



**Kenya Industrial Research and
Development Institute**



**Linking Universities and Research Centers to the
Public and Private Sector for the Management,
Promotion and Commercialization of IP Assets:
Spin-offs and Start -ups**

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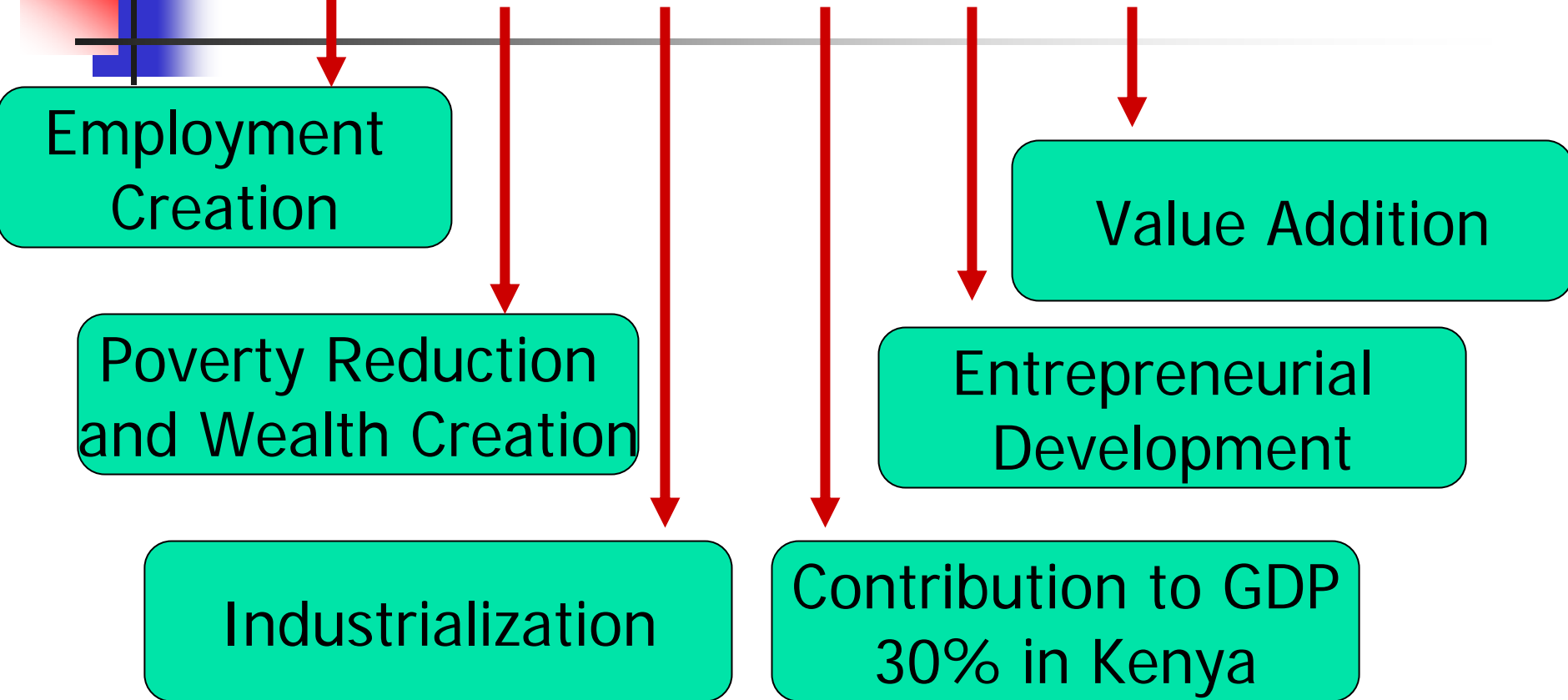
PRESENTATION OUTLINE

- ❑ Contribution of SMEs to the economy
- ❑ Contribution Universities and R&D Institutions in technological and economic development
- ❑ Linking research to industries:
Experiences from KIRDI
- ❑ Conclusions and way forward

1.0. Contribution of SMEs to economic growth of a country

- SMEs are the main source of employment in developed and developing countries alike, comprising over 90% of African business operations and contributing to over 50% of African employment and GDP (Okafor, 2006).

1.0. Contribution of SMEs to economic growth of a country



1.1.Characteristics of SMEs Products

Most of the products though functional are:

Low quality

Less attractive in appearance

Low efficiency and effective

Lack of standardization of products

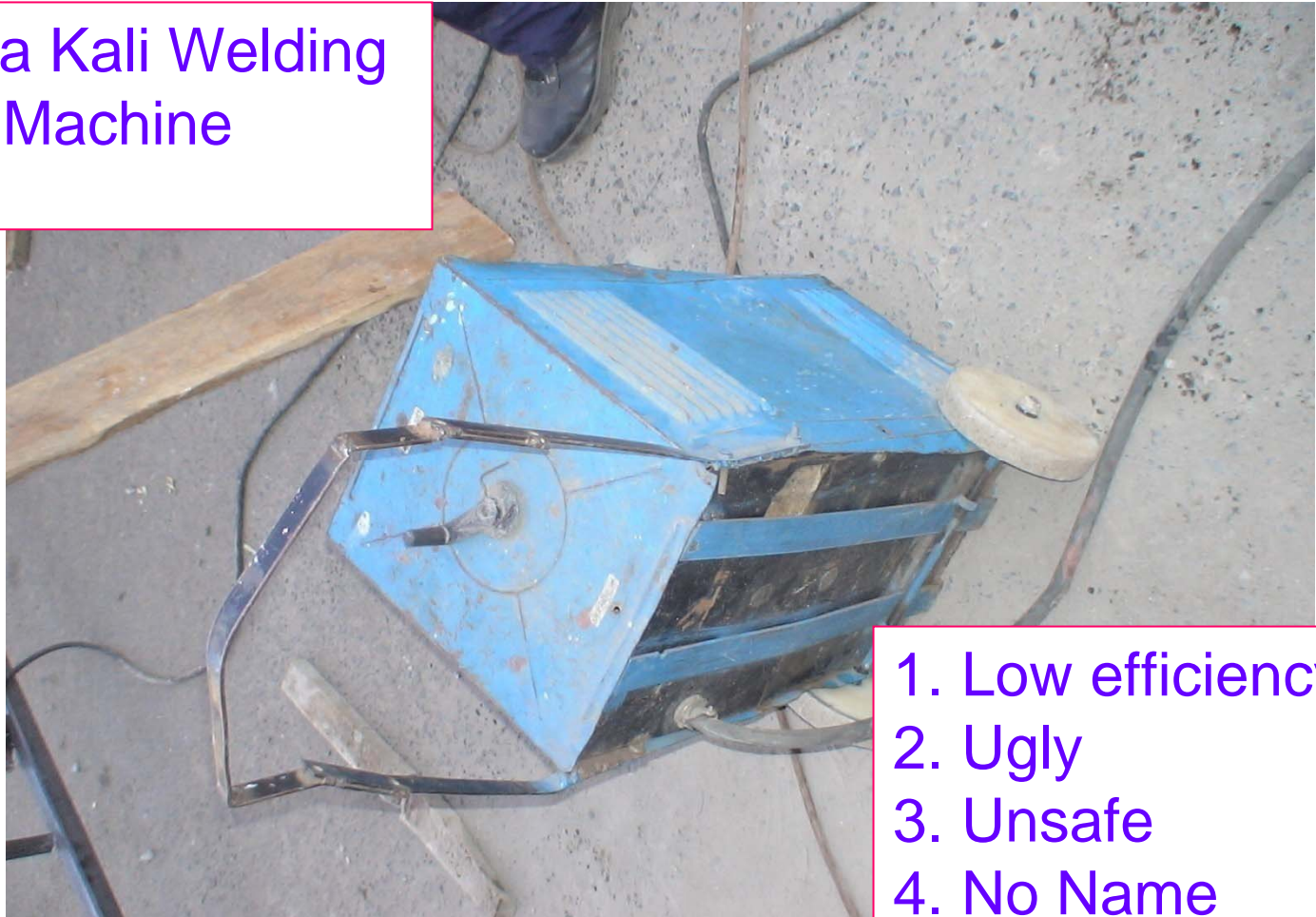
Products that are not protected by IP

3 out of 5 MSMEs Die before 5th year

The today's MSMEs would be Tomorrow's multinational companies

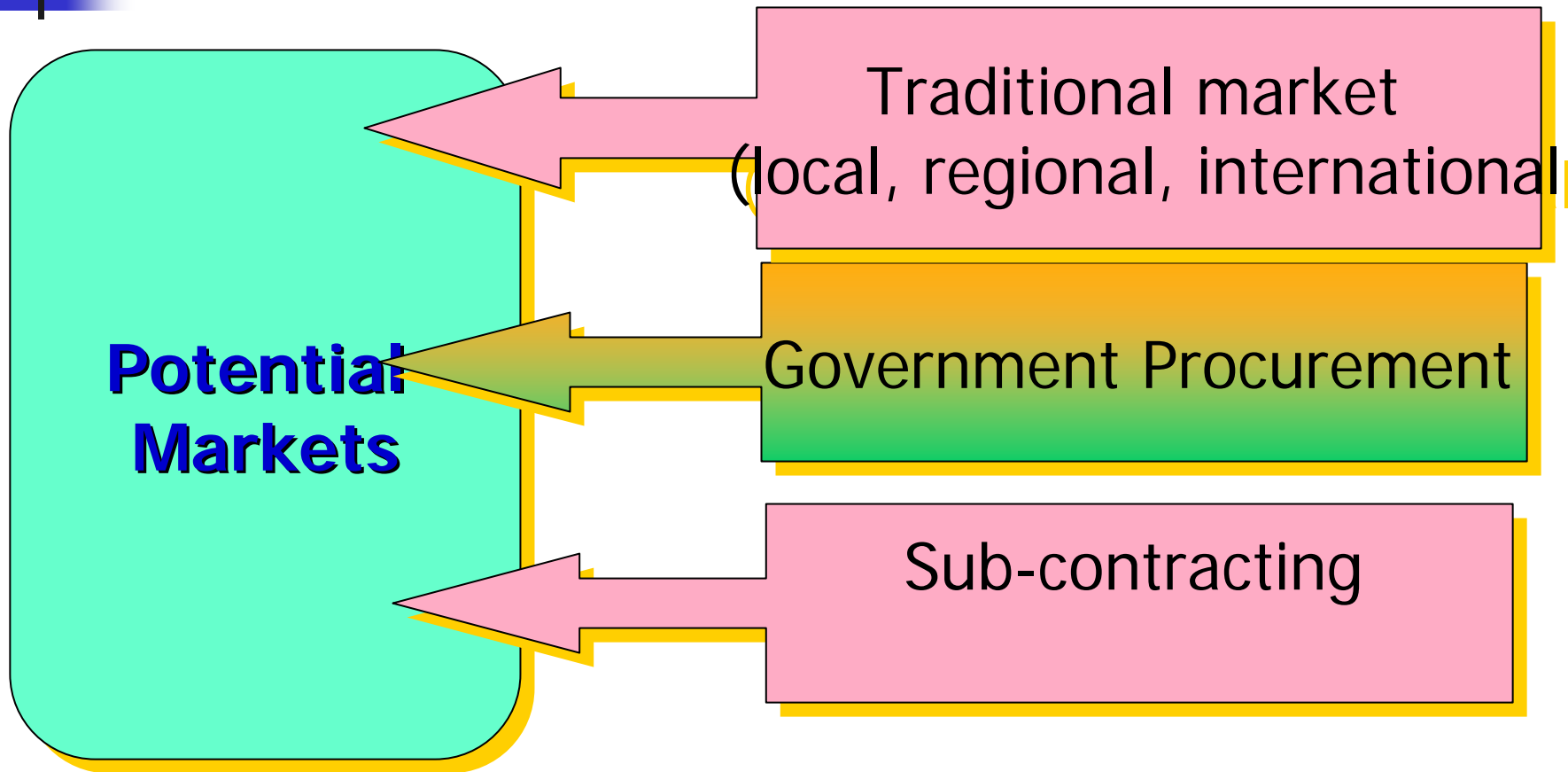
Example of Technology from SMEs

Jua Kali Welding
Machine



1. Low efficiency
2. Ugly
3. Unsafe
4. No Name

Main Challenge facing SME sector: Access to Markets



Lack of Competitiveness



1.2. Technical Needs of SMEs for Innovation

Need for new technology

Need for new product

Need for new or alternative process

Need for alternative raw material

SMEs are innovative and most of the technical needs they provide by themselves but through trials and errors

2.0. Contribution of RTOs in Technological and Economic Development of the Country

1.1. Mandates of Universities and R&D Institutions

UNIVERSITIES

- R&D
- TEACHING
- EXTENSION

R&D INSTITUTIONS

- R&D
- EXTENSION

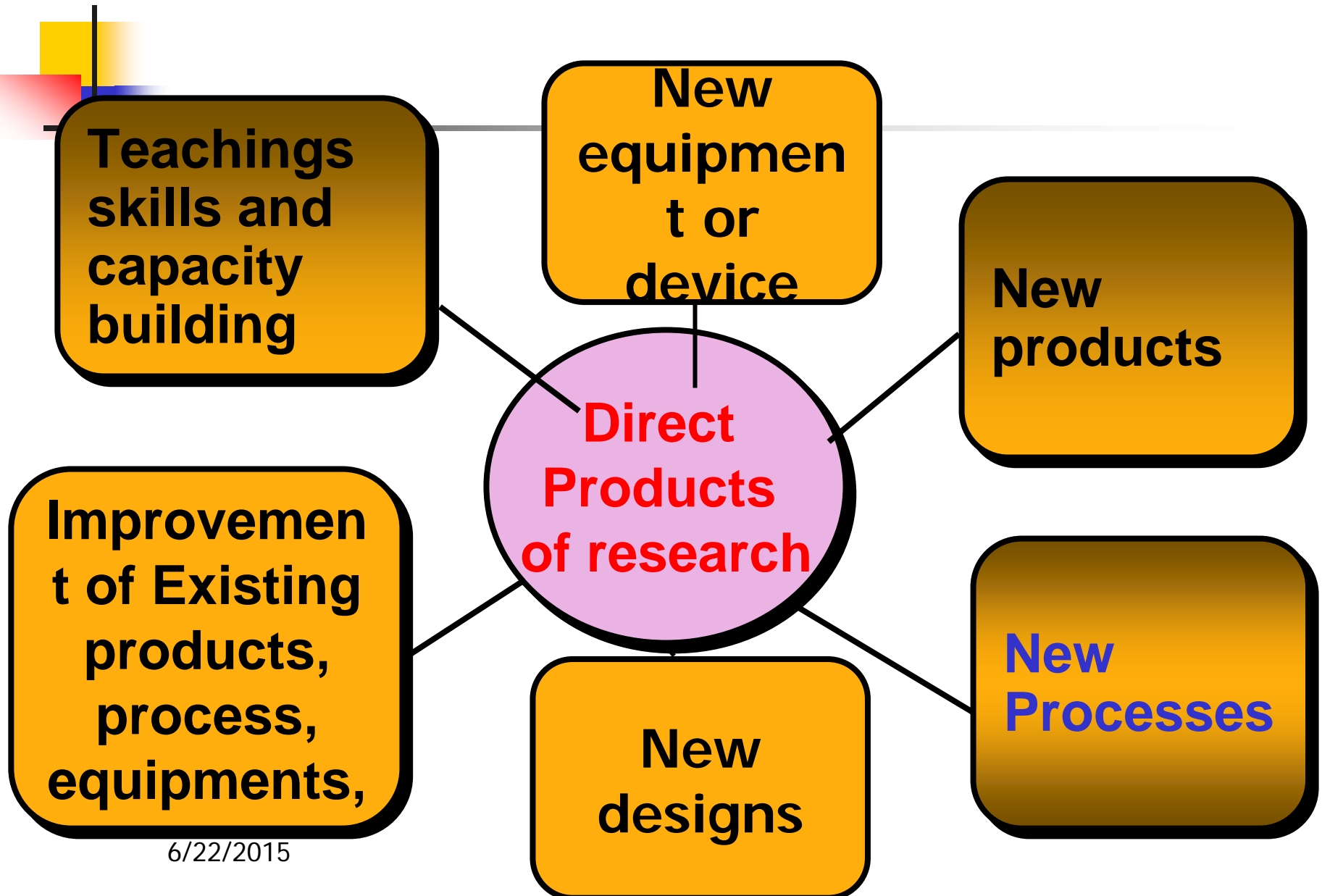
- Capacity Building
- New knowledge
- Knowledge Transfer



Technological development

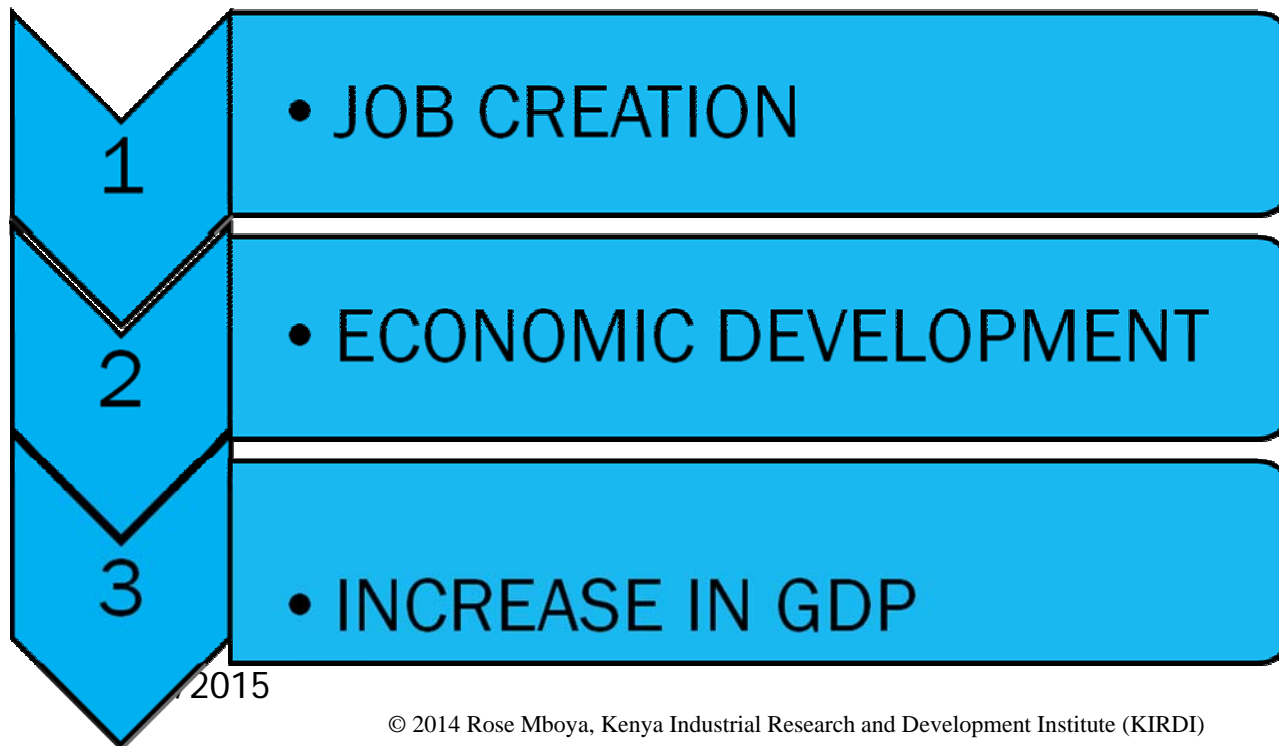
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2.1. Direct Products of Research



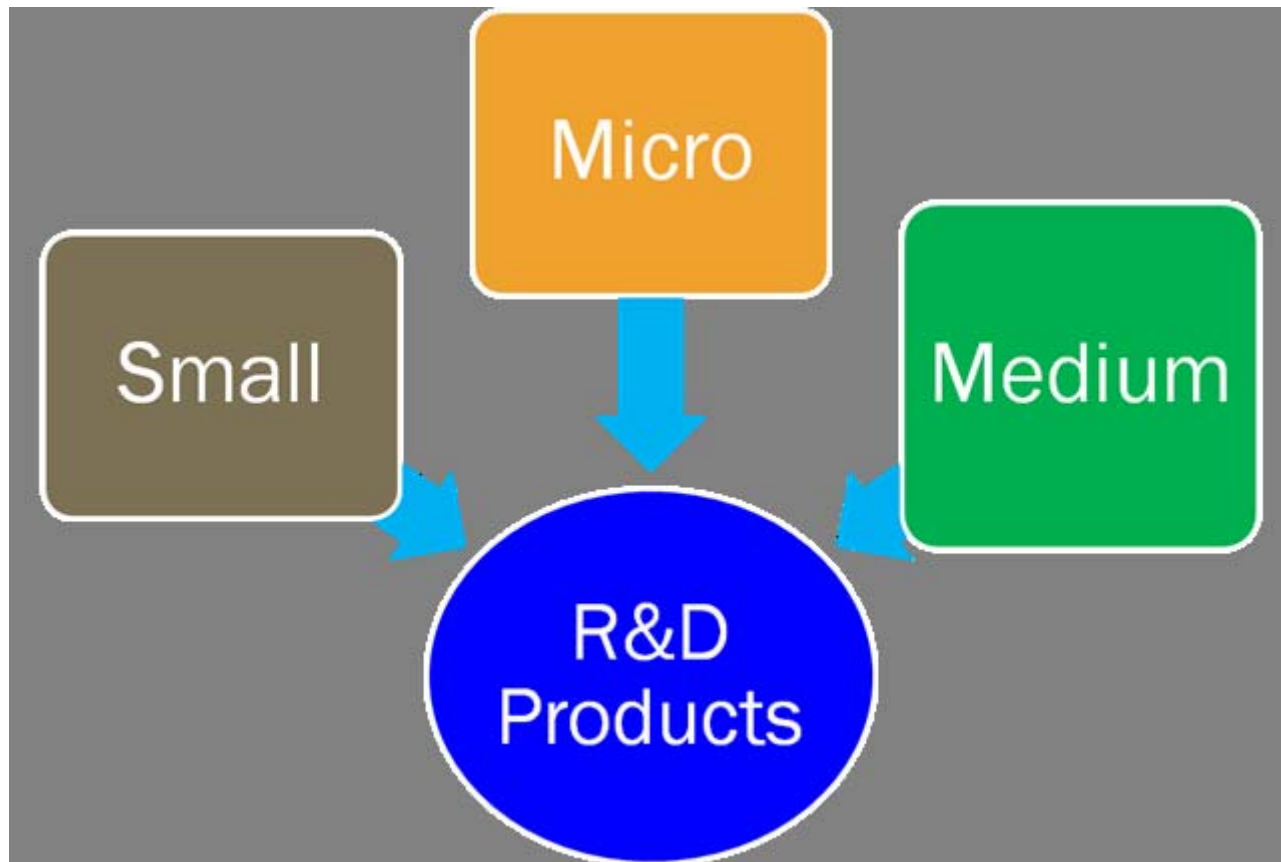
2.2. R&D and Economic Development

The new knowledge, products, processes or improvement of the same should lead to technological and economic development through:



2.3. Universities and R&D Targets

R&D Products targets the following main end users



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2.3. How Universities and R&D should contribute to SMEs growth

- R&D products must be transferred to the end users.
- Knowledge generated and not transferred are of no benefit to the society.
- For a long time Universities and R&D institutions have been seen as “ivory towers” far much removed from the society in which they exist.
- These institutions must contribute to the technological and economic development of the country.
- Align research to respond to the needs of the society

3.0. Linking Research to Public and Private Sector: Experiences from KIRDI

3.1. Role of KIRDI in Kenyan Vision 2030: Focus on SMEs

- A national **long-term development blue-print** that aims to transform Kenya into a **newly industrializing, middle-income country** providing a high quality of life to all its citizens by 2030 in a clean and secure environment.
- The vision is anchored on three key pillars; **economic, social and political governance.**

3.1.1. Economic Pillar of Vision 2030

Six priority areas identified including agriculture, manufacturing,

It puts emphasis on the following three thrusts;

- Value addition on agriculture,
- Improving on productivity and competitiveness,
- Promotion of MSEs as the future large companies
- The MSE sector key to the realization of vision 2030 for the manufacturing sector.
- KIRDI to actualize Vision 2030 through provision of Industrial Research, Technology and Innovation (RTI) services, to industry and in particular to Micro Small and Medium Industries (MSMIs).

3.2. KIRDI R&D Strategy in achieving Vision 2030

i. Mandate of KIRDI

- ❑ KIRDI was established under the Science and Technology Act Cap 250 of 1979 as a corporate body and mandated to;
- ❑ First undertake industrial research and development in all industrial and allied technologies including mechanical, civil, electrical, chemical engineering, energy, environment and commodity technologies (food, leather, textile, ceramics).
- ❑ Second to disseminate and transfer of the knowledge generated to the society through extension services

For a long time KIRDI had concentrated on R&D with little emphasis on Technology Transfer to Industries

3.3. Alignment to Changing Emphasis TT

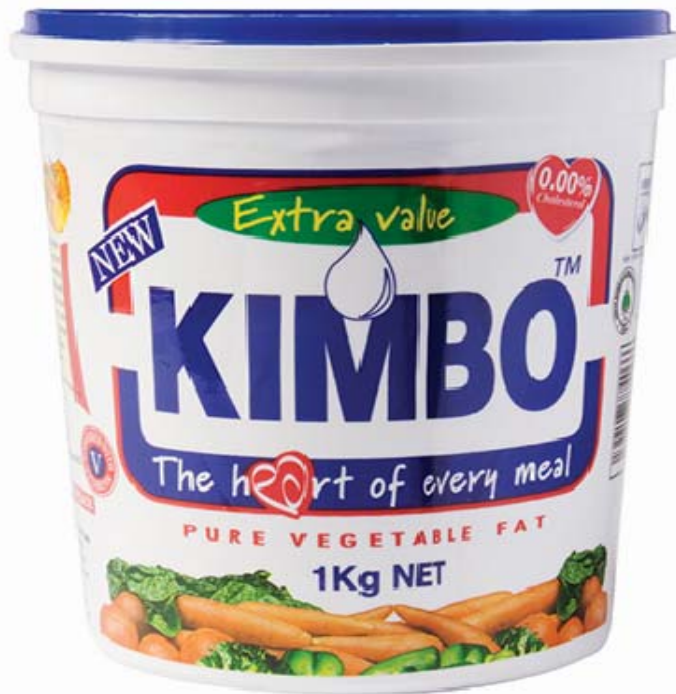


- Technology Transfer Department
- IP Office and Policy
- Prototype development policy
- Business incubation services
- Pilot plants (Start Ups and Spin Offs)
- Common manufacturing facilities
- Reverse Engineering

3. 4. IP Commercialization and Technology Transfer Methods at KIRDI

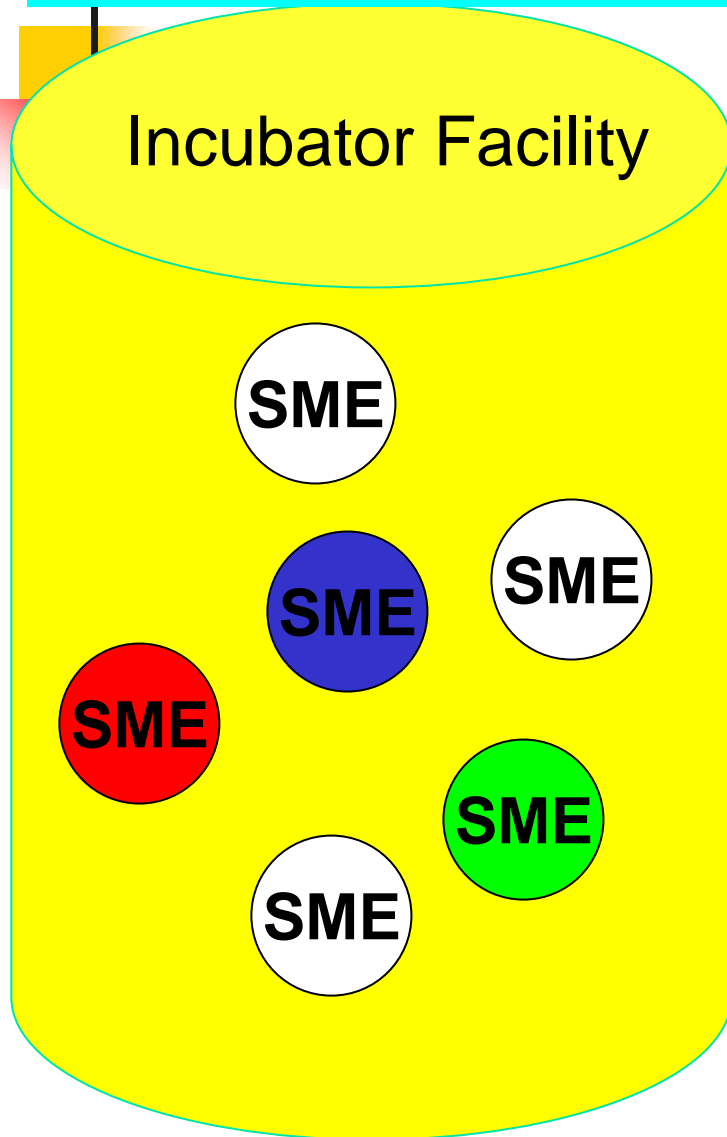
- Donation
- Licensing
- Outright sale
- Join Ventures
- Spin outs
- Start ups
- Technology upgrading

3.4.1. Technology transfer



- KIMBO-Kenya Industrial Management Board
- KIMBO among the Earliest products transferred to a company (Uniliver)

3.4.2. Business Incubation Services



1. Role of the Incubator
 1. Capacity building
 2. Technology and skill
 3. Marketing Access
 4. Business Information
 5. Supply pre-financing
 6. Negotiation with the government
2. Success factors
 1. Increases survival rates from 20 to 80 %

Companies incubated at KIRDI

Training on bar soap manufacture



Training on liquid detergent manufacture



Companies incubated at KIRDI



Companies incubated at KIRDI



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3.4.3. Creation of Companies



- Spin outs = Creation of a company by RTO to commercialize an IP
- Start ups = Creation of company by investors from outside based on IP Assets of an RTO

Examples of Start Ups Companies based on KIRDI's technologies



NYONGARA BIOGAS PLANT IN DAGORETI-NAIROBI



HONEY PROCESSING PLANT IN WEST POKOT

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3.4.4. Common Manufacturing Facility Food



Achievements:
In leather sector- more than 2000 SMEs supported and capacity built

3.4.5 Technology Upgrading and commercialization



Good handle
Temperature
control
wheel for easy
transport
Fan



Video Presentations

- × Leather Processing Fish
- × Honey Processing
- × Gasifier Stove

3.6. Summary of KIRD's Role to the realization of Vision 2030

- Since 1979 more than 50 companies established as start ups
- Since 2006 more than 40 companies incubated and established through business incubation services
- Since 2006 more than 10 companies established through Joint Ventures
- Since 1979, 5 Companies established through Common Manufacturing Facilities in the leather sector
- Since 2006 More than 10 Technologies developed through technology upgrading and Transfer

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3.6. Summary of KIRDI's contribution to growth of economy

- KIRDI is in the process of documenting its activities and some of the technologies are already on **you-tube**.
- **Gasifier Stove-37,787 views**
- Fish Leather- 3,157 views
- Pineapple processing-2,535 views
- **Honey processing-1,329 views**
- Others check KIRDI website www.kirdi.go.ke

3.7. Food for Thought: Examples of Institutional Spin Out Company

In 2003, U.S universities reported 374 licenses to spin out companies

- By 2005, Stanford university established 140 companies
- Spin out companies are sources of new jobs
- Can produce for exports
- Hewlette Packard in Silicon Valley have grown from spin out companies to major companies
- Uganda, Zimbabwe, Botswana, Malawi, Sudan, Namibia,???

Conclusions

**Commercialization of R&D outputs
and Industrial Research are the two
cogwheels of wealth creation**



**R&D if properly managed and
directed can lead to technological
and economic development**

Thank you

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