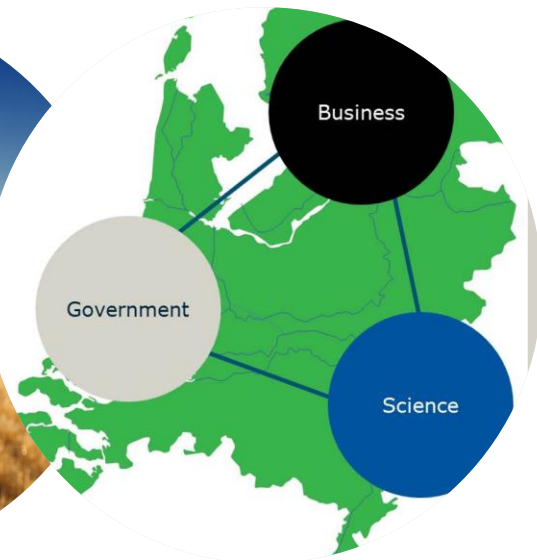


Value creation and the role of universities: *potential for global food security and safety*

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Role of universities

- Traditional role: teaching students in a discipline and how to think in an academic way, critically and independently
- Doing scientific research is an essential part in which students participate and contribute
- Extension and outreach of scientific knowledge has been actively done the past 200 years, in particular by agricultural universities
- So, three core tasks have developed over the years

Did something change?

- Society has changed in its attitude towards universities
 - Strong increase in student numbers
 - Reduced budgets, less government involvement
 - Funding from outside the universities
 - Globalisation of knowledge, open access, open educational resources
 - Strong urge from society that science and universities work for the benefit of society
- The response of universities is value creation (or valorisation)

3 core tasks

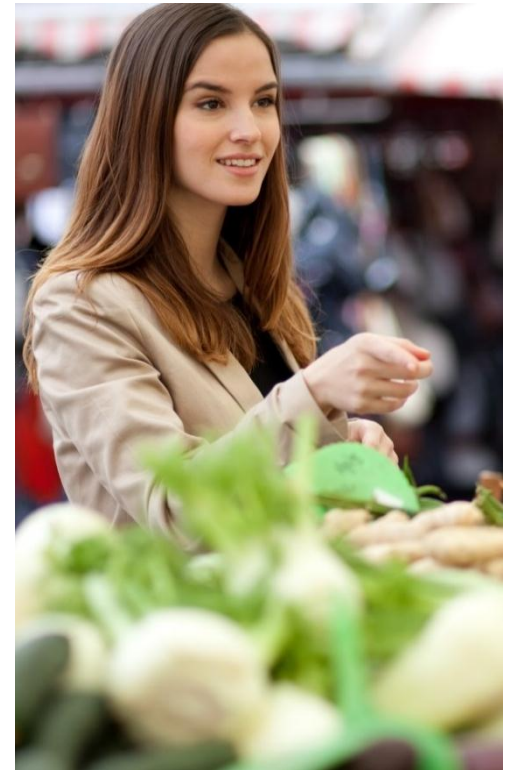
Research



Education



Value Creation



Value creation/valorisation

- So, what is value creation?
- A term from business economics:
 - selling products and services to customers, while creating value for shareholders.
 - strictly financially speaking: value is created when a business earns a return on capital that exceeds expenses.
- Is this valid for universities as well?
- Value creation needs to be interpreted more broadly for universities, it is not only about making money

Beyond monetary values alone..

- **Social values:** Health, education, social cohesion, recreation.
- **Economic values.** New business models (food production, recreation, heating, etc.). New companies, new entrepreneurs, new jobs.
- **Environmental values.** Energy saving in buildings, energy saving in transportation. CO2 fixation by crops, new materials from waste biomass...
- **Other considerations:** urban planning, metropolitan solutions,

Forms of value creation by universities

- By **educating and training** students, thereby supplying industry and society-at-large with new experts
- By offering industry and non-profit organisations **access to knowledge** infrastructure (facilities, tools, expertise)
- By **transferring knowledge/technologies** to both (long-standing or new) companies and non-profit organisations, where new applications can be realised for the benefit of society
- By stimulating **co-creation** together with stakeholders

Education and training

- BSc, MSc, PhD
- Post graduate
- Corporate programmes
- Capacity Building
- Education for professionals
- Life long learning



Access to knowledge infrastructure

- Facility sharing
- Joint research projects
- Contract research (public/private)
- Tools-spin off (app/web)
- Open access knowledge
- Outreach knowledge sharing



Transferring knowledge and technologies

- IP-sales & licensing
- Spin off & startup companies
- Centre of Entrepreneurship
- Contract research
- Lab-contracting
- PreSeed investment funds



Stimulating co-creation

- Campus ecosystem
- Co-hosting companies
- Joint events



University

- Students / scientists
- Education
- International
- Known worldwide
- Fundamental research
- High quality / high rankings

Research institutes

- Research employees
- Translation research from fundamental to applied
- Shared research facilities
- Pre-competitive & confidential projects

Campus ecosystem

Startups

- StartLife
- Support & coaching starters
- Incubator
- Interaction & learning
- (Seed) capital

(Inter)national companies

- R&D departments
- Researchers
- Own & shared facilities
- Looking for interaction *and* confidential surrounding



Related to Agro, Food, Nutrition, Biobased and Healthy Living Environment

About co-creation

- It may be internationally very different in how far universities and companies can work together
- A discussion about Technology Readiness Levels (TRL) may be helpful: it is a discussion about maturity of technology

Technology Readiness Levels (TRL)

- TRL 1: basic principles observed
- TRL 2: technology concept formulated
- TRL 3: experimental proof of concept
- TRL 4: technology validated in lab
- TRL 5: technology validated in relevant environment
- TRL 6: technology demonstrated in relevant environment
- TRL 7: system prototype demonstration in operational environment
- TRL 8: system complete and qualified
- TRL 9: actual system proven in operational environment
- *Source: Annex for Work Programme Horizon 2020*

About co-creation

- It may be internationally very different in how far universities and companies can work together
- A discussion about Technology Readiness Levels (TRL) may be helpful: it is a discussion about maturity of technology
- Universities usually go up to TRL 2-3, companies become only interested when a level of TRL 5-6 is reached
- A discussion about ownership is essential for a discussion about the next phase. TRLs can help to find a common language

So, what is new about value creation?

- Value creation has been there at universities already for quite some time, but perhaps a bit hidden
- It is now made more explicit and the biggest change is the emphasis on developing entrepreneurship
- As an example, Wageningen University offers now:
 - A minor on entrepreneurship in BSc programmes
 - An entrepreneurship track in MSc programmes
 - Starthub and StartLife to help developing student ideas
 - Student challenges
 - **green student challenge** in 2018 during the centennial of Wageningen University & Research

Green Student Challenge in 2018: Design the Ultimate Urban Greenhouse!

An urban greenhouse design which:

- Brings professional food production in a circular city.
- Encourages citizens to engage with sustainable production and consume healthy food.
- International event in August 2018, open to anyone!



So, what about food security and safety?

- Obviously, training and educating students in the field of food security and safety is value creation
- Likewise for research programmes
- However, stimulating entrepreneurship as a means to improve food security and food safety may be new
 - Entrepreneurship as an asset, not commercial goal
 - Start-up companies to use sidestreams (reduce food waste), introduce circular economy
 - Start-up companies to reduce losses (preservation, packaging, shelf life extension,...), saving water and energy, new resources for food and feed (insects, leaves, grass, ...)
 - Use of big data, ICT

Conclusion

- Society pushes universities in a different role
- Value creation is demanded
- Action of universities needed to educate students **and** staff in an entrepreneurial way
- Teaching and learning to apply acquired knowledge to create societal and economical value
- Food security and food safety can be greatly improved by developing entrepreneurial capacity at universities!



Director Value
Creation of WUR,
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Thank you for
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