplinary research linkages:

- locally within Faculty
- Within University and
- with external partners in region,
- Europe and world-wide,
- linking to international centres of excellence.



- PhD and postdoc. policy?!
- Increase standards of research leadership and management.
- Provide training and career development for all our research staff and postgraduate students,
- Build up and carry on our research activities within an environment that promotes ethical behaviour and best practice.
- Providing the network of research plots - experiments outdoors



# Research

## communication

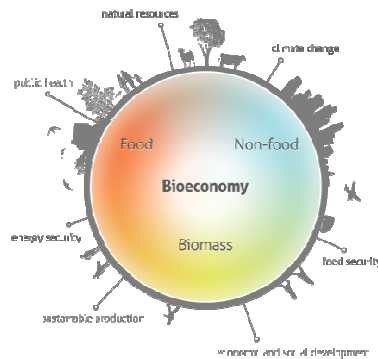
- Strengthen the existing and establish new connection to business sector promoting our knowledge transfer and commercialisation activities.
- Engage with stakeholders (SME) to maximise the educational and social benefits generated from our research.
- Implement policies to promote and develop science awareness activities within society, entrepreneurship incubation and spin off.





# Research

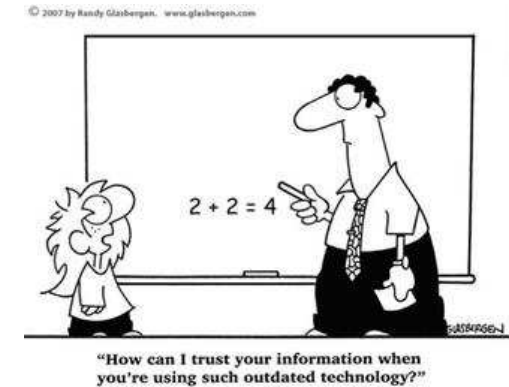
- Bio economy
  - Renewable energy
  - Waste management
  - IT in agriculture...
- 
- Projects/New courses
  - Degree programs fit for the purpose?!





# Education

- Coherence between education and research-inseparable entity!
- MSc/PhD-Case study-Research based education! (difference UP/SSP?)
- LLL
- English taught courses - PhD?!
- Internationalization!!!
- Alumni

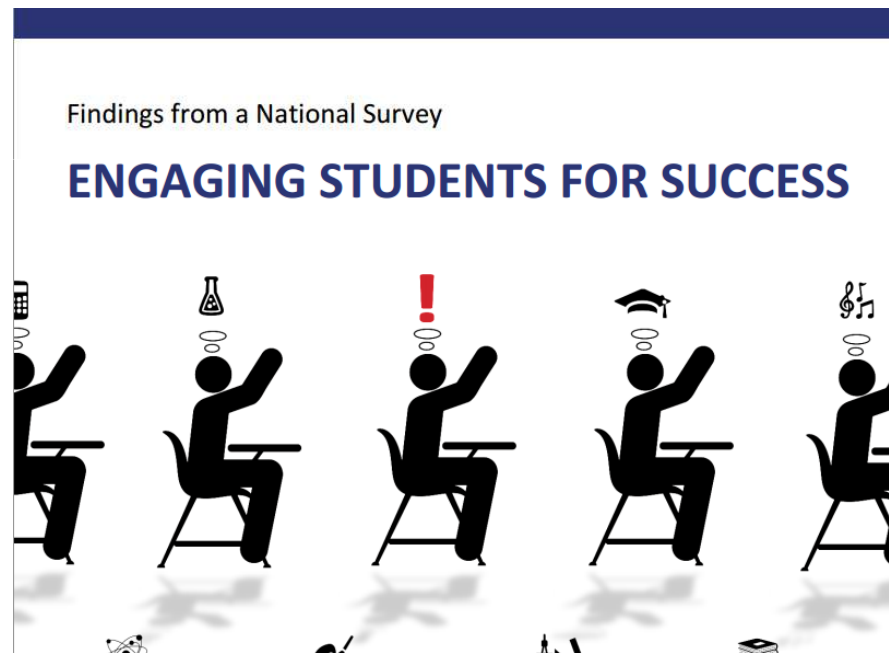


- **Permanent evaluation of educational concept!**
- **Small scale approach** in teaching is based on following assumptions:
  - Each student is an active participants in education process
  - Feed back is essential component of learning
  - Diversity in background, knowledge and ambitions of students
  - Education in flexible fashion
  - Lectures learn from each other as members of learning communities



## Assumptions caused shifts in education

- Shift motivation to from: "How do I pass these course?" to "How do I get the most out from this course"
- Shift approach from: force to learn to enable to learn





## Vision in education

### Student professional and personal development



International students  
Study tours in Europe



Professional exposure and business network  
Internship/practice in companies



Project based learning  
Field trips  
Labs...





Priority issue-teaching methods

ICA Edu Colloquium, Vienna, April, 2015

## Education

New ideas for developing innovative approaches in teaching, and students' learning opportunities - techniques and methods specifically used in the life sciences.

WP1 - Challenges of the intercultural classroom

WP2 - Tools for enhancing learning experience

WP3 - Bridging Education and Practice

WP4 - Innovation in curriculum development





## Quality of the students?! Engagement?! Students feedback!!!

- Discuss with an inclusive group of lectures and students
- Basic teaching qualification - encourage to learn from each other
- Promote educational innovation (TEMPUS -CASA-dissimination?)
- Quality of education- evaluation by students  
Accreditation every 5 years!
- Challenge students to develop talents Summer school...competitions...





Growth of enrollment affect the social environment of on campus students!  
Face-face-to-face interaction



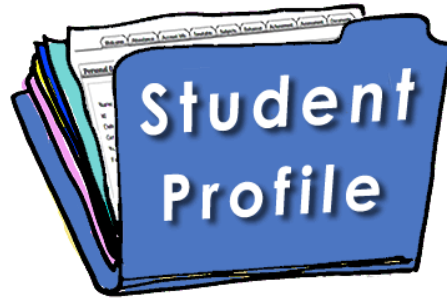
**Student activities:** participation in social, cultural, sport...activities!!!

- IAAS-International Association of Students of Agriculture and Related Science?! (int. exchange, practice, projects)
- Agronomiada - nat./int. convention of students of agriculture
- Excursions (local and abroad) to be part of curricula!  
int. experience!!!





## Student profile-tomorrows engineer



- To be aware of responsibilities towards future generations, with a complete understanding of what sustainability is.
- To be an expert in sector, but also able to use other skills in order to meet tomorrow's technological challenges.
- To be a manager who has identified system of values and be able to bring a significant contribution to improving everyone's life in their company.



## Priority issues of new BSc. and MSc. courses

Socio economic environment supported comprehensive approach and development of courses designed to provide students with the knowledge in:

- environmentally friendly production and healthier foodstuffs technologies,
- biodiversity,
- integrated biological control and conservation of genetic resources,
- biotechnology in agriculture and food processing,
- rural development,
- impact of agricultural practice on human health (feed, pesticides, fertilizers, GMO-s),
- modelling in agriculture and economy,
- agriculture and tourism,
- landscape architecture



**Accreditation-2018?!**





**Tempus: Lolaqua and IPM**

**Accreditation-2018?!**

**BSc and MSc (K2) - IT in Agriculture**

**MSc in postharvest technology**



## Internationalization - Strategy

- Int. Coop. - Strengthens all people, Steven Evett
- Encourage students to participate in internship and education abroad!!
- **Internationalization of our teaching staff**  
Teaching mobility programs (IN & OUT<sub>(K1/CEEPUS)</sub>)
- Younger teaching staff - specialization abroad (more than 6 months)!!!
- Expanding relationship with int. partners and looking for new one to promote and facilitate int. mobility





# Internationalization - Strategy



- Recruitment of international students
- Internationalization of programs and trainings
  - (Kaz., Russia, Former rep. SU, SA)
  - Courses offered in English (PhD?!)
  - International exposure compulsory for teach. s. and students
  - Intercultural communication classes
  - Foreign languages?
- Internationalization of research activities and networks
- IRO





## INFRASTRUCTURE AND ENVIRONMENT

### Objective

- To provide a supportive environment to meet the Faculty's needs.

### Measures

- Continually improve environment and provide a pleasant, safe, healthy, and fit-for-purpose environment for all staff and students.
- Create and improve IT environment
- Increase library capacity of the book, periodicals... digitisation.
- Increase standards of health and safety





## Implementation and progress Key Performance Indicators



KPI1-To ensure the efficiency of the organization and management of the faculty  
(permanent)

KPI2-Financial commission in strategic investments (Interreg project-energetic efficiency)

KPI3-Accreditaion of the teaching process (2018)

KPI4-Increasing number of students-permanent and strategic promotion

KPI5-To develop scientific excellence, innovation in research and coll. with bus. sec.

KPI6-Develop collaboration with strategic partners

KPI7-Internationalisation - Fund for internationalization incentives!

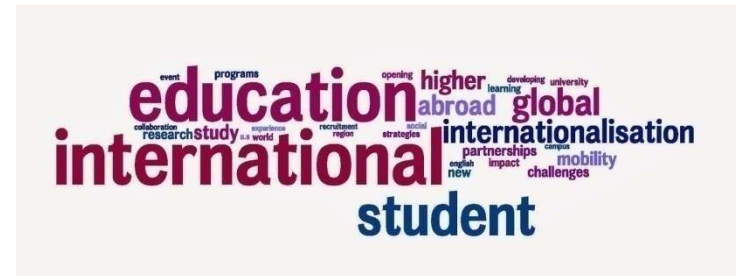
KP8-RRI



**Communication!!!**



**Internationalization!!!**



## **FAUNS-Key values**

- Appreciation of academic tradition
- Education based on research and innovation as the greatest value provided for society
- Regulations and procedure of highest ethnical standards
- Quality improvement in all areas
- Freedom
- Tolerance
- Flexibility and adaptability
- An open and cooperative organization



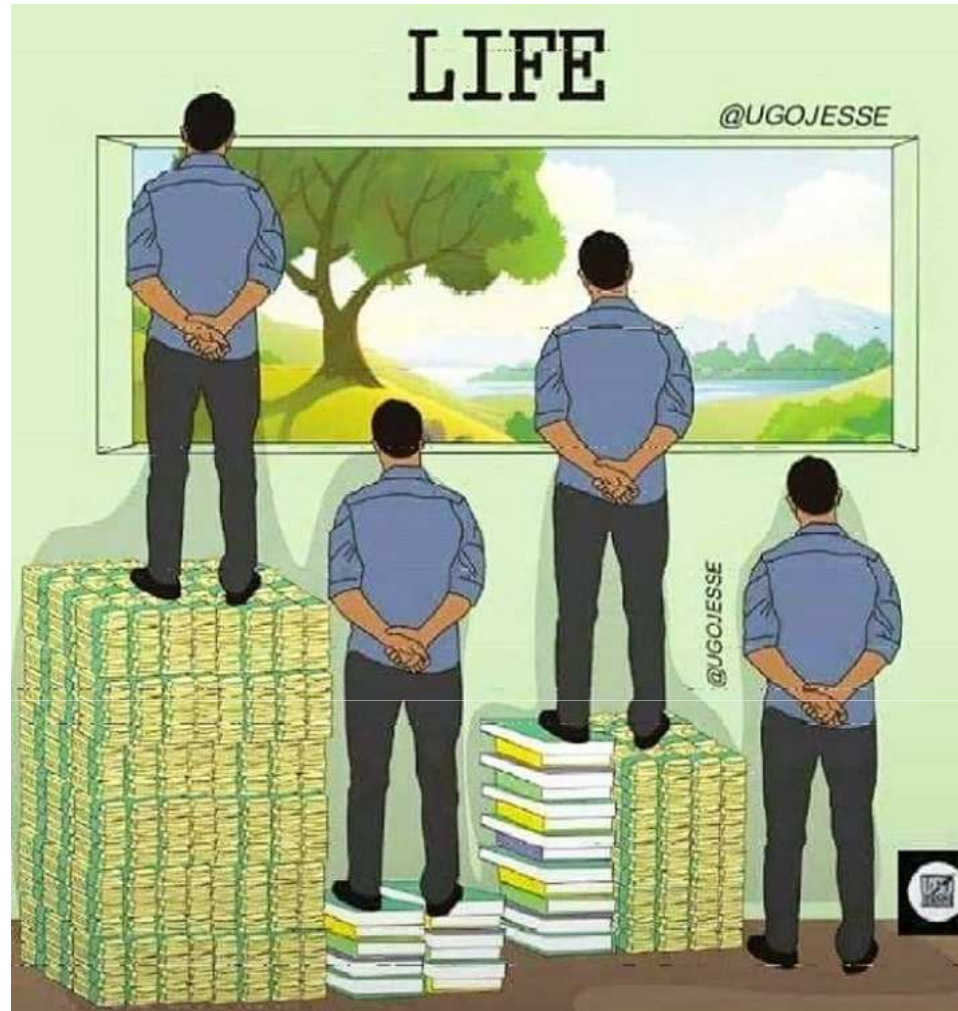
## Implementation of the plan

- Identify a number of priority areas that will receive additional attention that year
- Annually
- Monitor environment shift coarse to new development



Achievements from the past as the vision they inspire in us for the future





21<sup>st</sup> Century HEI around the world have been struggling under two different types of pressure:

- financial, as the provision of public funds has been decreasing
- political, economic and social demands on HE, which have been increasing

**HEI are taking on more responsibility for their own future planning and they need to further strengthen their capacity for strategic performance**