Proposal to Technology Innovation Agency Bill (B49-2007)

Conducted by Manuel Jackson

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Profile of Consultant

- Studied at Peninsula Technikon in 1985.
- Was member of the SRC (1985/86)) as well elected student faculty council chairman - Applied Science.
- Studied at UWC in 1990 to 1992 (Political Science, Industrial Psychology)
- Studied management development programs at UNISA SBL (Midrand) – graduated in 2001 and 2002 respectively.
- MBA in 2003 and graduated in 2006– Research focus “The Capacity of firms in the OEM sector to be Innovative”.
- Henkel South Africa – responsibility for all new product and technology development
- Current **member** of the Alumni Council – UNISA SBL
- **Current** - Consultant to CPUT – Capacity to Innovate
- **Lectured** School of Retail and Business (CPUT) – Retail Business Management,
- **Current** - Associate lecturer to the UNISA SBL MBA program (First distant learning MBA program accredited by the Council of Higher Education).
- **Current** - Director, Synnovention

Theoretical models

- Develop Institution specific strategies towards innovation in technology taking cognisense of unique market typologies.
- Jack Welch, former CEO of General Electric Company, said it best: “When the rate of change outside is greater than the rate of change inside, the end is in sight.”
- Rothaermel and Hill (2005) highlights, “*Following a competence-destroying technological discontinuity, the performance of the incumbent industry improves if the complementary assets needed to commercialize the new technology are specialized”.* Part of the study was to look at R&D capability
- Srinivasan *et al.* (2002), suggest that enterprises that are technological orientated (increase R&D capability) may not necessary be technological opportunistic. Technological opportunism reflects the ability for enterprises to sense new developments quickly, and the ability respond to developments quickly.

Recent Studies

- Recent Survey conducted by myself in 2005 on an Multinational Automotive OEM Supplier
- Innovation Strategies = Import products, Import formulations, local design product and technologies.

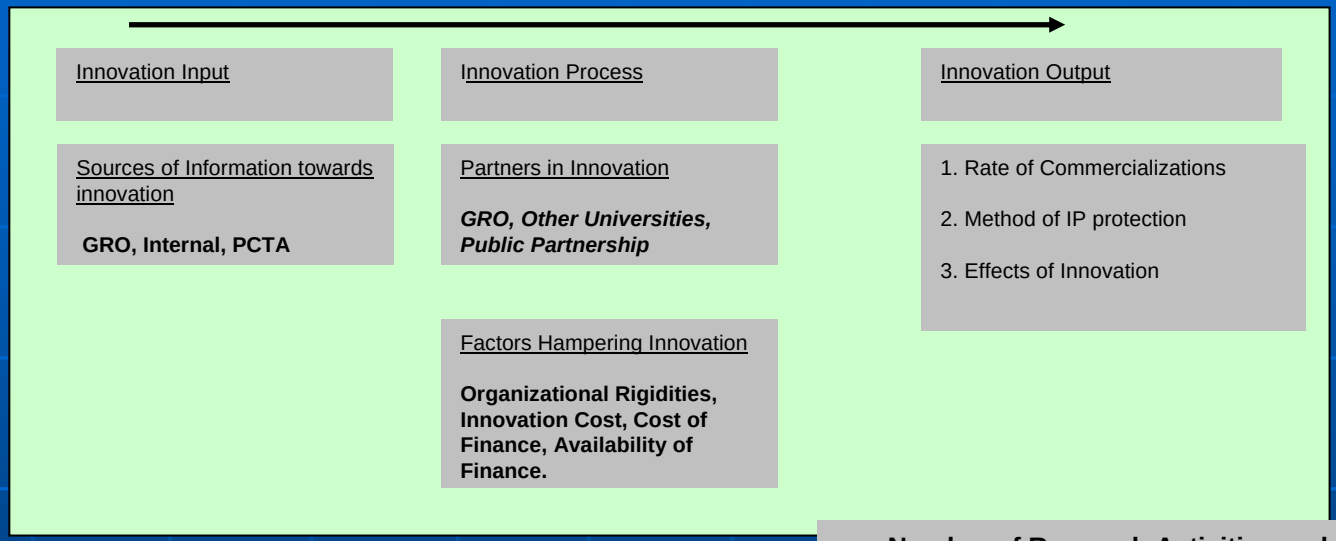
Research Question: Insight into the resources that underpins innovation strategy

- Findings: for less complex applications, 85% are domestically designed - 15% based on importation.
  for more complex applications, 28% are locally designed, 72% based on importation

- Underlining reasons
  Technical complexity, time to market, knowledge, formulation cost, raw material availability, manufacturing inflexibility.

- Studies done by Dobreva, May, Roberts (2004) “The Effect of Import Parity Pricing in the Chemical and Plastic Industry”, attribute higher prices of polymers to depreciation of the rand.

Model & Approach towards Capacity Building Innovation



Number of Research Activities and number of People Involve

Factors hampering innovation

Support for Marketing of Innovation

Commercializations

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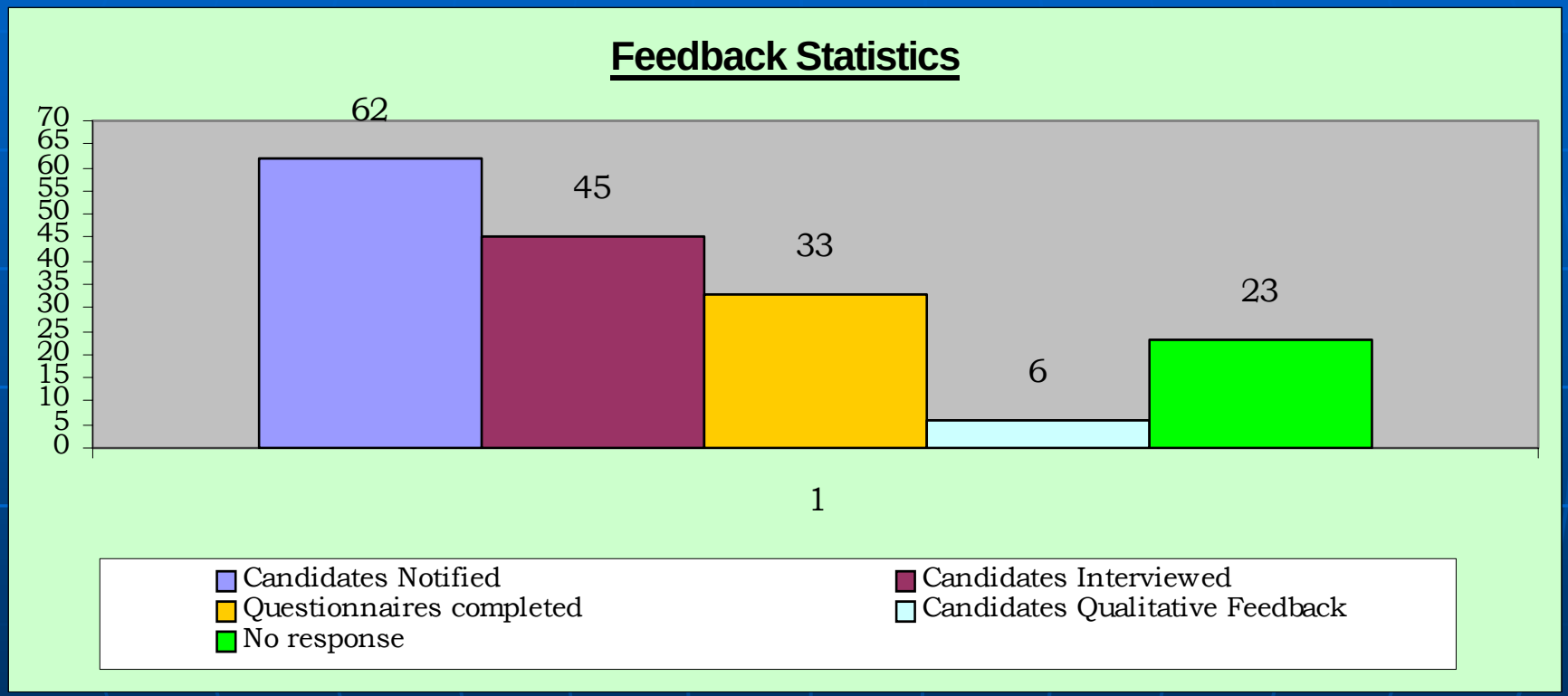
Survey Statistics

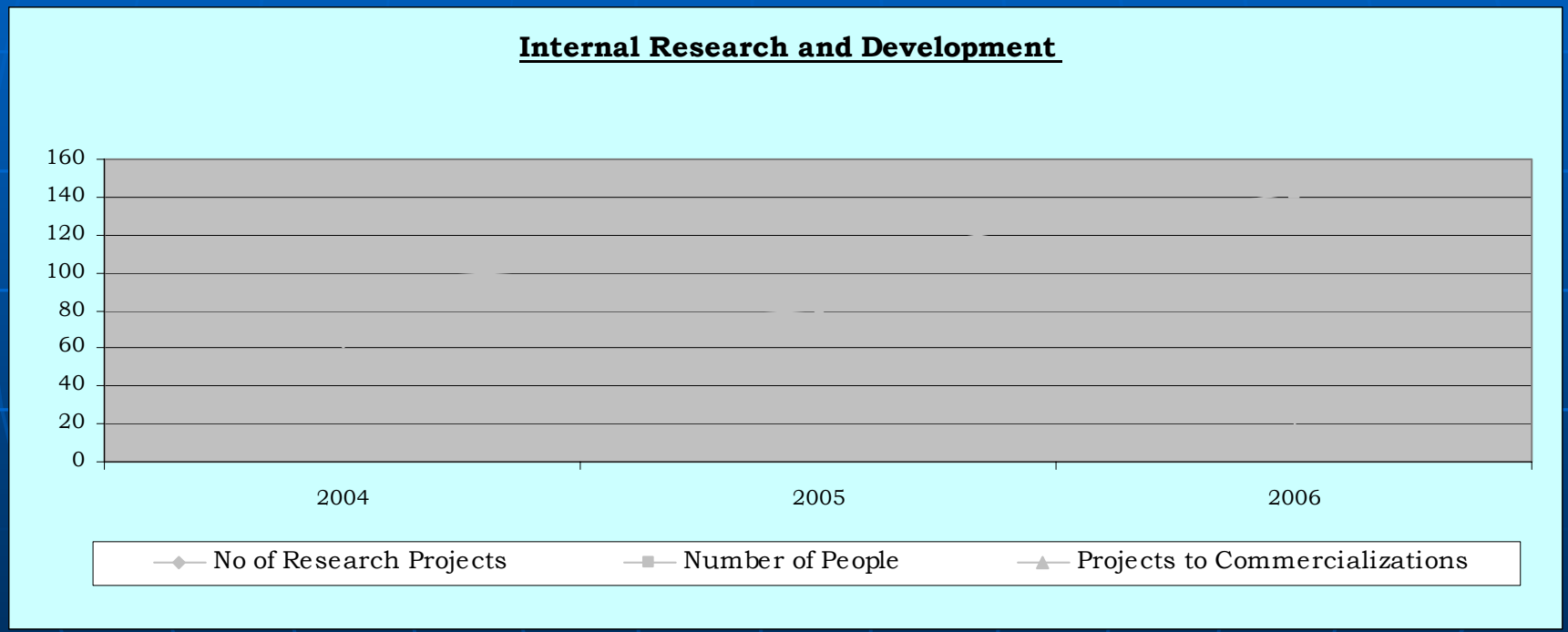


Factors Hampering Innovation

- Economic risk
- Innovation Cost
- Cost of Finance
- Availability of Finance
- Organizational Rigidities
- Lack of Qualified Personnel
- Lack of Information on Technology
- Lack of Information of the Markets
- Impact on Regulations and Standards
- Lack of Industry Responsiveness

Internal Research and development

Study of the No of Research Projects, Number of People Involve, and Projects to Commercialization



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Correlation – Undergraduate and Post Graduate

Study of the correlation between final year research projects in relation to industry relevance (Undergraduate and post graduate level)

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Effects of Innovation

(Key value drivers for an institution of higher learning – manifestation of Technology Innovation)

- Increase goods and services
- Opening of new markets
- Improve quality
- Efficiency
- Process Improve Flexibility
- Reduce Unit Labour Cost
- Increase Capacity
- Improve environmental aspects
- Regulation and standards

Sources of Information towards Innovation

Internal within the organization (Internal collaboration)

Suppliers of equipment/machinery

Other Universities

Government research organizations

Private sector business

Consultants

Commercial laboratories

Private Research Institutes

Technical Standards

Safety, Health and Environmental Standards

Conferences and Technical Trade Associations

Fairs and exhibitions

Innovation Co-operation

Clients and Customers

Suppliers of Equipment

Other Universities

Consultants

Public Partnership

Commercial Laboratories

Government research organizations

Private Research Institutions

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Public Support for Innovation

(Financial or Other)

Local or regional Government

National Government

Other parties

(Key players – NRF, THRIP, SPII, Tsumisano Trust –Technology Stations)

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Protection of Intellectual Property

(Typology of markets in which innovations are introduced, nature of technology – Health Sciences, Engineering, Applied Sciences)

- Formal registration of design (Engineering)
- Trademarks (Disruptive nature of Innovation, market dynamics, brand dynamics)
- Patents
- Confidentiality agreements
- Copyright (IP licensed and sold for royalties) i.e. software
- Complexity of Design (Imitate-ability)
- Lead-time advantage (Time to market)
- Secrecy (Rapid product change with small life-span)
- Domain names

Wider Institutional Support for Innovation

Putting the right governance processes in place

- Organizational Strategies
- Advance management techniques (Managing skills in developing creativity towards innovation)
- Organizational structures and culture (Mechanistic in orientation versus orgasmic nature, organizational learning versus the learning organization)
- Marketing Concepts (Communication Strategy)

Recommendation

a) Innovation Teams within Institutions of Higher Learning

- Facilitating Institutions of Higher Learning in developing an innovation strategy using core information from the surveys and other.
- The establishment of a culture towards innovation, which will largely involve advocacy.
- Facilitate and drive the commercializations of innovations.
- To ensure that the functionality innovation teams is not subject to management idiosyncrasies.

Looking at Innovation Mapping Potential

Modus Operandi

b) Internal collaboration – centers of excellence , divergent approach of innovation, towards convergent approach – multiple disciplinary approach.

c) Interface management in the role-out of innovation : protection of intellectual property, communication strategy, knowledge transfer, legality around collaborative partnership (Non disclosure agreements, Memorandum of Understandings).

d) Business plans (idea generation – proof of concept – pre commercialization – prototype commercialization)

e) Facilitate institutions in developing an innovation strategy taking cognizance of innovation capacity

f) Advocacy around innovation “facilitate culture” for innovation

g) Marketing of innovation and calculation of risks

Capacity towards technology innovation should lead to the introduction of an Innovation Scorecard which will become a landmark in Technology Innovation

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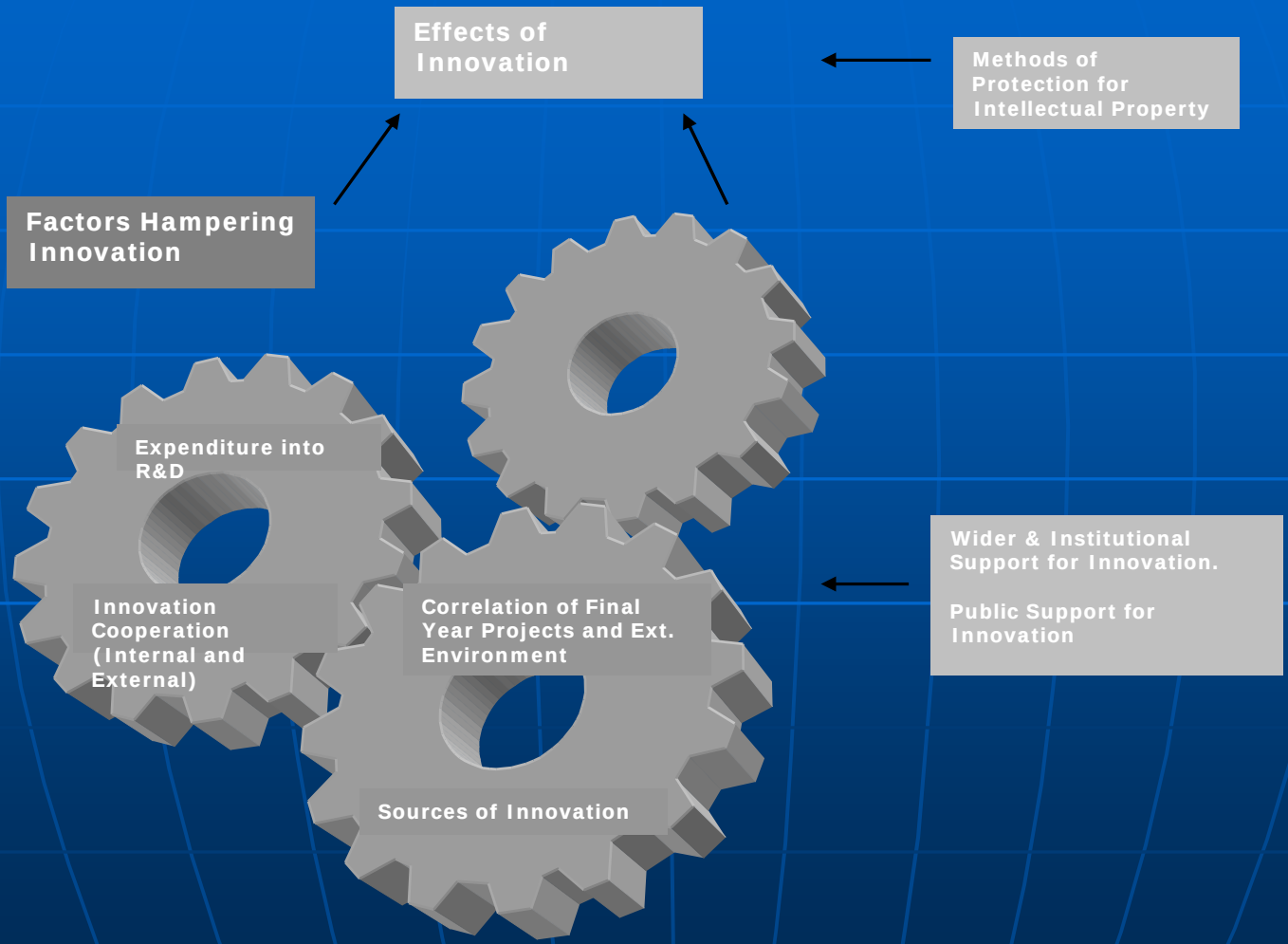
Appropriate Model (Innovation Scorecard)



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Thank you

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