

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**

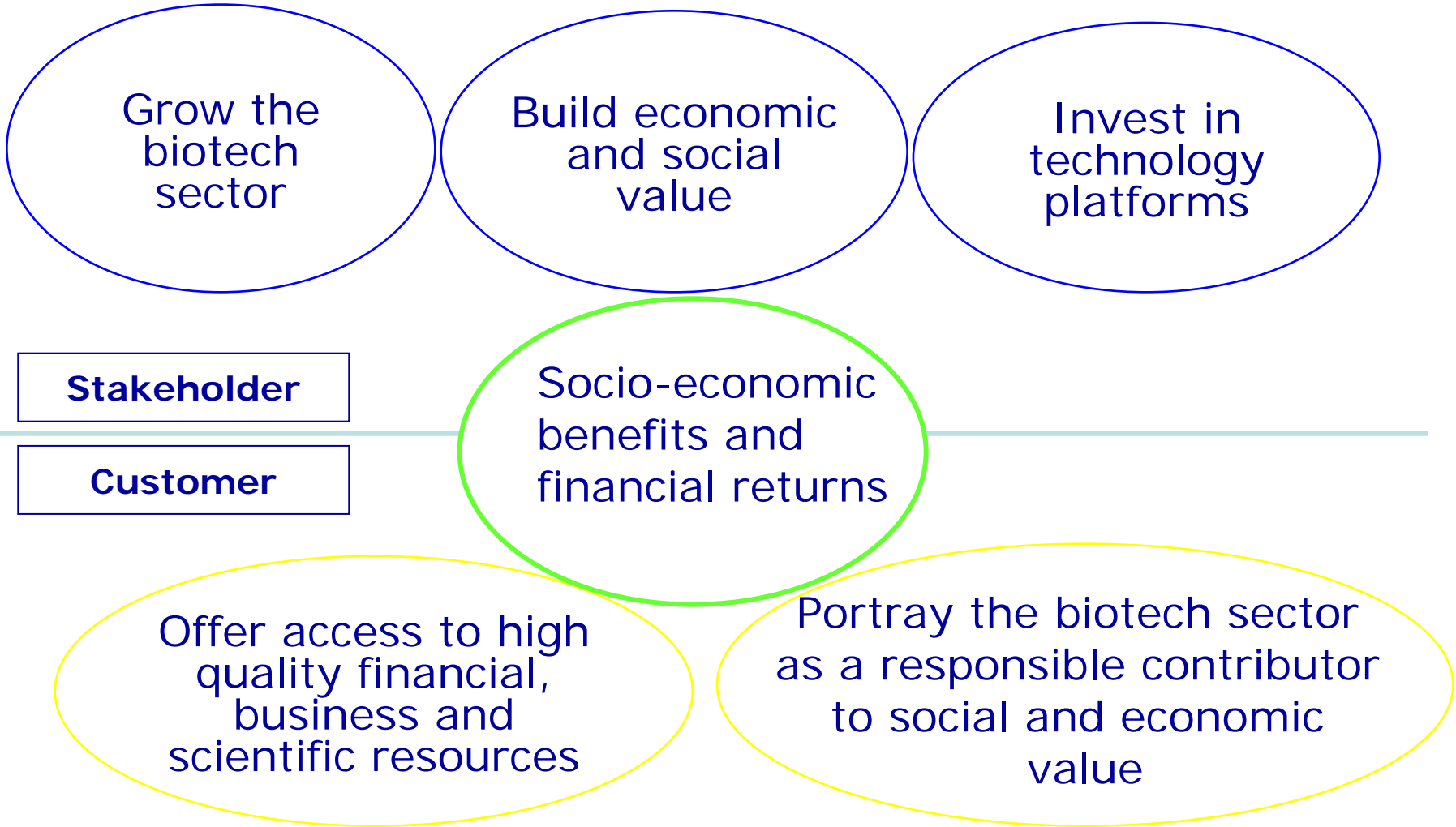
BRIC = **Biotechnology Regional Innovation Centre**
[Dept of Science & Technology Initiative]
(BioPAD, LIFElab, and Cape Biotech)

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





Key Strategic Initiatives

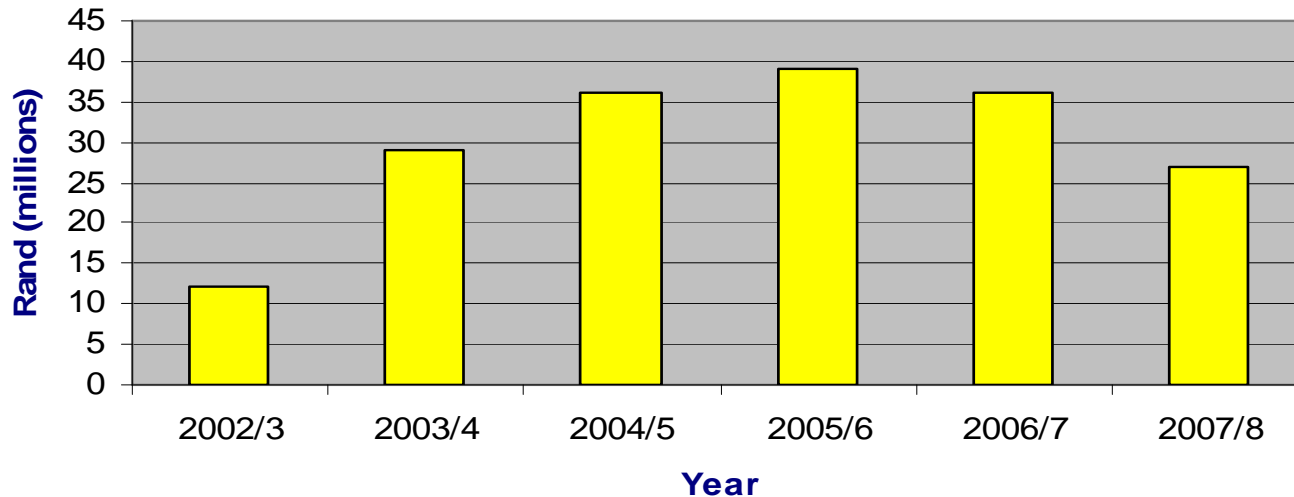


Sources of Revenue

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

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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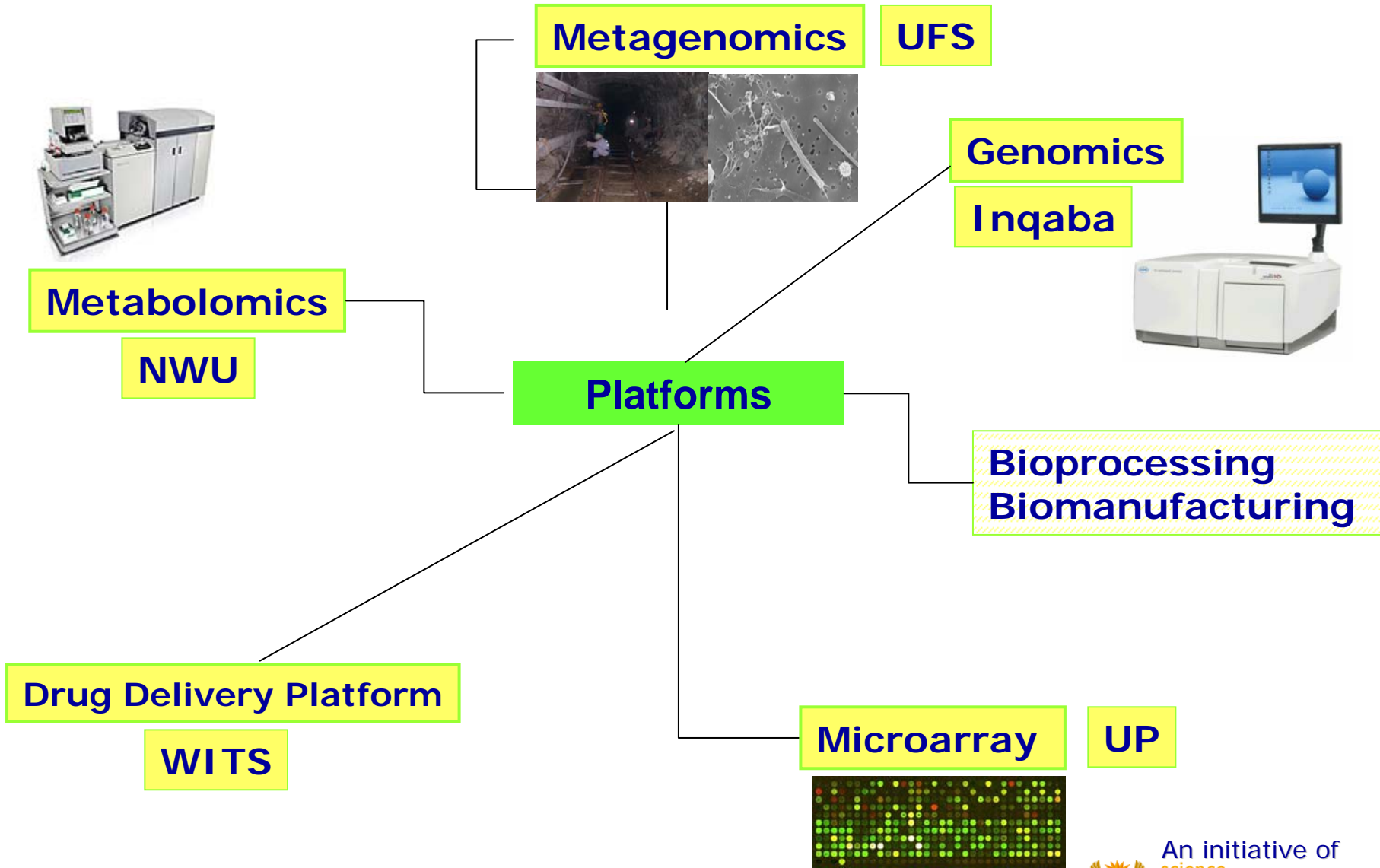
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Platform Technologies



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



new root dimensions

25%

Mycorrhiza fertilizers



48%

Aloe-derived APIs & formulations



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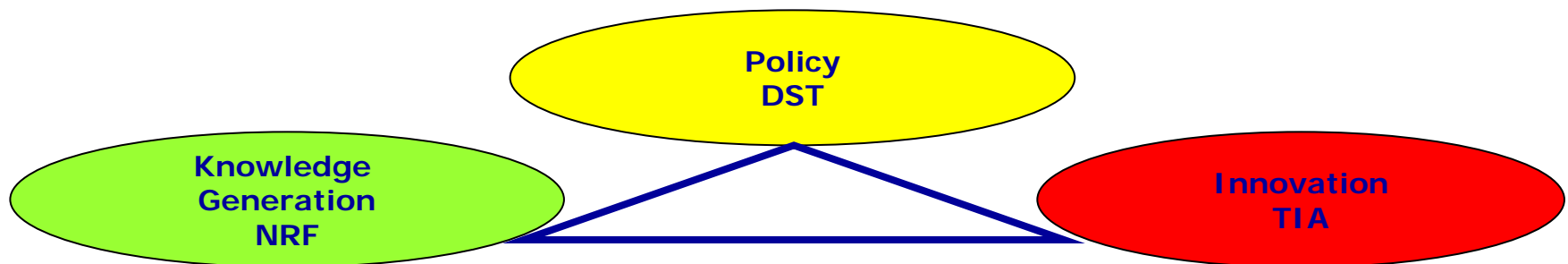
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TECHNOLOGY INIVATION AGENCY (TIA)

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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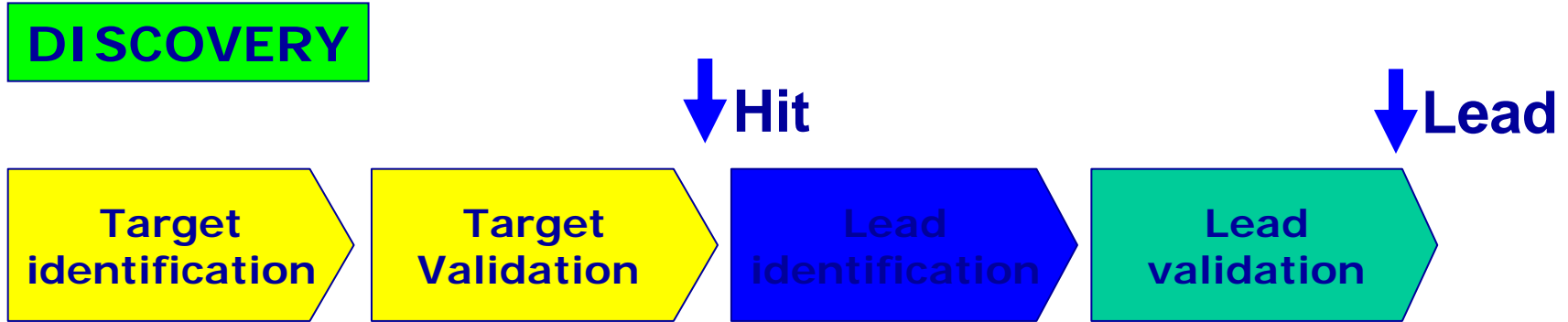
**THANK YOU
FOR YOUR ATTENTION**



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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

