



International Forum

*Unleashing Science, Technology and Innovation for Food and Nutrition Security
With special focus on Africa, Caribbean and the Pacific*

Developing a road map

15-17 October 2014

NH Rijnhotel Arnhem, The Netherlands

Forum International

*«Libérer la Science, la Technologie et l'innovation pour promouvoir la sécurité alimentaire et
nutritionnelle*

Avec, comme axe prioritaire, l'Afrique, Les Caraïbes et le Pacifique »

Élaborer une feuille de route

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TheScinnoventCentre
SCIENCE, INNOVATION AND ENTERPRISE

**ENHANCING COMMERCIALIZATION OF RESEARCH
FROM UNIVERSITIES/PUBLIC RESEARCH INSTITUTES**

Maurice Bolo

PRESENTATION OUTLINE

- Background to the project: Towards a framework..
- Situating the project in the STI policy paradigms
- Role of Universities/PRIs in national development
- Some evidence on the performance of universities/PRIs in Kenya
- Some suggested changes/observations so far....

TECHNOLOGY POLICY PARADIGMS: SOME KEY ASSUMPTIONS

Market failure paradigm	Mission paradigm	Cooperative technology paradigm
1. Markets are the most efficient allocator of information and technology	1. government role closely tied to authorized programmatic missions of agencies e.g. defence, health etc	1. Markets are not always the most efficient route to innovation and economic growth
2. Government role limited to market failures; universities provide basic research to cater for private sector under-supply	2. Govt R&D limited to supporting missions of agencies	2. Global economy requires more targeted support to civilian technology development
3. Innovation flows from and to private sector with minimal university/govt role	3. Govt should not compete but complement private sector in innovation and technology	3. Universities and PRIs can play a role in technology development for use by the private sector

THE COOPERATIVE TECHNOLOGY PARADIGM AND THE UNIVERSITIES' THIRD MISSION

- The cooperative technology paradigm is therefore an umbrella term for a **set of values** that emphasize cooperation amongst sectors – industry, government, universities/PRIs in the creation of technologies
- The logic: universities and PRIs **make**, industry **takes** (but...various forms of collaboration/co-production of knowledge exist)
- Central point is: Putting universities/PRIs to greater use as **progenitors of technology and innovations**
- Depends on the suitability of the universities/PRIs to the task...

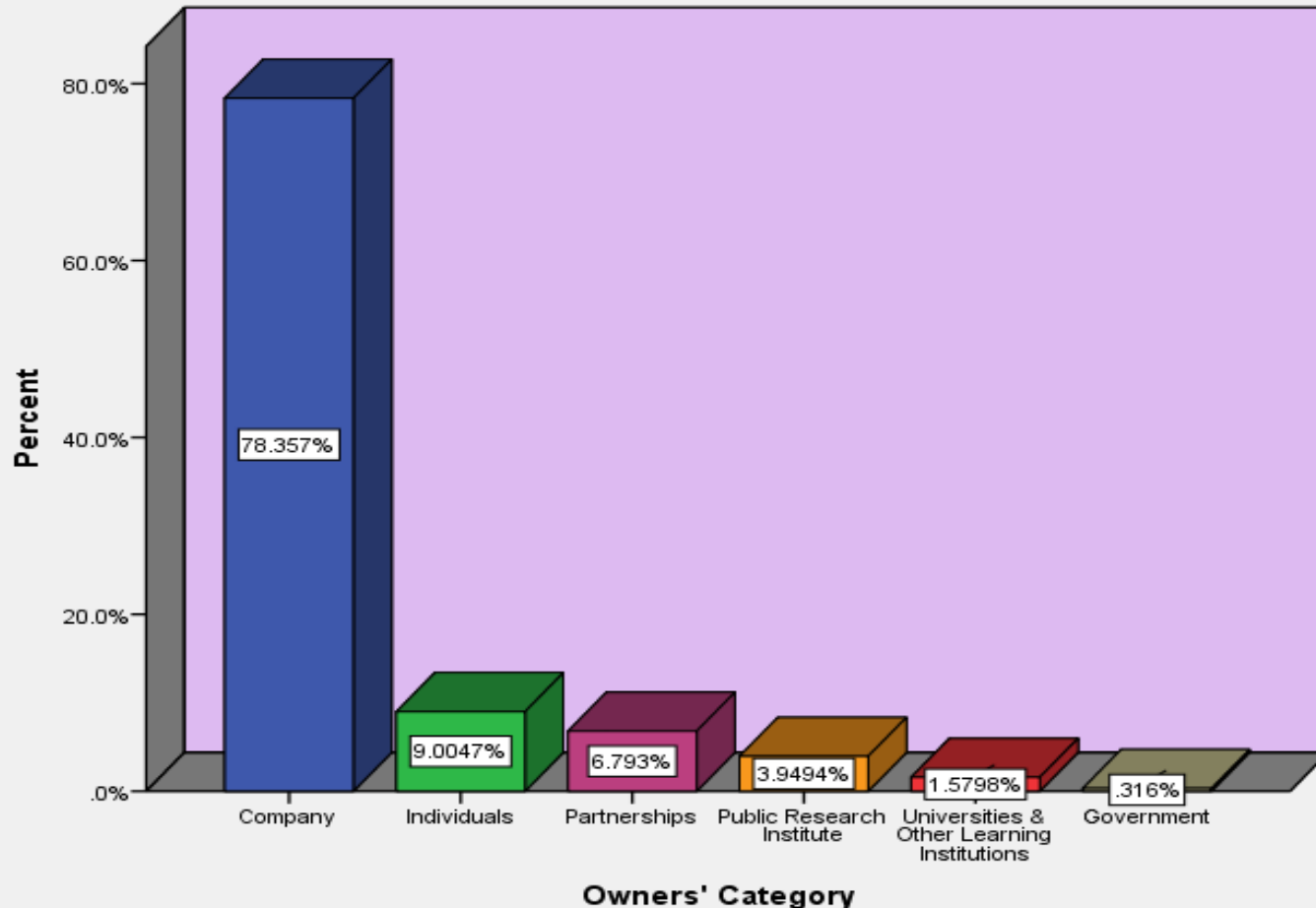
ROLE OF UNIVERSITIES/PRIs IN THE KNOWLEDGE ECONOMY

- Productivity and competition is increasingly determined by the knowledge and information as well as technologies

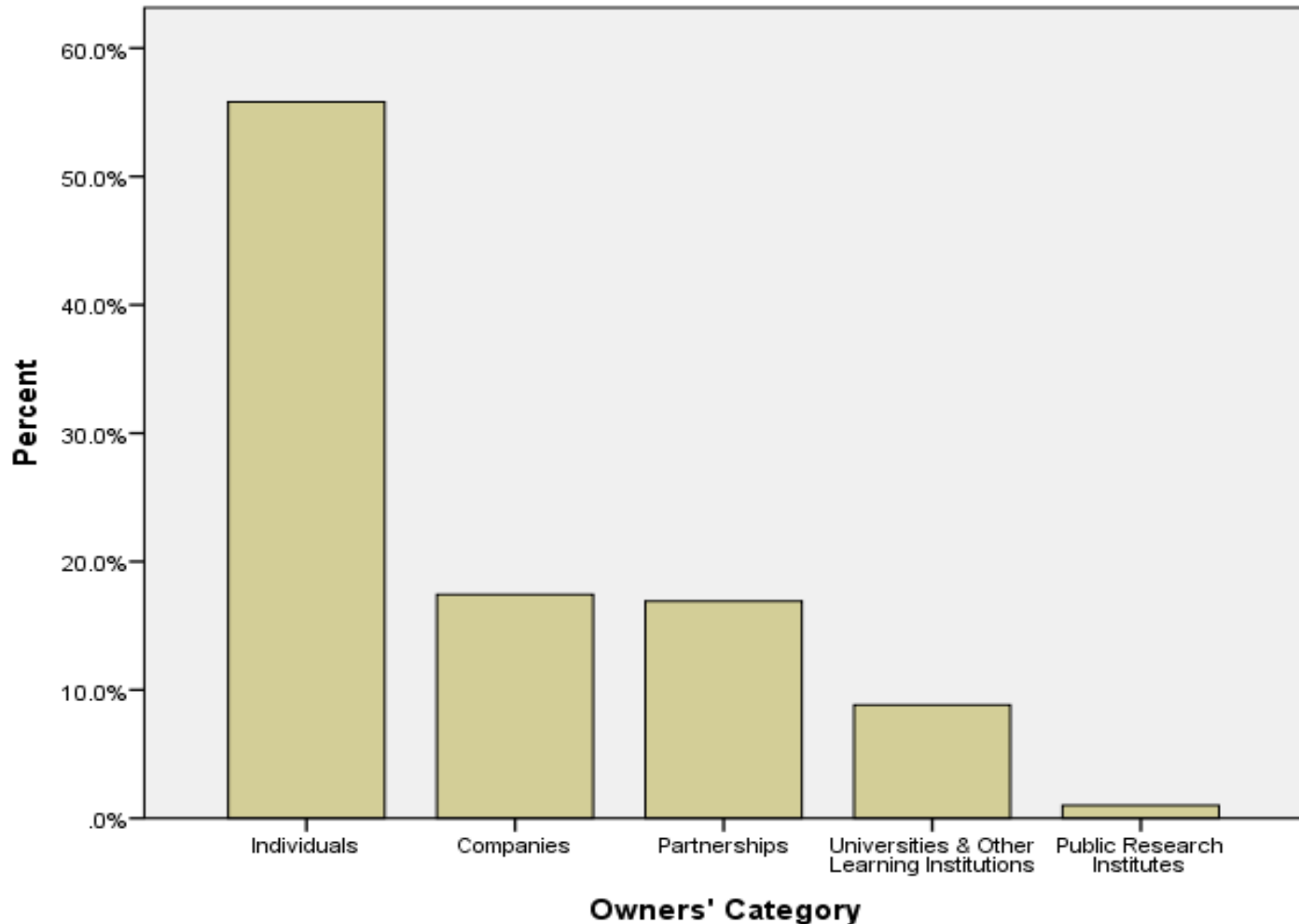
- This should enhance the role universities/PRIs as sources of new technologies/fertile grounds for harvesting new inventions and discovery

- **But is that the case?**

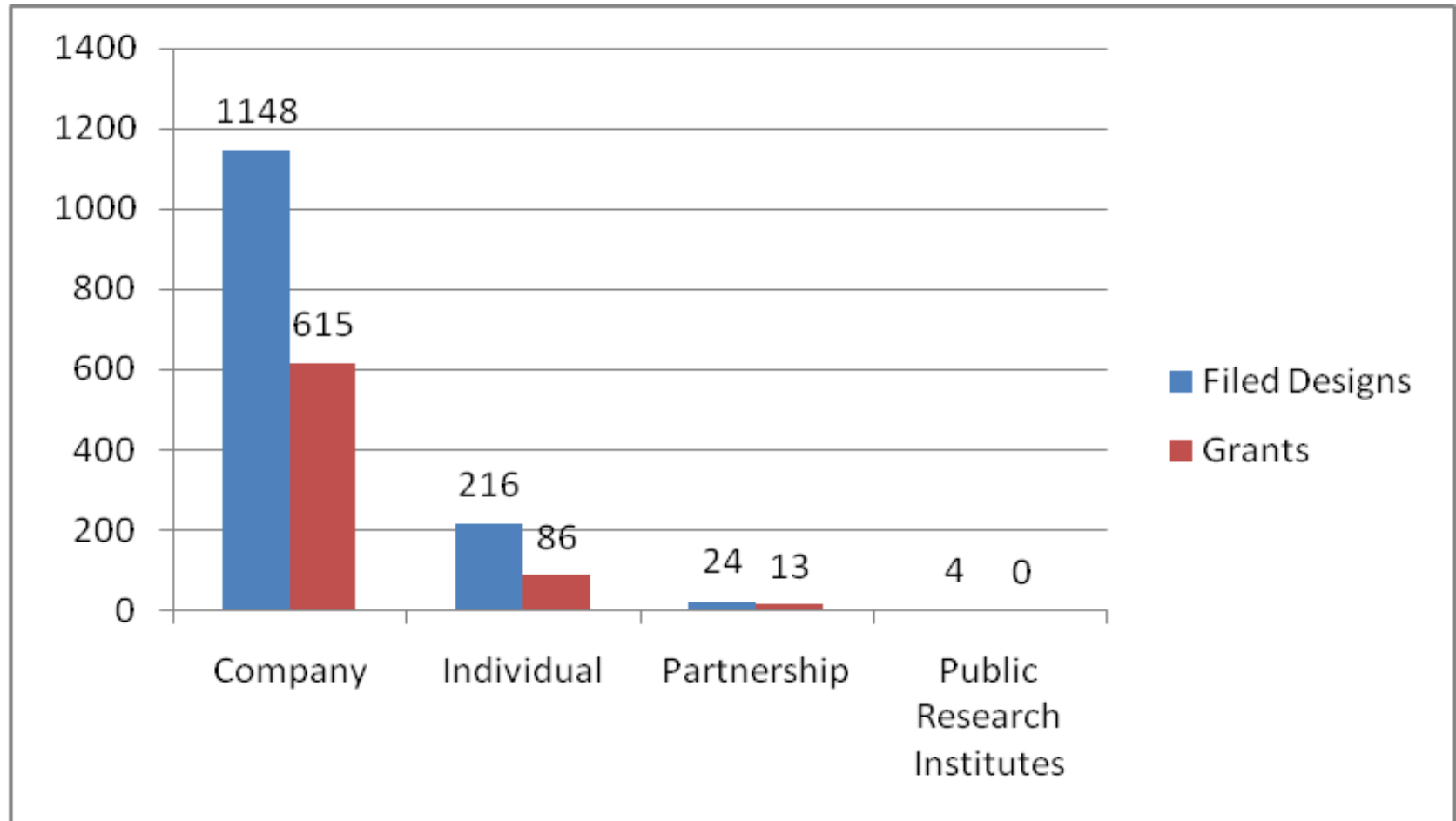
Patents granted by type of inventors (1990 – 2013)



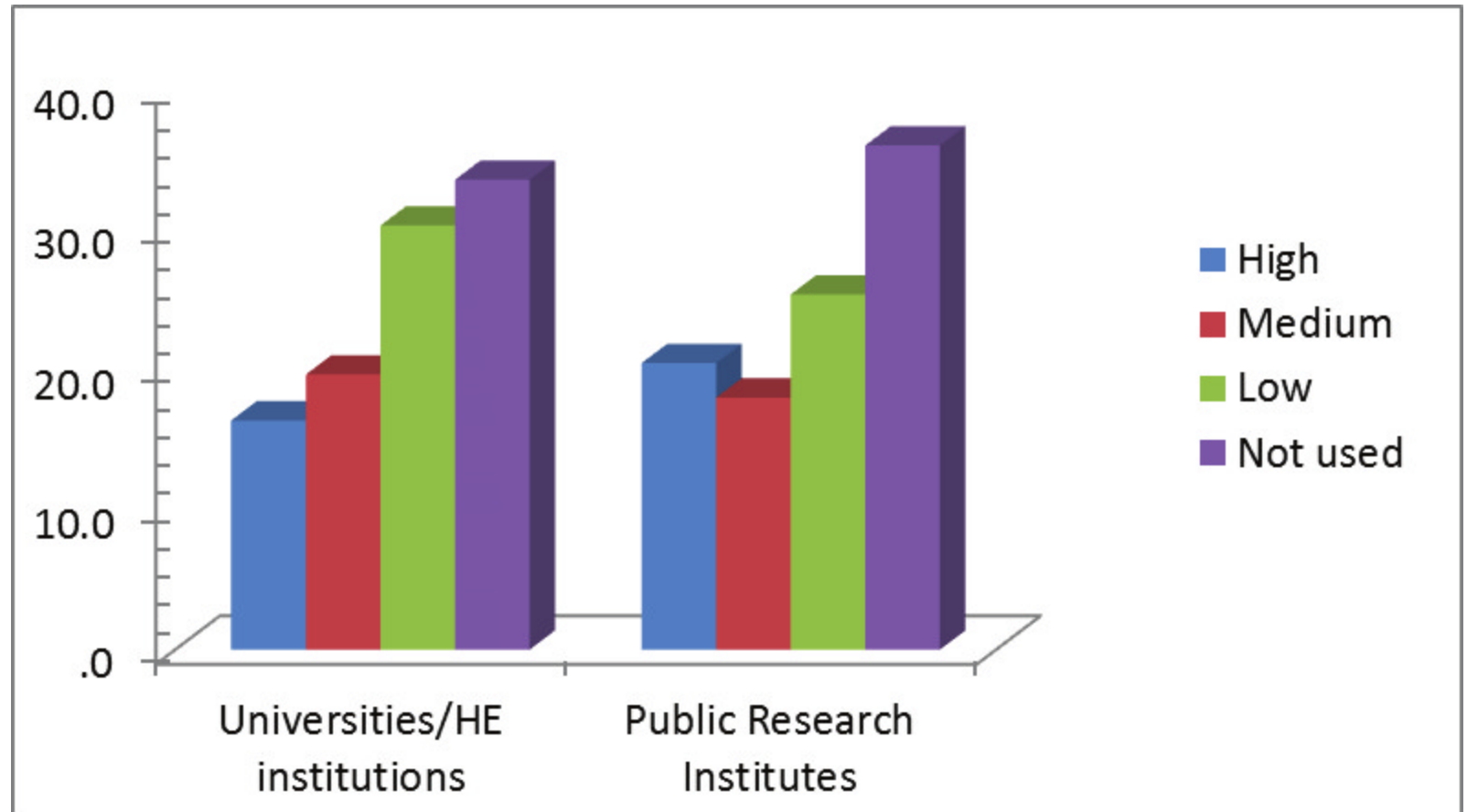
Utility Models granted in Kenya (1990 – 2013)



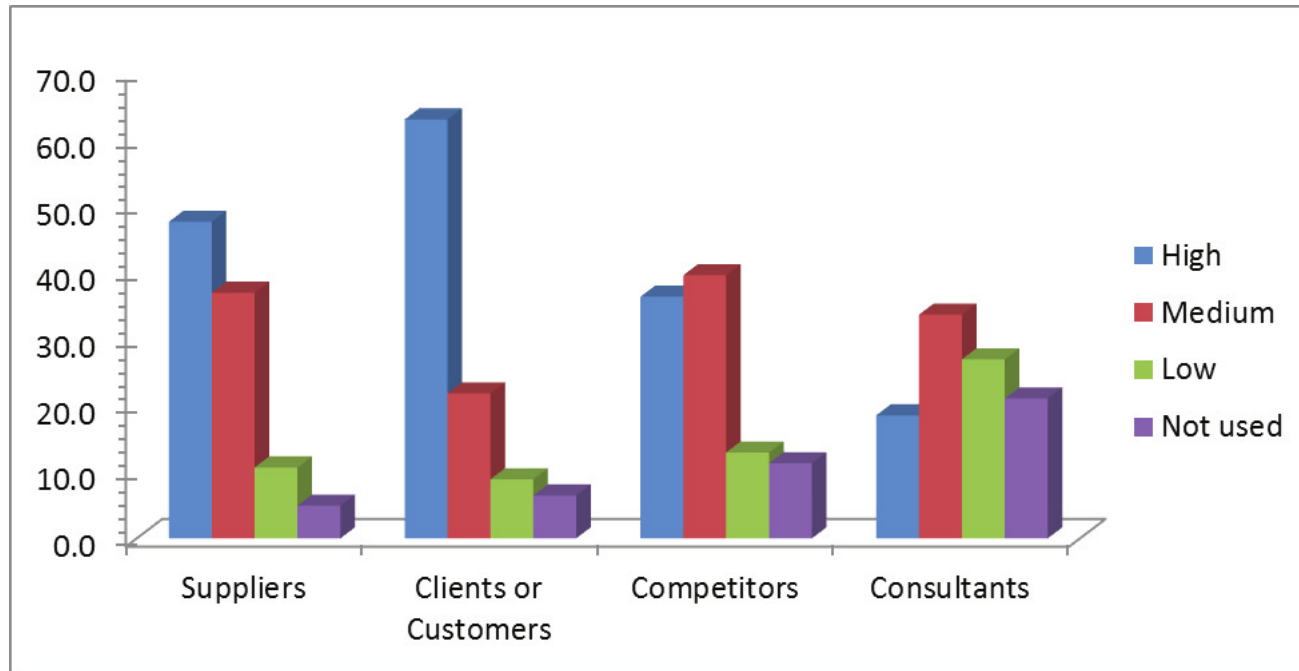
Industrial designs in Kenya (1990 – 2013)



Percentage of firms using universities and PRIs as sources of innovation



Market-based sources of information for innovation for firms



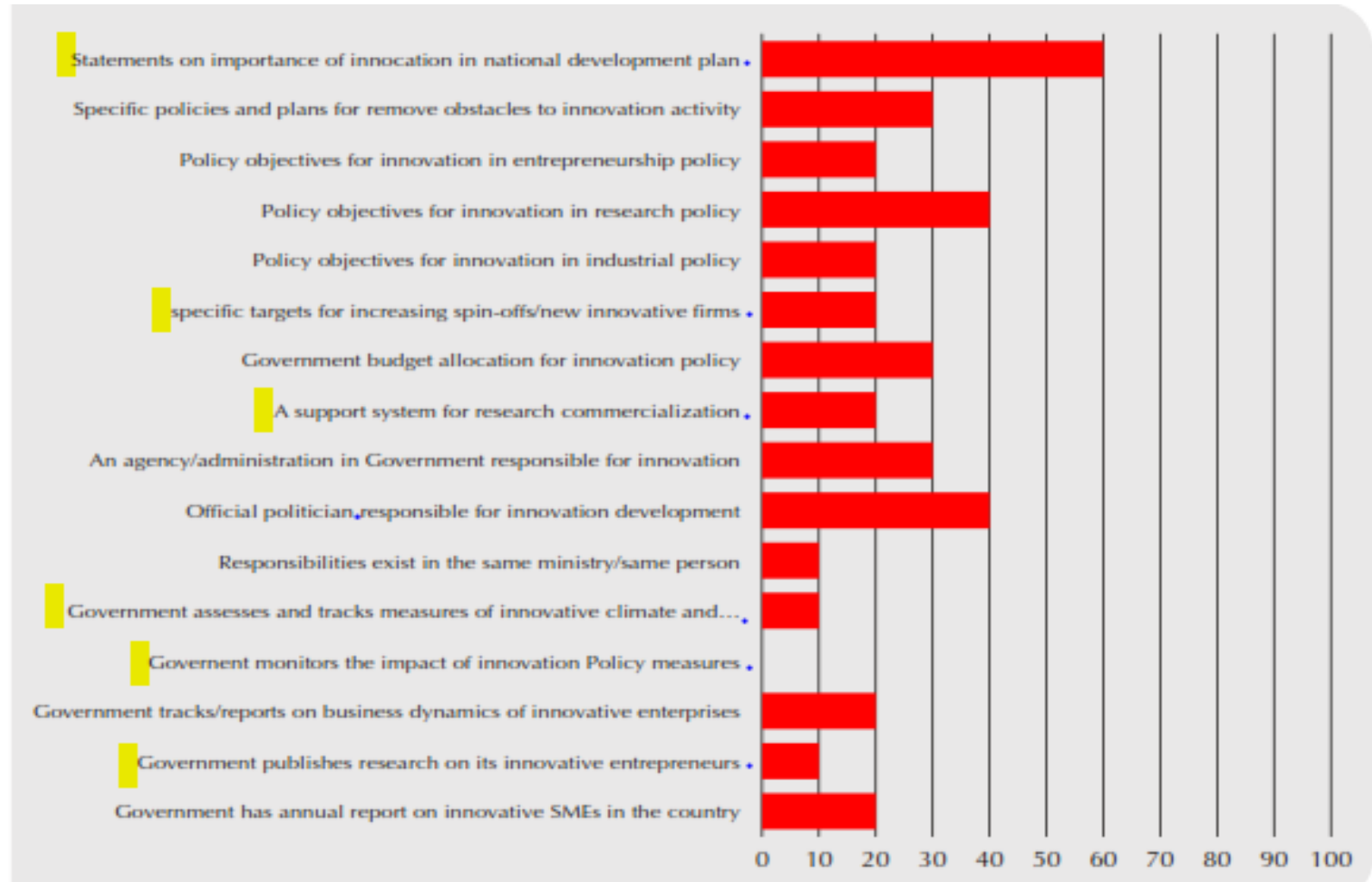
WHAT DOES THIS MEAN?

Evidence doesn't support the assumptions of the cooperative technology paradigm (universities/PRIs **make**, industry **takes**); in fact industry makes much more...

- Does this call for a re-think of the policy paradigm? and if so, what might that look like?
- What kind of incentives do universities/PRIs need to fit into this policy paradigm? OR
- What kind of incentives/support do private sector need to play this role even better?

REPOSITIONING UNIVERSITIES/PRIs :

THE INNOVATION POLICY ENVIRONMENT



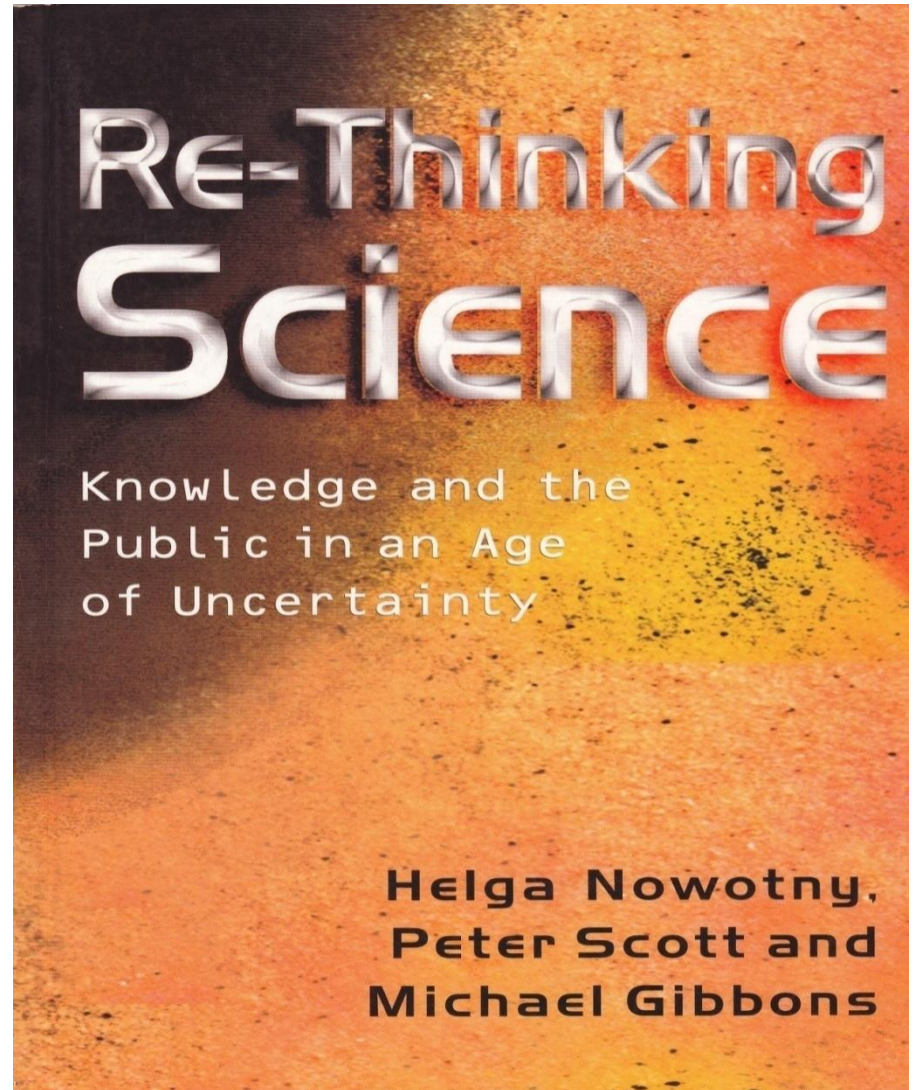
REPOSITIONING UNIVERSITIES/PRIs

Changes in approaches

From 'model 1' science
.....to 'model 2' science

Convergence –

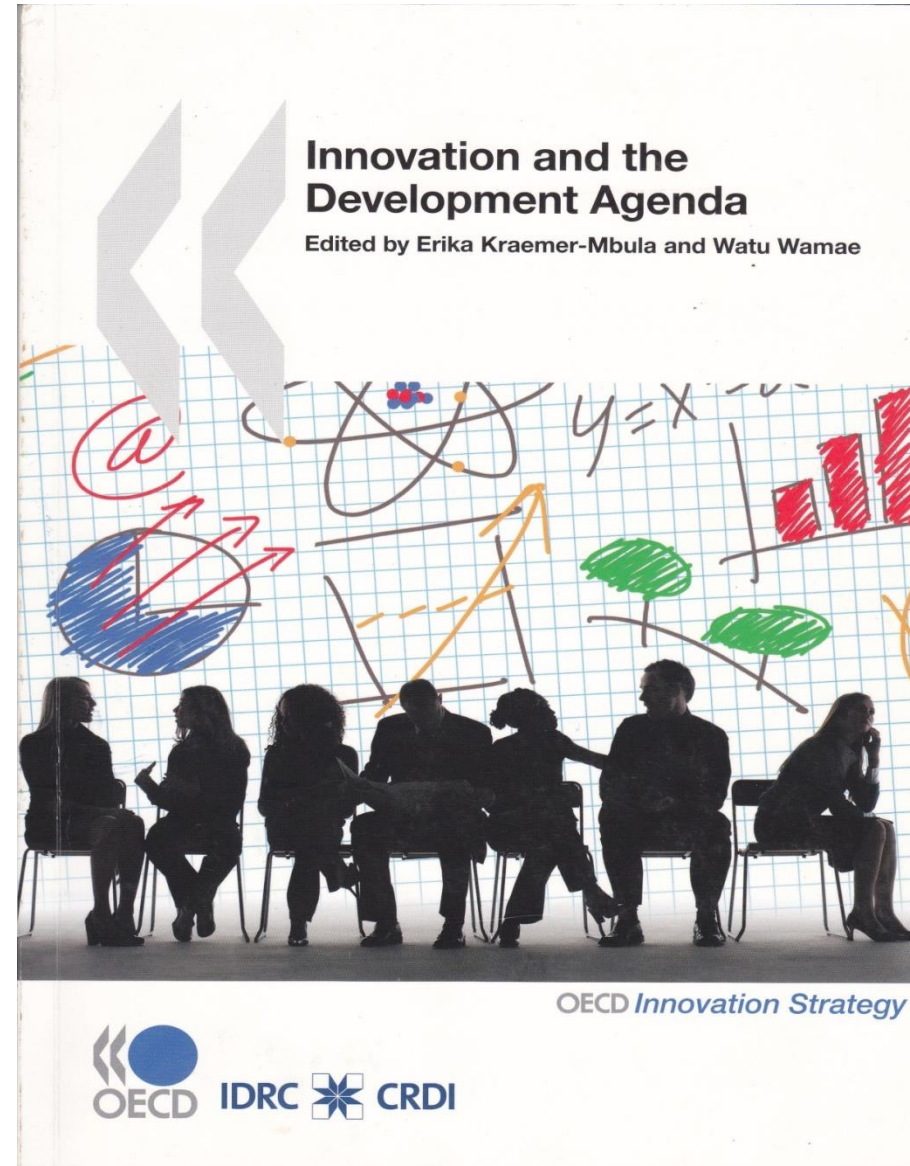
Across disciplines
Indigenous and modern
science



REPOSITIONING UNIVERSITIES/PRIs

Methodological Change

- Participation
- Contribution
- Benefit sharing
- Role sharing
- Capacity to access and use

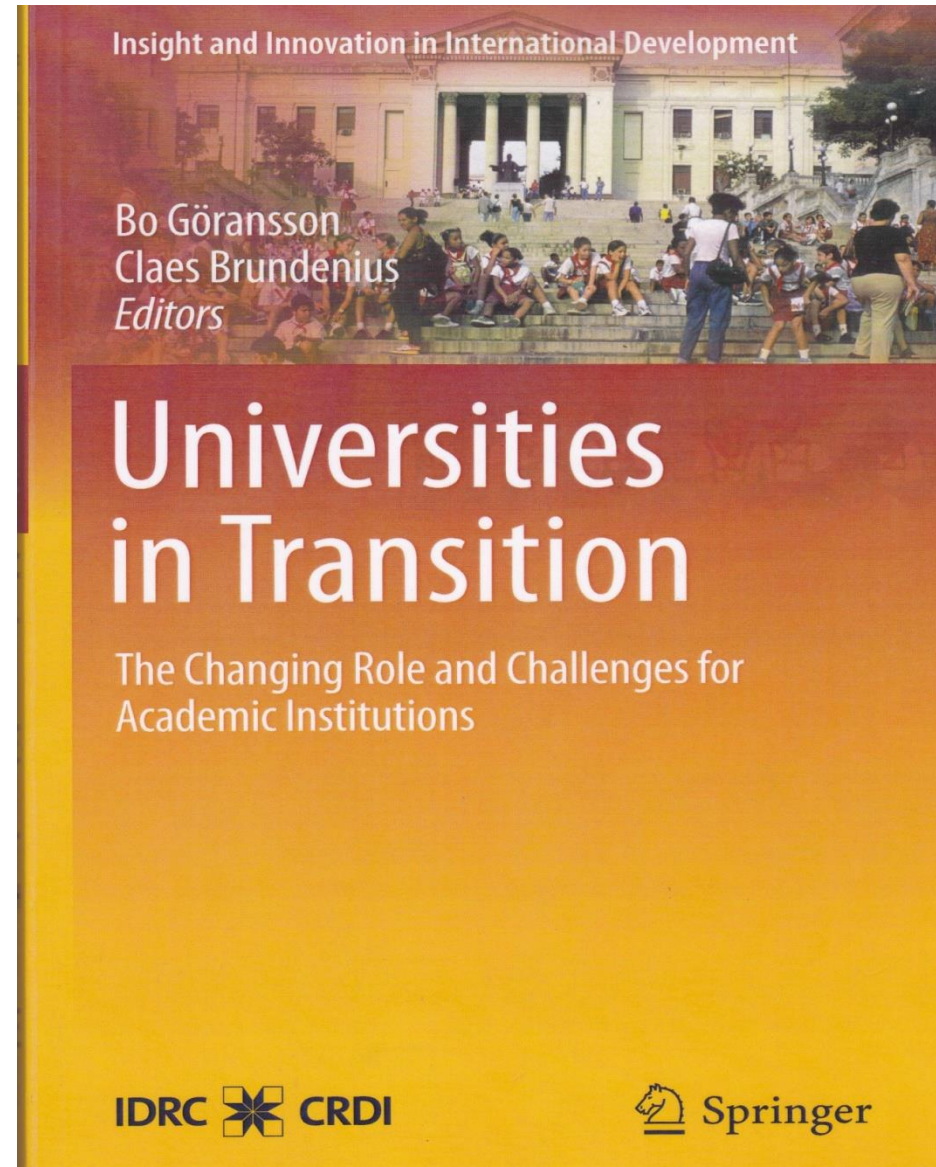


REPOSITIONING UNIVERSITIES/PRIs

Organizational change

Organizational learning, adaptation and change

- New strategies, New thinking
- Different incentives and rewards
- Different attitudes, habits and practices
- Different organizations cultures and structures



REPOSITIONING UNIVERSITIES/PRIs

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Personal change

Commercialization is no longer guided just by the 'entrepreneur' but by the scientists/researchers who create the products

The scientists/researchers' role has evolved to include: creation of cooperative links, appropriation and injection of appropriate information into new products

Traits of "sciento-preneurs"

- build up networks (networking skills)
- accept other people, their ideas and cultures (socialization skills)
- adapt to different networks, contexts and situations (flexibility and adaptability)
- integrate input from different disciplines (multi-disciplinarity)
- communicate beyond their peer community (in the language of the target audience)



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