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Research on Innovation
TSHWANE UNIVERSITY OF TECHNOLOGY

Technology, Innovation and Productivity for Competitiveness

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Competitiveness for Growth and Job Creation: Technology, Access to Finance and Industrial Policy
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Outline of Presentation

1. Introduction
2. Contemporary Capitalism
3. Technology, the Economy & Innovation
4. South African Context
5. Concluding Challenges



Introduction

- ❑ Creative Destruction
 - ❑ “One cannot embrace creation (that is, the emergence of innovative young firms) without accepting destruction (letting uncompetitive incumbents go to the wall)”
- ❑ Innovation-led Development and Growth
- ❑ Objective Constraints
 - ❑ “The world is currently going through the turning point. The future is now being defined globally and in each country”(Perez: 2011)
- ❑ Subjective limitations



Contemporary Capitalism

- ❑ Concurrent crisis's all emanate from the current mode of production and consumption, waste, and environmental degradation
 - ❑ Accelerated distribution through neo-liberal globalisation
 - ❑ Hegemonic World System, Unilateralism & State violence
 - ❑ Neo-liberalism, Corruption and the ‘hollow’ state
 - ❑ Monopolies, Oligopolies and Cartels



Technology, the Economy & Innovation

- ❑ “Technological change is, in its development and application, a social process, not an event & should be viewed not in static, but in dynamic terms” (OECD: 1998)



SA Context

- ❑ Persistence of Poverty, Inequality and Ecological Destruction
- ❑ Over-financialised Minerals-Energy Complex
- ❑ Neo-liberal Public Policy Position
 - ❑ Macro-economic fundamentalism
 - ❑ Tyranny of Neo-classical Orthodoxies



Domestic Economic Diagnosis

- ❑ The *economy does not serve the interests of all South Africans*
- ❑ *Poverty levels are high and inequality is extremely high and persistent*
- ❑ The economy is shaped by its history as a *commodity producer* operating in an environment of *abundant resources*, and is *highly resource intensive*
- ❑ *Apartheid distorted the economy in ways that undermine both South Africa's competitiveness and the potential of its people*
- ❑ *Power relations in the economy are highly unequal and this gives rise to outcomes that are highly unequal by international standards*
- ❑ *While there are pockets of excellence, major parts of the economy are uncompetitive, with high rates of concentration, high margins and high cost structures in both the private sector and state-owned enterprises*
- ❑ *The democratic government has failed to significantly alter the pattern of growth and development*


Sources: NPC (2011)



NSI in SA: Normative Periodisation

Time	Circa. 1980	1990	1994	1997	2001	2007
Political Economy	Racial Capitalism	Siege Economy	Mixed	Mixed Market-led	Mixed Market-led	Mixed State-led
Ideology	Apartheid	Dual Power	Keynesianism	Structural Adjustment	Neo-liberalism	Neo-liberalism
Public Management	Authoritarian - Military	Negotiations	Democratic Developmental	New Public Management	NPM	Monitoring, Evaluating & Planning
Economic Policy		Normative Economic Model	Reconstruction & Development	Growth, Employment & Redistribution	Accelerated & Shared Growth Initiative	New Growth Path
NSI Policy	Fragmented 'Republic of Science'	S&T Missions	WPS&T	NR&DS	10YP	10YP & Ministerial Outcomes

Source: Adapted from Maharajh (2011)




NSI Performance

Table 2: NSI Performance Indicators

	1991 /92	1993 /94	1997 /98	2001 /02	2003 /04	2004 /05	2005 /06	2006 /07	2007 /08	2008 /09
Gross domestic expenditure on R&D - GERD (Rand Billions)	3	3	4	8	10	12	14	17	19	21
% GERD	1.04	0.75	0.69	0.76	0.81	0.87	0.92	0.95	0.93	0.92
Total R&D personnel (FTE) (1000's)				34	25	30	29	31	31	31
Total Researchers (FTE) (1000's)				9	14	18	17	19	19	19
Total Researchers per 1000 total employment (FTE)				1.9	1.2	1.6	1.5	1.5	1.5	1.4
Total R&D Personnel per 1000 total employment (FTE)				7.3	2.2	2.6	2.4	2.5	2.4	2.2
% Civil GERD				0.7	0.7	0.8	0.9	0.9	0.9	0.9
Total Researchers (1000's)				19	31	37	39	40	40	40
% Women Researchers				35	38	38	39	40	40	40

[1] As a percentage of GDP
 [2] As a percentage of GERD
 [3] Headcount
 [4] Expressed as a percentage of Total Researchers



Concluding challenges

- ❑ Increase focus on enterprises: Private, Public and Cooperative
- ❑ Localised assessments, Smart Interventions
- ❑ Open Innovation & Democracy
- ❑ Evidence-biased Policy Framing: Foresight, Audits, Competency Reviews and Public Oversight



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