

# Creative Collaboration Between the Pharmaceutical Industry & Universities – Bringing RSA Discoveries to Market

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**3<sup>rd</sup> NATIONAL PHARMACY CONFERENCE**  
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# Framing the Discussion

- Macroeconomic challenges for South Africa
- Policy framework for the pharmaceutical industry
  - White paper for science and technology
  - National industrial policy framework
- Academic research and pharmaceutical innovations
- Institutional funding for the pharmaceutical innovations



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# Macroeconomic Challenges for South Africa

- South Africa is grappling with the triple challenge of unemployment, poverty, and inequality trapped in a vicious cycle of low economic growth
- All the 21<sup>st</sup> century economies around the world depend on economic diversification as a key driver for increasing the per capita incomes of any country
- The government's effort to promote the knowledge economy and industrialise are aimed at breaking the commodity grip



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# Policy Framework for the Pharmaceutical Industry

- In an effort to create jobs to alleviate poverty, the government has identified innovation as a key driver to
  - improve industrial performance
  - boost global competitiveness
- Innovation is at the intersection of science and technology as well as trade and industry.
- Relevant policy framework for innovation in pharma:
  - White paper on science and technology
  - National industrial policy framework



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# White Paper on Science and Technology

- Policy objective
  - improve the rate and quality of technology transfers from SET institutions for widespread use in the business and government sectors
- Policy instruments
  - Ten-year innovation plan
  - National biotechnology strategy for South Africa
  - National research and development strategy
  - New strategic management model



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# White Paper on Science and Technology (cont)

- Policy outcomes
  - National system of innovation (NSI):
    - structures
    - policies
    - agencies
- Institutions established to support the NSI:
  - Technology innovation agency (TIA)
  - National research fund (NRF)
  - National intellectual property management office (NIPMO)



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# Ten-Year Innovation Plan 2008-2018

- Five grand challenges for the South African society
  - Bio-economy
  - Space science and technology
  - Energy security
  - Science and technology for global change with focus on climate change
  - Human and social dynamics



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# Bio-economy Strategy

- The bio-economy is underpinned by several programmes:
  - farmer to pharma initiative
    - was adopted wherein “*over the next decade South Africa must become a world leader in biotechnology and the pharmaceuticals, based on the nation’s indigenous resources and expanding knowledge base*”
    - demonstration agronomy for indigenous medicinal plants with scientifically-proven efficacy
  - Research chairs as part of the NRF system
    - Drug discovery sciences
    - Chronic diseases
    - Animal biotechnology
    - Industrial biotechnology



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# Academic research & pharmaceutical innovation

Institution	Areas of focus
University of the Witwatersrand	Wits advanced drug delivery <a href="#">platform</a>
University of Cape Town	Drug discovery and <a href="#">development centre (H3D)</a>
University of the Western Cape	Institute for microbial biotechnology and metagenomics
University of Stellenbosch	Institute for plant-based biopharmaceutical expression systems
Medical Research Council	Centre for AIDS Programme of Research
Council for Scientific and Industrial Research	Biosciences division



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# Institutional funding for pharma related innovations

- Technology innovation agency (TIA)
  - Aligns with the priorities of the country and derives its mandate from the IPAP
  - Technology innovation cluster is the workstream of the agency under which pharma related projects are driven – farmer to pharma
  - Focus on small molecules to develop local capacity to produce strategic APIs
  - Collaboration with a broad range of stakeholders to form a consortium
  - When in place the consortium will conduct market analysis to establish the priorities followed by a 10-20 year plan



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# Appraisal of the Ten Year Innovation Plan

- Despite the establishment of institutions to support the NSI there has been several problems:
  - Incentives schemes has been put in place such as R&D tax, but the uptake by industry is low
  - Publications have increased but overall innovation outputs are low particularly in the areas related to pharma
  - Sub-optimal collaboration between society, government, business and academia



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# National Industrial Policy Framework (NIPF)

- Embedding of the knowledge economy by diversification into labour-absorbing industries
- NIPF through the IPAP has identified the pharmaceutical industry as one of the prioritised sectors of the economy
- According to the IPAP:
  - Considerable erosion of pharmaceutical manufacturing capacity
  - High penetration rate of pharmaceutical imports
  - High number of job losses
  - Fractious relationship between the government and industry



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# National Industrial Policy Framework (cont)

- Inaugural IPAP in 2007 identified the development of sector strategy as key to the success of the pharmaceutical industry
- Current iteration of the IPAP contends that  
*“an important aspect of the success of industrial policy that has been identified in a range of developing countries is the role of a ‘nodal agency’ in coordinating industrial policy with related policies, particularly with respect to macroeconomic issues, skills, infrastructure and technology development. The department leading the implementation of a particular strategy must have a sufficiently strong leadership and coordination capacity.”*



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# Conclusion

- The trust deficit between the pharmaceutical industry and government undermines strategic collaborations
- The country lacks an overarching strategic plan that sets direction for development of the pharmaceutical sector
- Academic research is not industry led owing to little collaborations
- Excellent research takes place and get published in leading international journals but remain unknown to local players



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*“it is doubtful whether South Africa's current industrial policy can be regarded as the best that the country can get. For example, is the current policy based on a clear and feasible vision for the future of South African industries? If so, is this vision supported by "adequate" intermediate policy objectives at the implementation level? Are these objectives compatible with each other? Are there adequate administrative and institutional capabilities to achieve the pronounced policy objectives?”*

University of Cambridge expert, Ha-Joon Chang in 1997



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# QUESTIONS



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