



Industry-academia collaboration and technology transfer in South Africa

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South Africa

- Population: 52 million
 - 63% Urban
 - 30% <14 years old
- Land area: 1.2 million km²
 - 42.9 people/km²
- GDP: US\$384 million
 - US\$7300/person
 - Unemployment 25%
- Public universities: 25
 - 1:2 million people

Japan

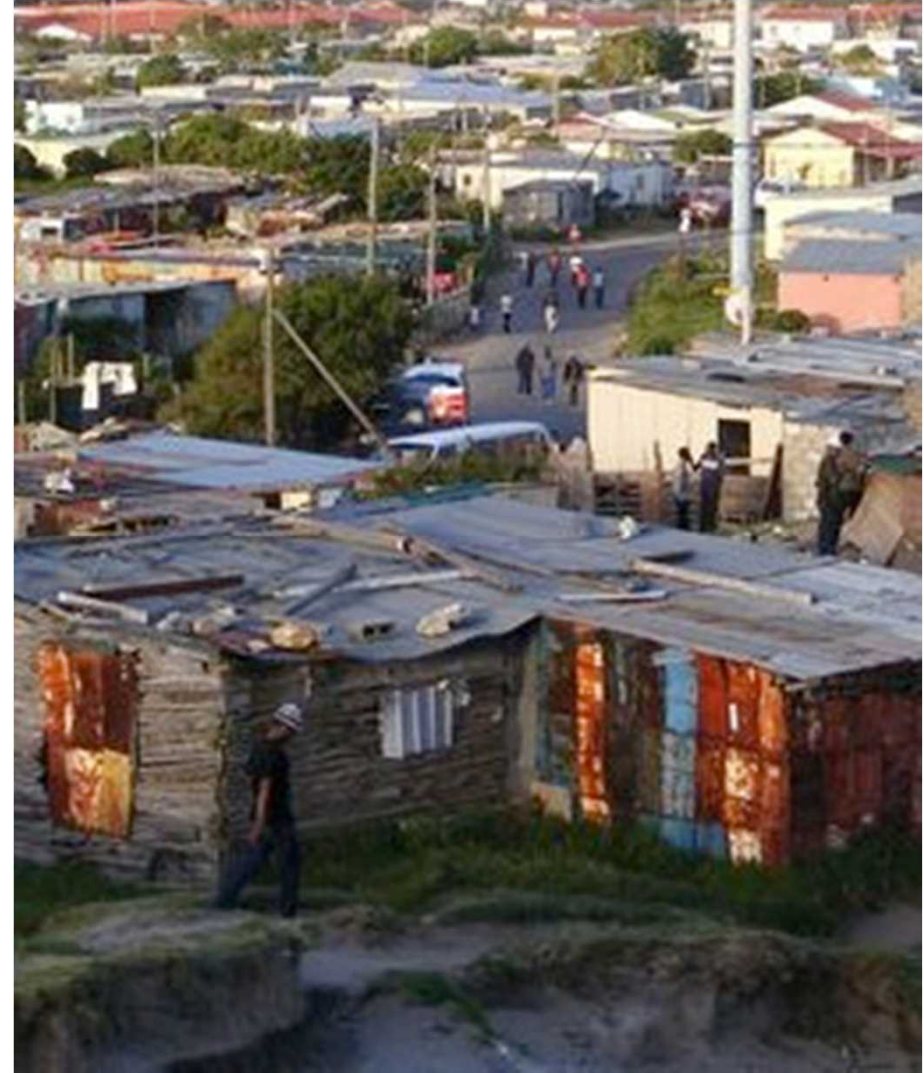
- Population: 127 million
 - 93% Urban
 - 13% < 14 years old
- Land area: 0.4 million km²
 - 337 people/km²
- GDP: US\$6 billion
 - US\$47000/person
 - Unemployment 4.3%
- Public universities: 181
 - 1:700 thousand people

Cooperation between Japan and South Africa



- Bilateral agreement on science and technology signed in 2003
- Invested > R85 million in 50 joint research projects
- > 20 Japanese universities have frameworks for cooperation with South African universities and research institutions

Challenge for SA government



University Research and Development

- Gross Domestic Expenditure on R&D: 0.76% of GDP (US\$2 billion)
- Business sector largest performer of R&D (47%)
- Government sector largest funder of R&D (43%)
 - Government funding to universities for R&D is US\$500 million (70% of their research funding)
 - Business funding to universities for R&D is US\$50 million (7%)
- 36 000 researchers in universities vs. 15 000 in business

*Challenge: Business does its own research;
research at universities chiefly
government funded*

Conceptual framework

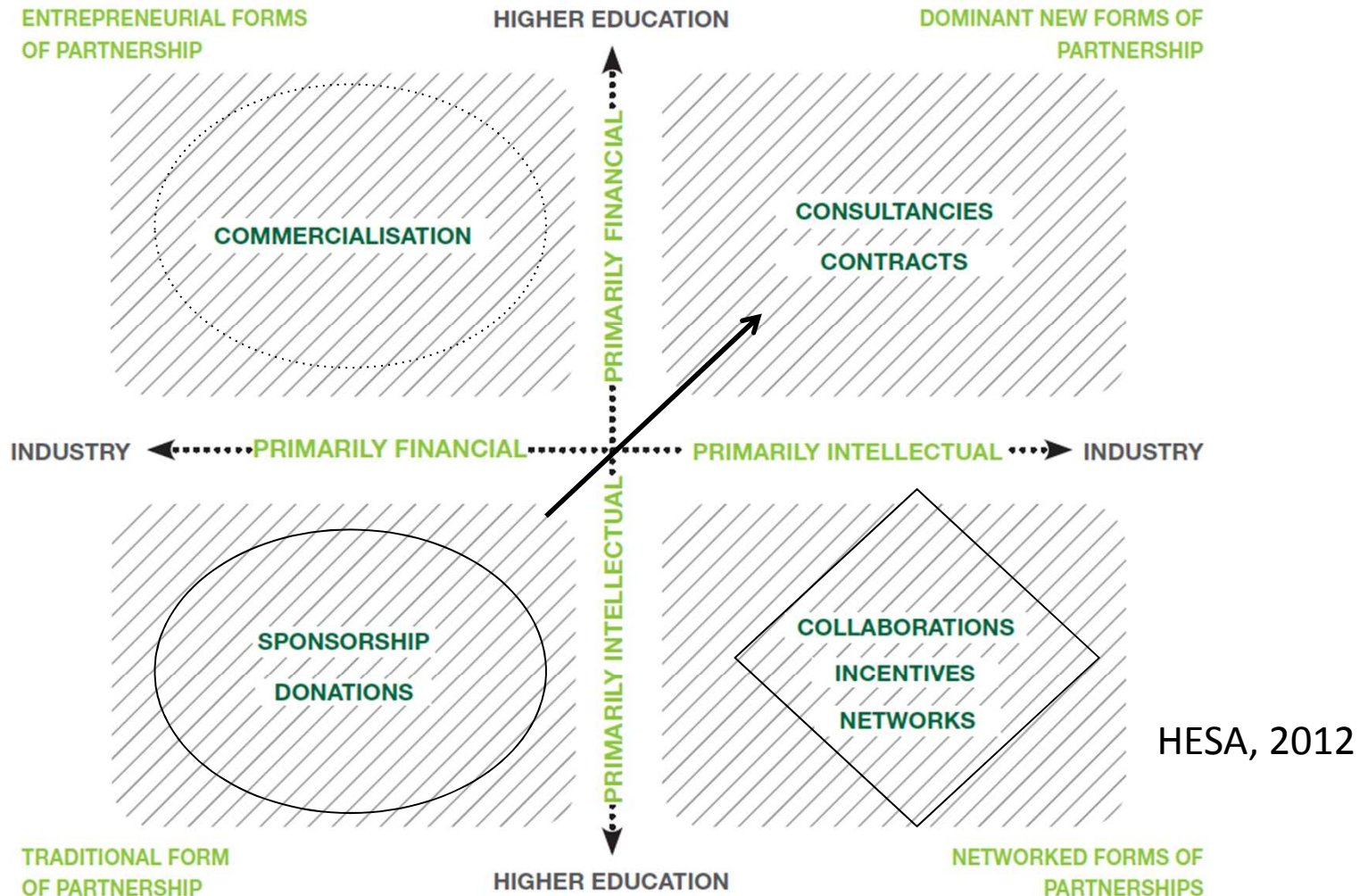


FIGURE 1. A CONCEPTUAL MATRIX OF FORMS OF UNIVERSITY-INDUSTRY INTERACTION IN SOUTH AFRICA

Industry-academia collaboration

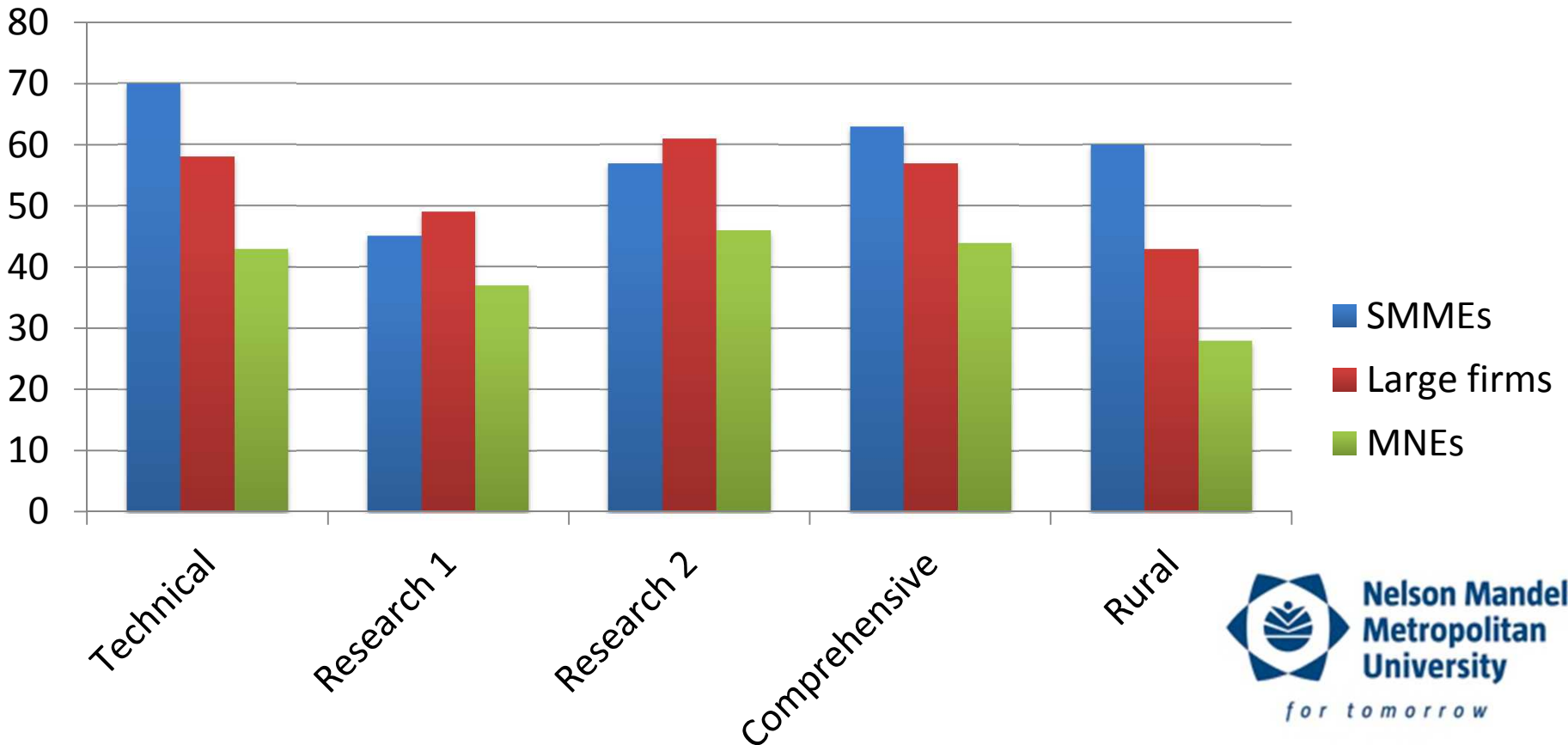
Survey across 5 different universities in South Africa

81% of academics collaborated with an external partner

58% of those collaborating were with industry

55% of the industry collaborations were in technology fields

HESA, 2012



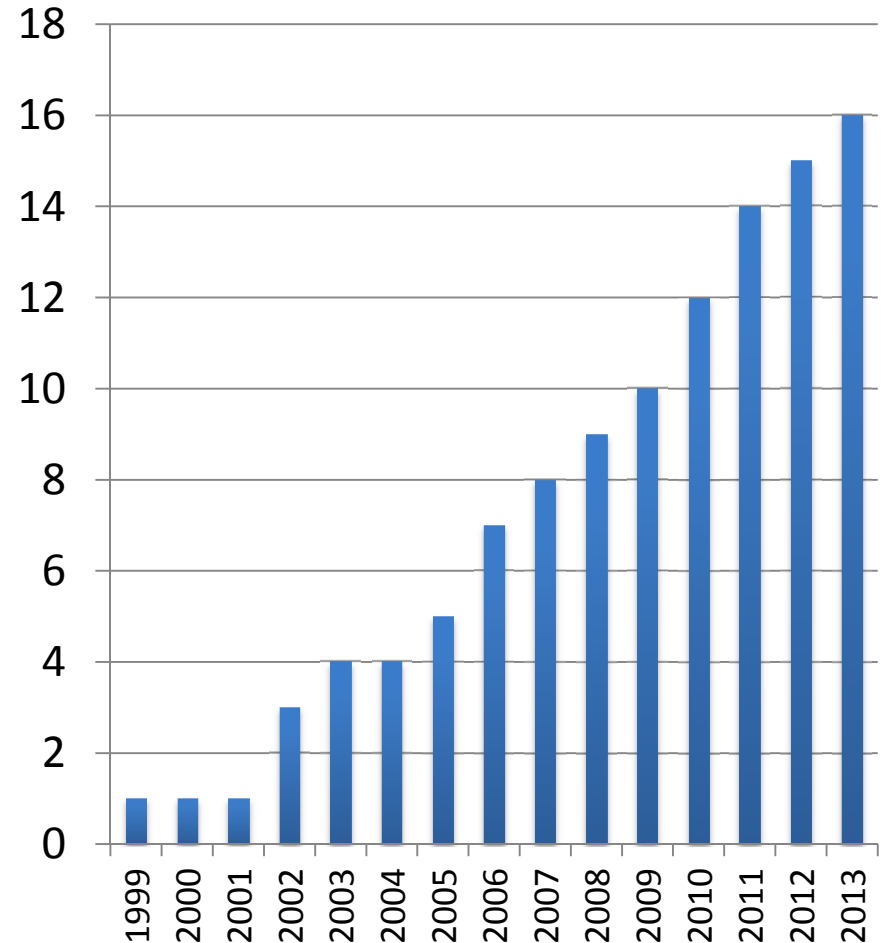
Academic collaboration

- Mostly related to teaching (e.g. involvement of industry in programmes, student placement, continuing education)
- Outputs are academic related and favour academics and not industry
- Most research relationships are with large industry in the manufacturing sector, research intensive, seeking complementary capacity
- *Challenges:*
 - *Incorrect academic incentive systems*
 - *Resistance to change in aging academic population*
 - *Lack of understanding of industry needs and mechanisms of effective interaction with industry*
 - *University structures do not encourage effective interaction with firms*
 - *Partnerships pursued chiefly for financial reasons*

Technology transfer

- Intellectual Property Rights from Publicly Financed Research and Development Act (2010)
- IP emanating from publicly financed research and development must be identified, protected, utilised and commercialised for the benefit of South Africa
 - Recipient of funds (university) owns IP
 - University obliged to protect and commercialise
 - University must have TTO
- Government has walk-in rights

Growth in SA TTOs



- Obligation but limited funding (e.g. ≈US\$460 000 over last 8 years to NMMU)
- Time frames to “success” unrealistic
- Focus on public good but concentrate on finance
- Limited understanding by many universities
- Still focussed on core of research and teaching
- Very little VC funding in South Africa
- Very little proof of concept funding

*Lots of challenges, limited funding
South Africans are used to that!*