

BioPAD

Growing Biotechnology in South Africa



GoGlobal Finland Workshop

**The Innovation Hub
Pretoria**

2nd April 2008

**Dr Theresa Smit
Health Portfolio Manager**



An initiative of
**science
& technology**

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

BioPAD = **Biotechnology Partnerships and Development**

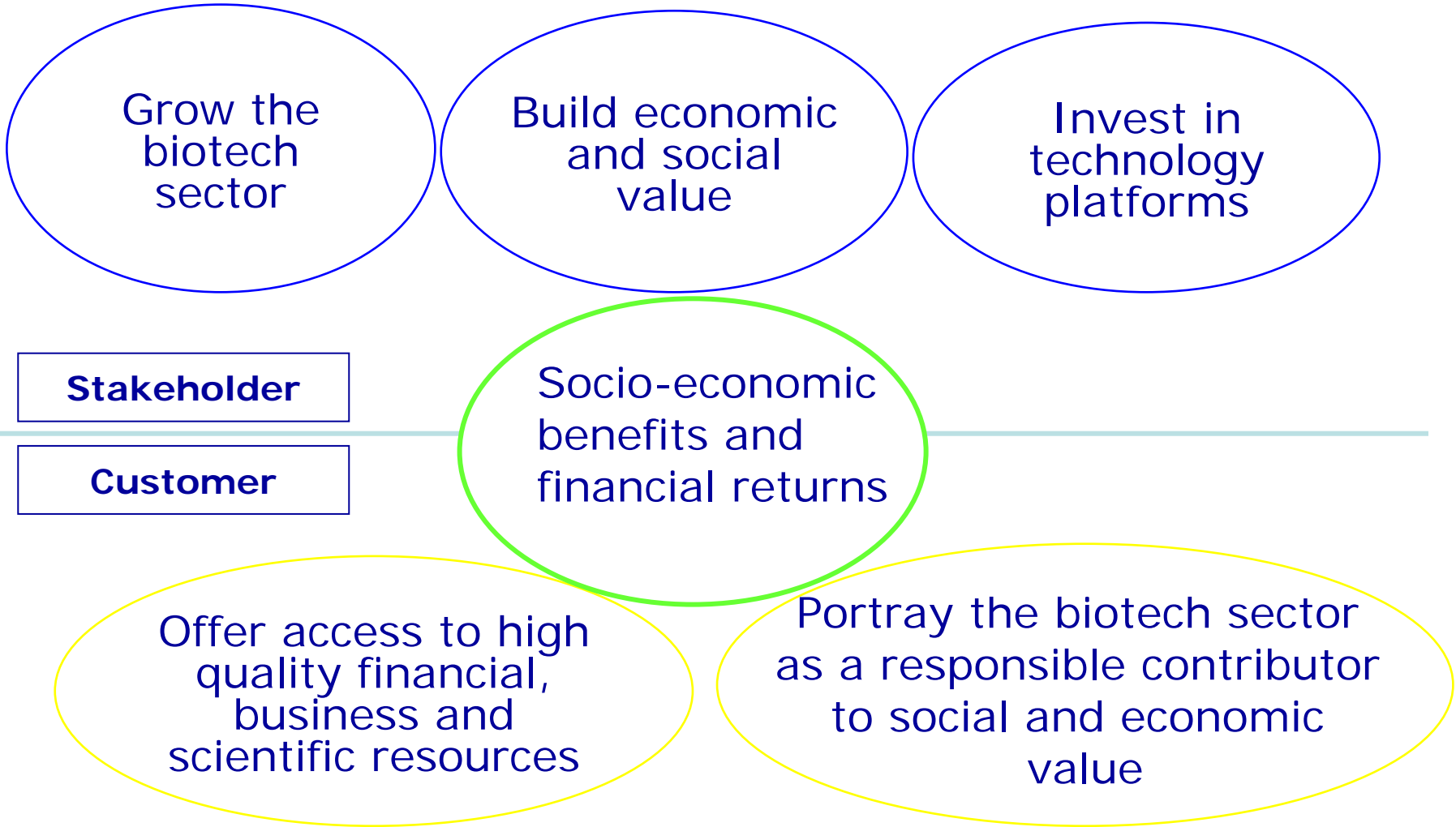
BRIC = **Biotechnology Regional Innovation Centre**
[Dept of Science & Technology Initiative]
(BioPAD, LIFElab, and Cape Biotech)

BIC = **Biotechnology Innovation Centre**
(PlantBio, Pub, NBN)





Key Strategic Initiatives

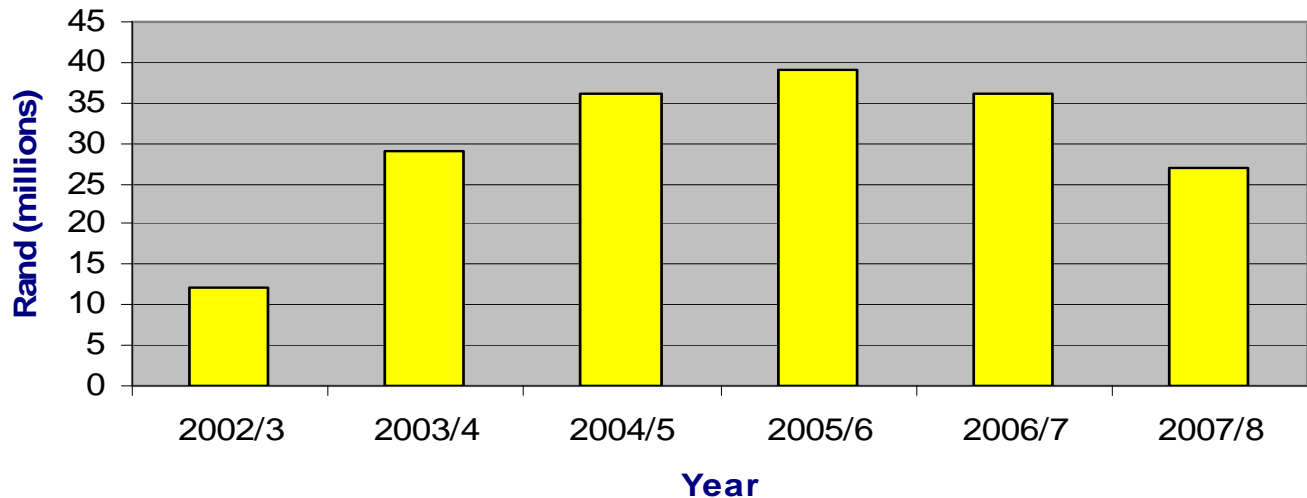


Sources of Revenue

Primary source of revenue is annual allocation from DST

- Additional revenue is sourced through:
 - Return on investments – royalty or levy payments
 - Co investments (public and private sector)
 - Fund raising initiatives

Annual revenue received from DST



Investment focus

BioPAD invests in a number of areas including:

- Human health
- Animal health and production
- Mining Biotechnology
- Environmental Biotechnology
- Industrial Biotechnology

Types of Investment:

- Projects
- Platforms
- Investment capital for enterprise development

Investment tools:

- Equity investment
- Equity plus loan
- Royalties
- Loan or other



Health Portfolio

- value of investment to date ± R 123 million
- human and animal health
- investments have been in projects in areas of diagnostics, vaccine development, drug discovery, development & delivery value chain
- investments have been made into establishing platforms in the areas of genomics, metabolomics, drug delivery and novel vaccine delivery systems
- enterprise development investments have been in areas of nutraceuticals, cosmetics, pre-clinical drug development and bioprocessing & manufacturing of rHu-GCSF
- BioPAD investments focus on development of infrastructure (equipment, technology, people), training and capacity development (particularly of PDIs), job creation, development of intellectual property and commercialization



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Industrial Biotech Portfolio

Environmental and Mining biotech

- Acid Mine Drainage technologies (bio-assisted)
- Bio-mining/leaching (CuS and ZnS)

Industrial biotech

- Biocatalysis
- Bioprocess & Fermentation
- Biotransformation



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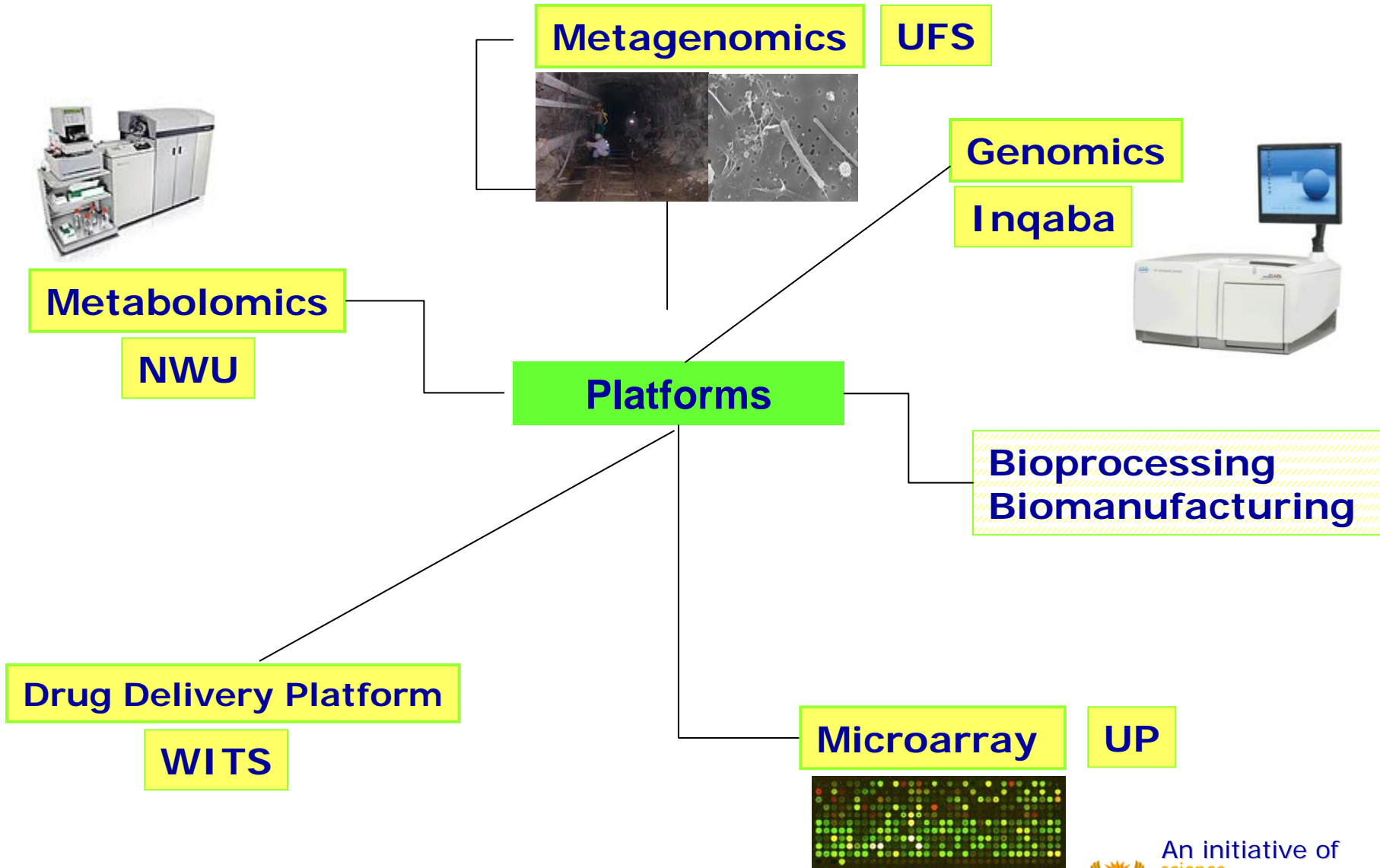
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Platform Technologies



Knowledge Management

Explicit knowledge

- IP
- Reports
- Publications

Tacit knowledge

- Know how
- Expertise
- Wisdom

Knowledge Management Platform

(File plan, Meridio and SharePoint)

- Implementation
- Continuous improvement and Maintenance
- Competitive Intelligence



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inqaba **biotec**

37%

Primer synthesis & sequencing



MBUYU

biotech

50%

Biocatalysis & bioprocessing



27%

Nutraceuticals



RIBOTECH

35%

Manufacturing of clinical grade human therapeutic proteins

iThemba Pharmaceuticals

25.75%

Novel drug leads for TB and ARVs



n e w r o o t d i m e n s i o n s

25%

Mycorrhiza fertilizers



48%

Aloe-derived APIs & formulations



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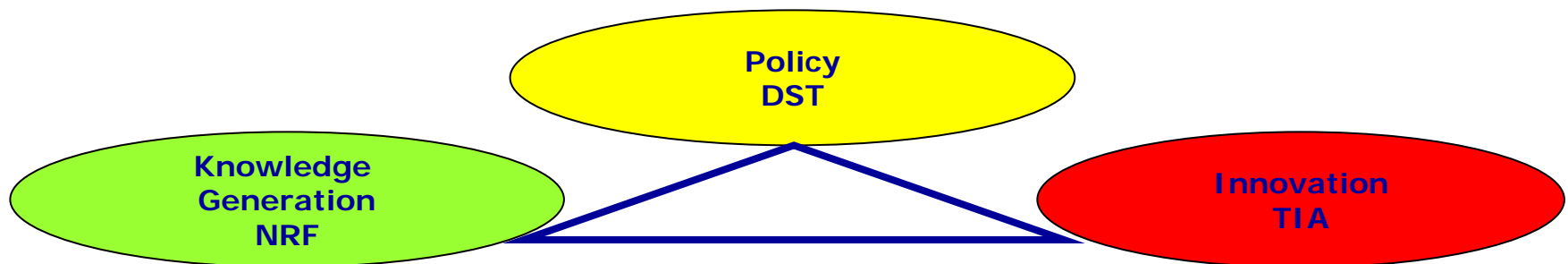
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TECHNOLOGY INIVATION AGENCY (TIA)

Objectives:

- To stimulate the development of technology based services and products
- To stimulate the development of technology based enterprises – both public and private
- To develop a significant technology base for the SA economy
- To provide an Intellectual Property support platform
- To stimulate investment by means of Venture Capital, Foreign Direct Investment and other mechanisms.
- To facilitate the development of Human Capital for Innovation



Building Blocks for TIA Phase 1

- **Biotechnology Regional Innovation Centres (BRICs)**
- **Innovation Fund (IF)**
- **AMTS project (AMTS)**
- **Advanced Minerals Initiative (AMI)**
- **Hydrogen Economy Competency Centres**
- **Health Innovation Competency Centres**

Technology Development Partners

- **Private Industry – large scale and SMMEs**
- **Science councils**
- **Research institutes and laboratories**
- **Universities and Universities of Technology**
- **Individual entrepreneurs and innovators**



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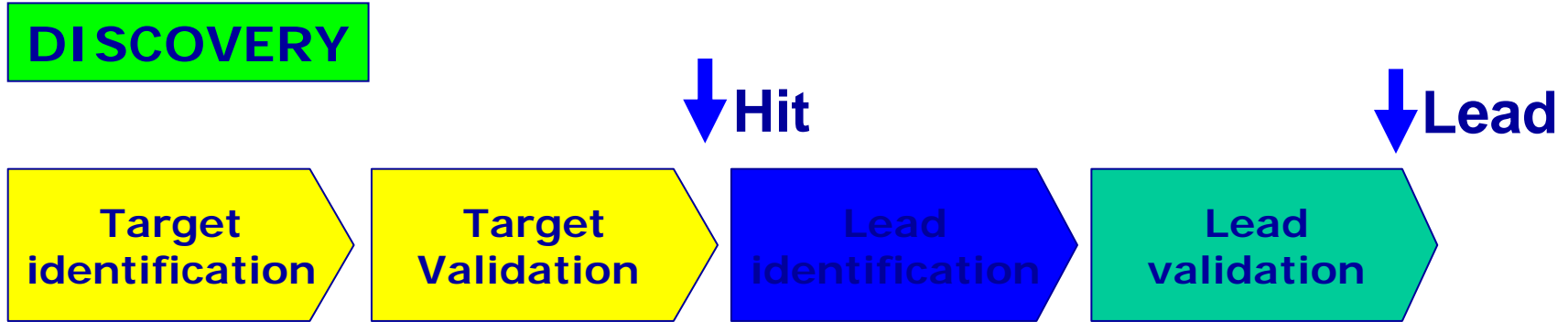
**THANK YOU
FOR YOUR ATTENTION**



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Support for development of therapeutic agents



Platforms/Infrastructure support

- ✓ Genomics (UP): target identification/validation
- ✓ Metabolomics (NWU): metabolic disorders
- ✓ Screening and validation infrastructure: pipeline from CANSA project (UP)
- Proteomics: target identification/validation

DEVELOPMENT

↓ IND

↓ NDA

REGULATORY

Pre-clinical

Candidate
to clinics

Phase I

Phase II

Phase III

Marketing

ENGINEERING

FORMULATION / MANUFACTURING

Platforms/Infrastructure support

- ✓ Nude mice facility (UPBRC) : anti-cancer proof of concept studies, working towards GLP
- ✓ Metabolomics: drug toxicity, metabolic disorders
- ✓ Bioprocessing: expression systems
- ✓ Drug delivery Platform: advanced technologies, e.g. slow release, multi-unit, nanotechnology
 - Pre Clinical Drug Development Platform
 - Pilot plant/Bio-manufacturing facility: GLP, toll manufacturing of API and other therapeutics

