Kenya Industrial Research and Development Institute

The Patent System and its Use by Business, Industries and Research and Development (R&D) Institutions and Individuals

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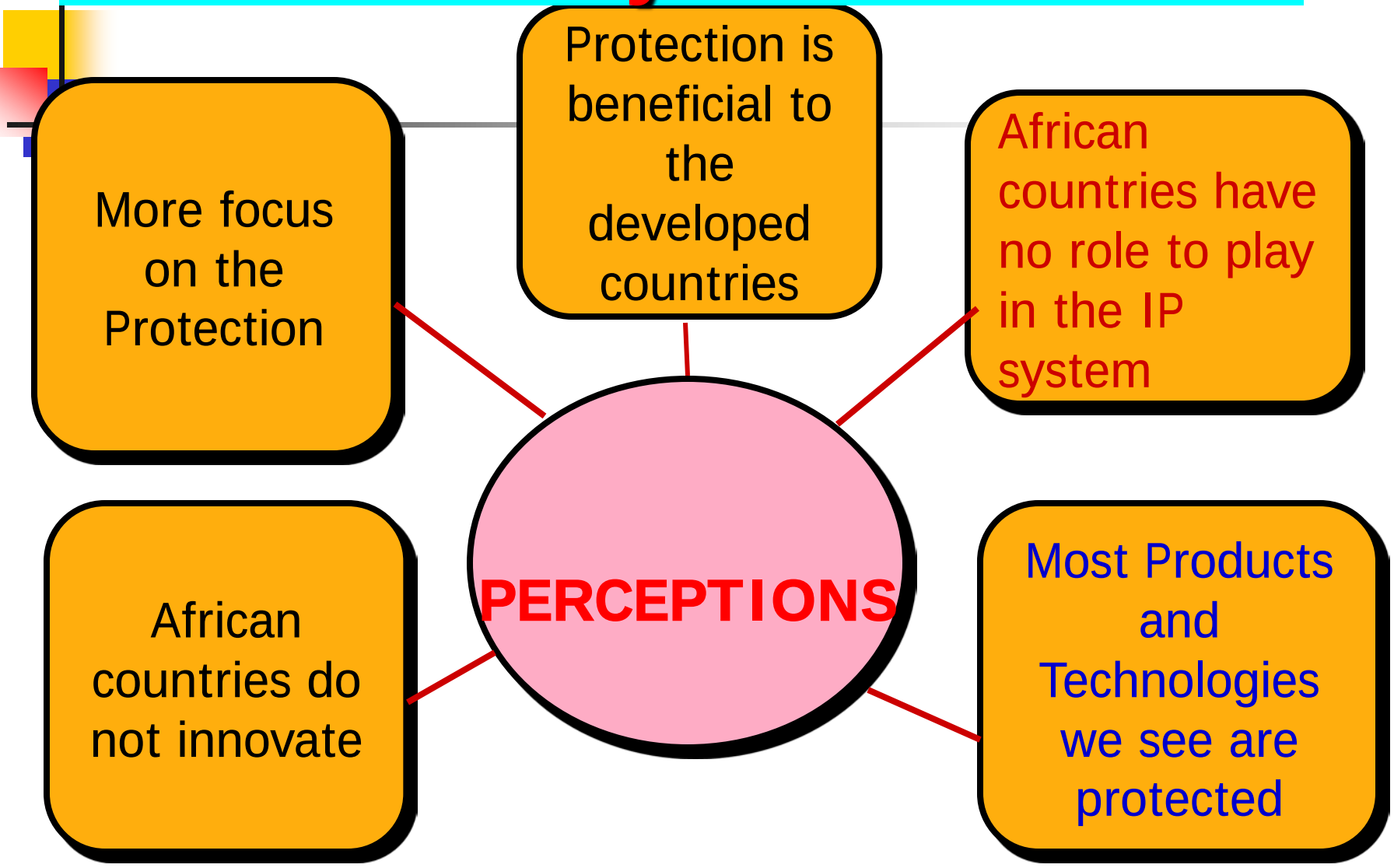
Presentation Outline

- Opportunities for exploiting patent information by African countries
- Use of patent information by R&D Institutions
- Use of Patent information for business competitiveness
- Way forward and Lessons learnt

1.0. Opportunities to exploit from Patent system



1.2. Evidence supporting the perceptions

IP Applications mainly by foreigners

Local residents make very few application

RTOs file very few patents or even none

Most of which are not commercialized

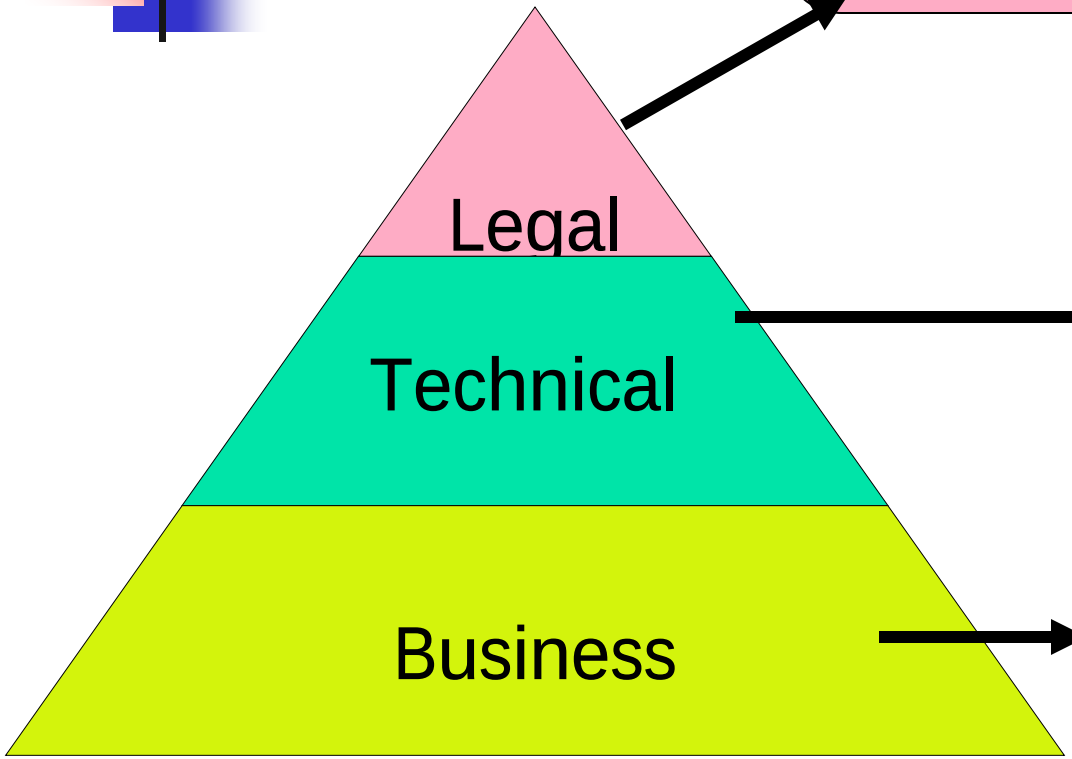
1.3. Limitations to Patents owner's exclusive rights:

- Territoriality nature of protection
  - Time frame for protection
  - Need for maintenance of the application
  - Patents have limits of scope (claim section)
- Exploitation for research purposes
- Voluntary licensing
- Parallel importation
- Compulsory licensing
- State exploitation or government use (national security

1.4. Information Functions

- “Full disclosure requirement
  - Each publication of a patent is the base for new technical developments by other inventors.
- it acts as a catalyst for the commercialization of inventions and their transfer to productive use
- majority of patents are improvements to existing patented inventions.
- **Patents are published** before grant or rejection

1.5. Contents of Patent Document



legal status. stages a patent is still in force, when the next fee will be due

cover the technical knowledge contained

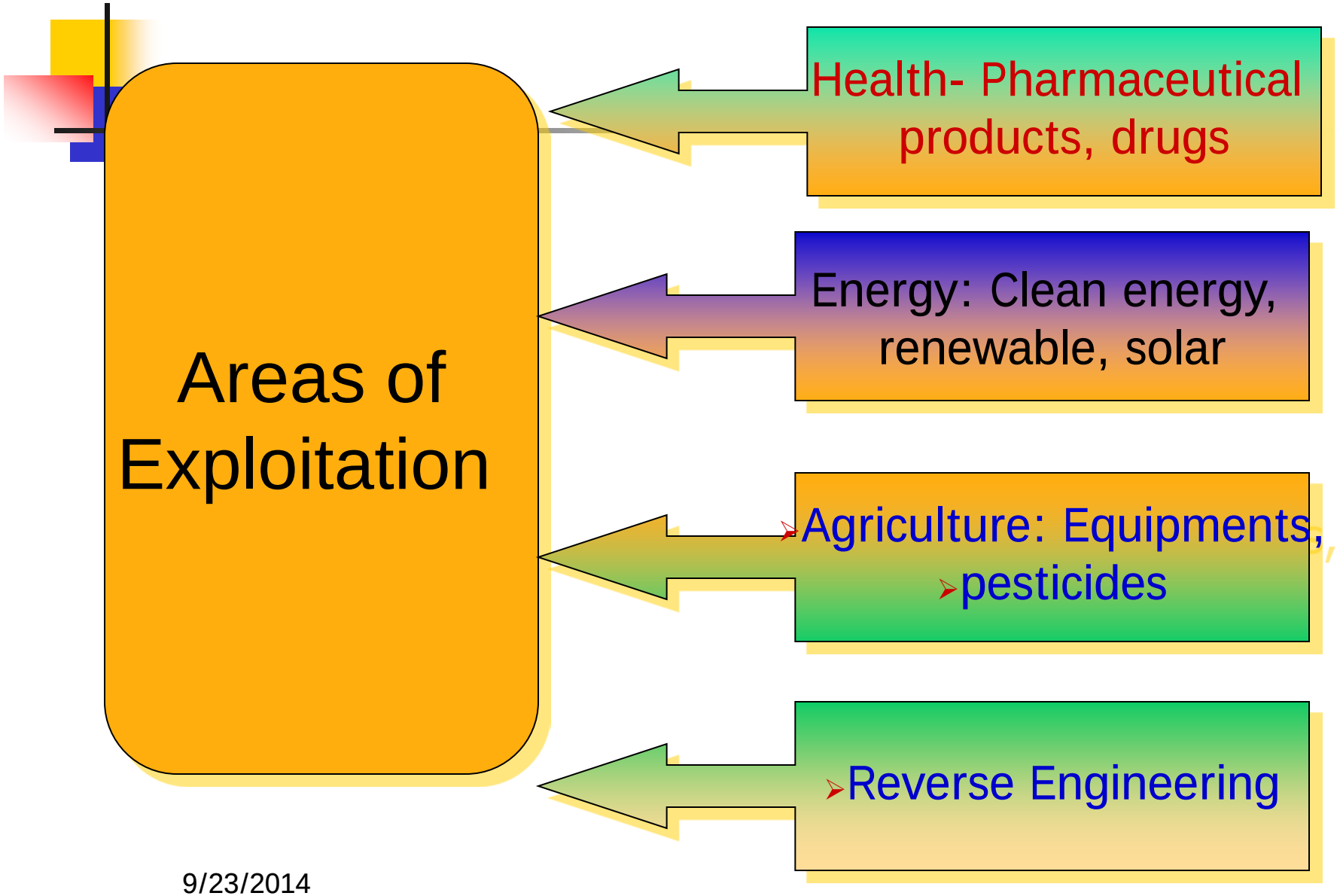
data of applicant, inventor, classification Symbols date of filing, representative, country of filing, document number

1.6 Patent documents worldwide

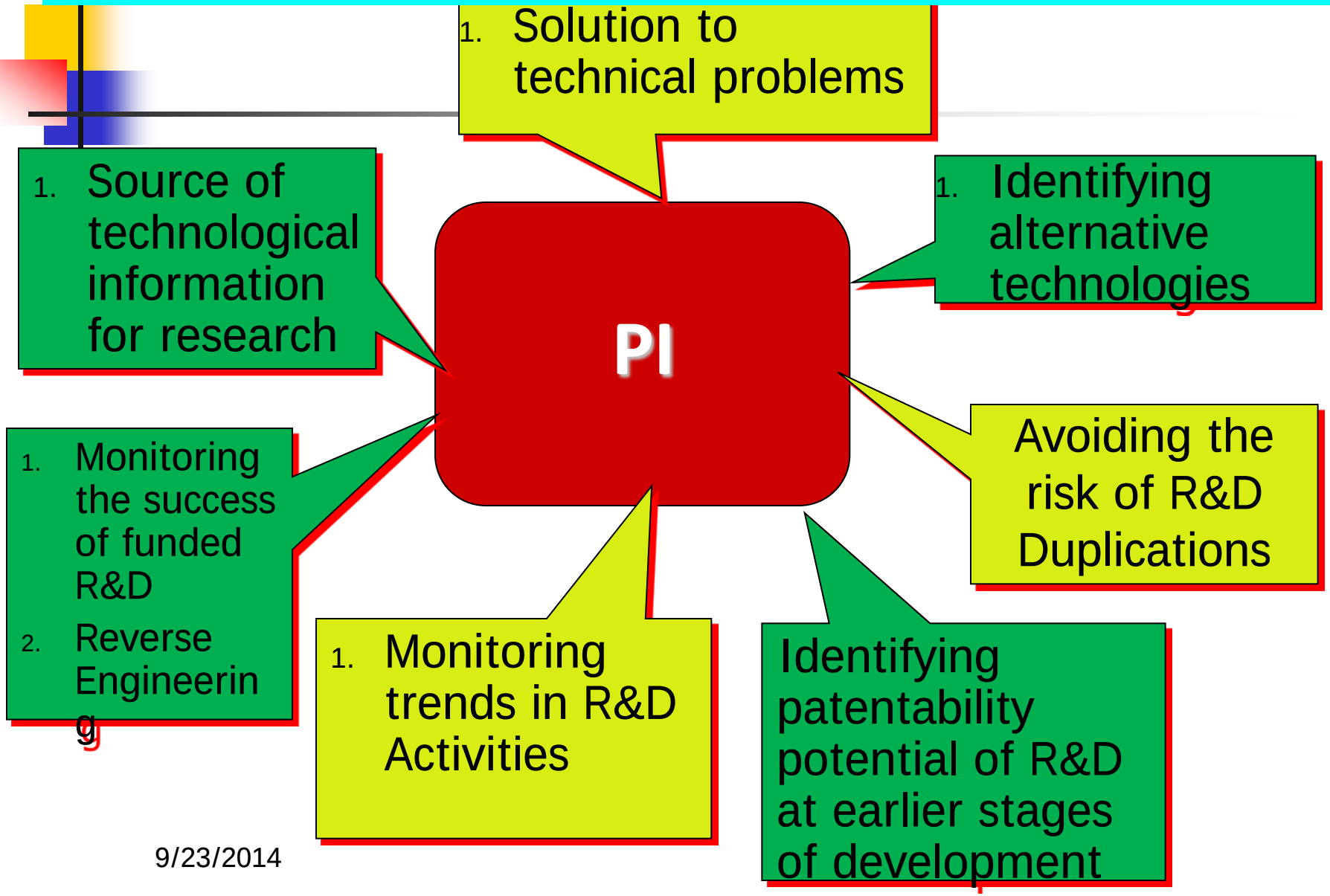
- Around 70 million Patent Documents World wide:
- 10 Million Patents currently in force world wide
- 60 Million patents can be exploited for FREE

Country	Number of Patents filed	Free patents to be exploited
South Africa	>10,000	69, 990,000
Kenya	1300	69, 998,000
Tanzania	>1000	69, 999,000
Sierra Leone	>100	69, 999,900
Botswana	>100	69, 999,900

1.7. Areas of Exploitation



1.4. Potential of Patent Information for Research



1.8. Patents Documents

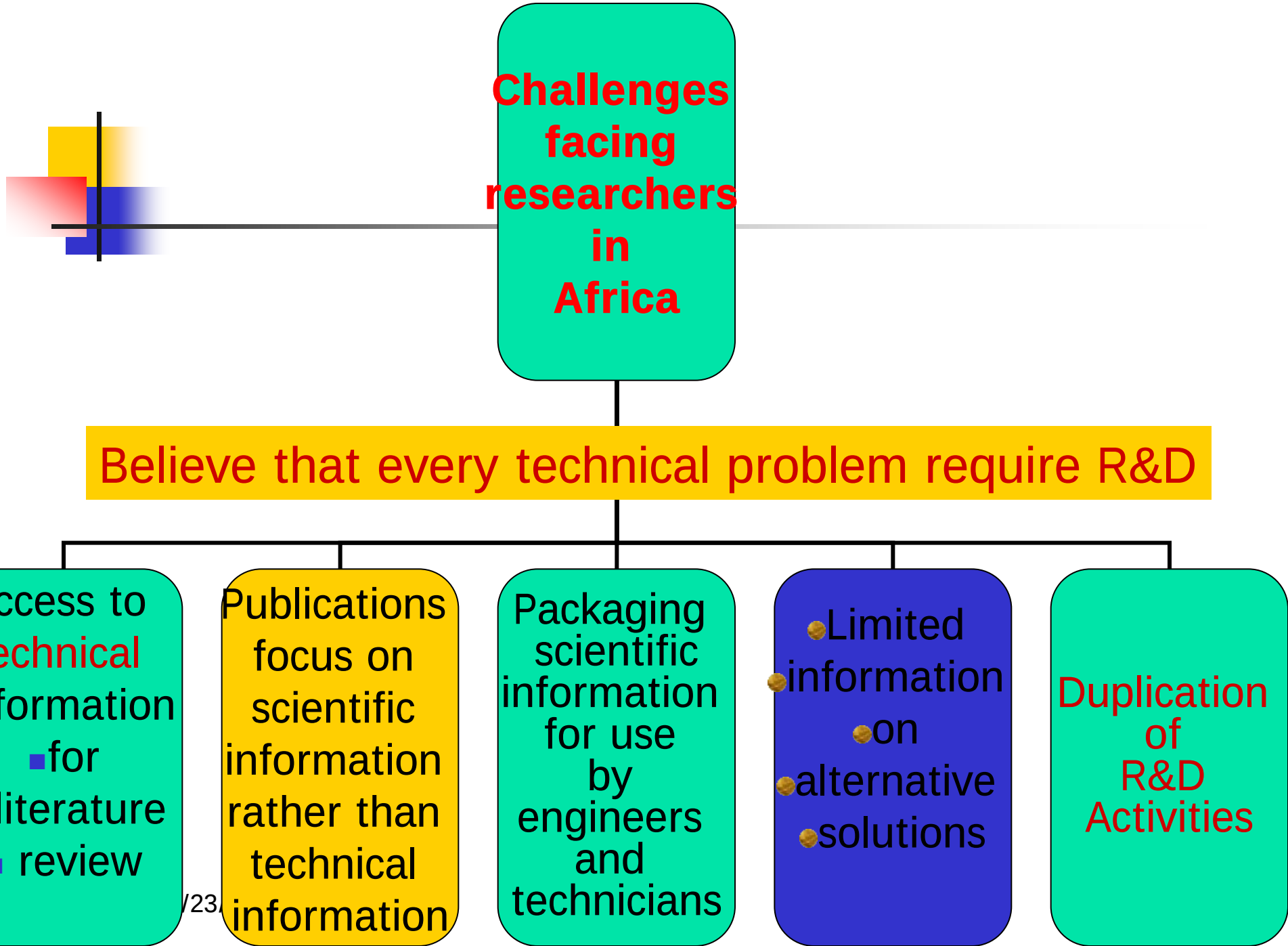
First and Only Publications

form the most comprehensive technical resource in the world

- Majority are first and only publications.

Disclose Information Earlier than other Sources

- Convey the most recent information since applicants always try to file their applications as soon as possible
- Patent of television by Baird patented in 1923 and took five years to be in other literature
- Jet engine by Whittle was patented in 1936 and took 10 years to be in other literature

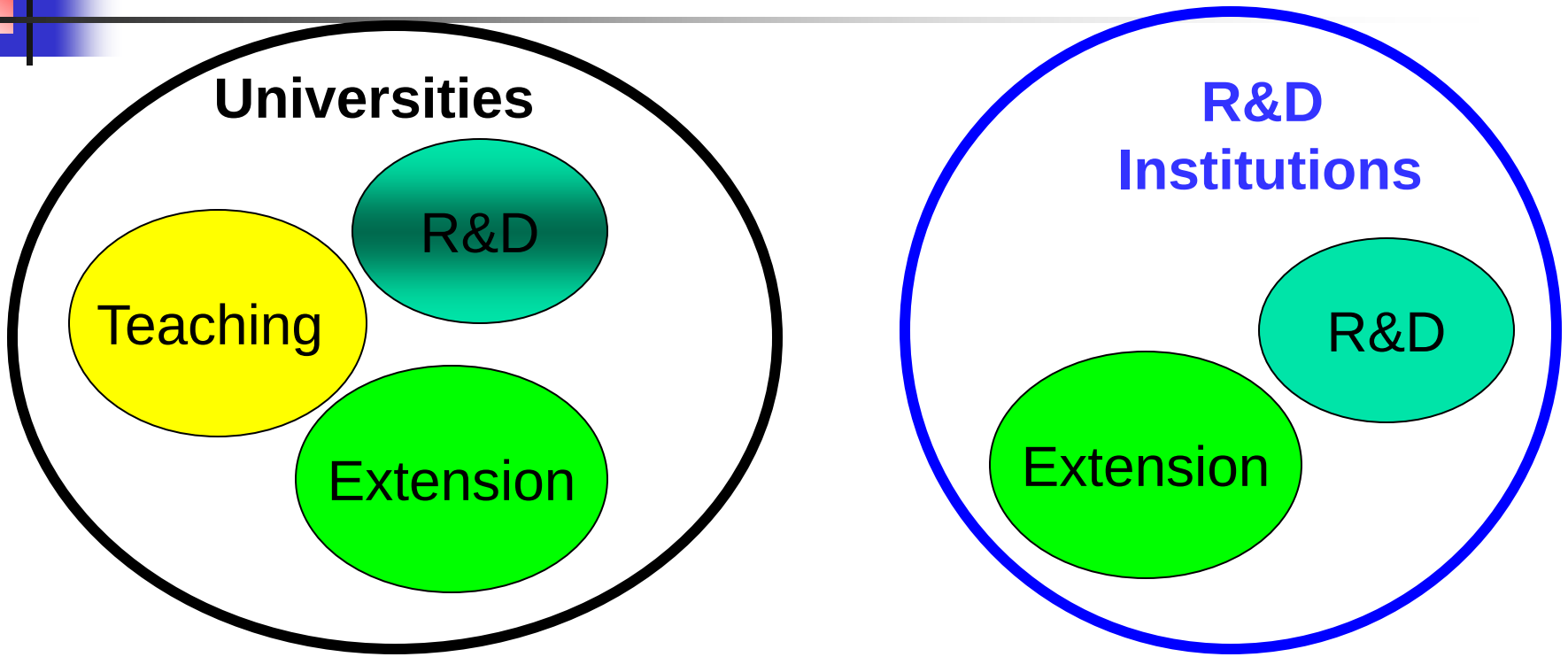

Challenges facing researchers in Africa
Believe that every technical problem require R&D
ccess to echnical nformation for literature review
Publications focus on scientific information rather than technical information
Packaging scientific information for use by engineers and technicians
Limited information on alternative solutions
Duplication of R&D Activities

3.0 How R&D can use PI Information for Research and Development

Challenges facing use of PI by researchers in Africa

- Information in patent documents is in technical language may need some body to translate it in a language that can be understood
- Searching patent documents require some training
- IP offices are expected to provide the information in addition to other services sometimes cumbersome
- Lack of continuous internet connectivity

Mandates of Universities and R&D Institutions



- Capacity Building
- New knowledge
- Knowledge Transfer

→ Technological development

Role of Universities and R&D Institutions

Direct Products of the research

- New knowledge
- New technology
- New products
  New processes
- Improvement of existing technologies, products, process

KIRDI's R&D Strategy and Use of Patent Information

Established under Science and Technology Act Cap 250 of 1979

Mandate of KIRDI

Undertake Industrial Research and Development

Disseminate and Transfer R&D Products to the society through extension services

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

Alignment to Changing Emphasis on TT

Strategies in place

- Technology development through research and development.
- Prototype development
- Transfer of KIRDI's research output to investors
- Patent documentation and reverse engineering.
- Provision of common manufacturing facility for growth oriented SMEs.
- Manufacturing oriented business incubation services.

. Use of PI for R&D

Provide State of the Art

- And what is already known (state of the art)
- History of technological progress in the field

Identifying Solutions to Technical Problems

Patent documents often discuss the difficulties of a particular process or design, advantages of a particular process or design.

- A search in Patent Literature can potentially identify solutions to technical problems

KIRDI researchers use PI as potential source of solution to technical problems

KIRDI R&D Strategy and use of Patent Information

Example A method of extracting artemisinin from Artemisia annua

- In 2007 A company in Kenya extracting artemisinin for the production of Malarial drugs approached the Institute requesting for an improved method of extracting the artemisinin from Artemisia annua for the treatment of malaria.
- The technology that the company was using involved so much input (raw materials) with very little output (Concentrate).

Searching for Information in Specific Field

Knowledge of technology in a specific field can be gained through a search of the relevant literature. Valuable information may be provided concerning raw materials, procedures, processes or by-products

- Choose the most favorable conditions under which to implement a new solution or an established solution to a slightly different problem.
- KIRDI researchers use this avenue when working on their research projects

Evaluating Specific Technologies offered for Acquisition

- **Evaluation of technology** available for licensing and offered for acquisition.
- In choosing between two or more technologies
- A review of patent documents provides information
- A review of both present and past technology currently used and unused, in similar and unrelated fields, can also be evaluated. For instance in the artemisinin case

Identifying the Patentability Potential of R&D activities at earlier stages

A search in Patent Literature will :

- help determine whether the development is likely to be novel (for patenting)
  - Usually the case before filing any application at KIRDI.
  - The researcher is informed accordingly

Monitoring Trends in Technological Development

Monitoring the Success of Funded R&D activities at early stages of Development

Patents are used as a measure of the success of funded research and development programs.

- The nature and number of patents filed and granted, indicates the level of success of a program.
- KIRDI has filed more than 10 applications
- For instance a research with no patent applications is likely to be a duplication of existing work

Avoiding the Risk of Duplication of R&D

KIRDI's main mandate is to carry out research,

- Use of a patent search to establish the state-of the-art for a new research is important.
- To ascertain the novelty of research
- Alert the scientist or researcher of previous research in the area (e.g Production of bio diesel from algae),
- at the EPO, we estimate the cost of duplicate research to be 20 billion euro a year in Europe alone.

Universities and R&D not to spend MONEY carrying out research already existingc

Identifying Rights in the Public Domain

- Patents have duration of protection
- Territory of protection
- Patents whose legal protection has elapsed are in the public domain and can be exploited freely without requiring the authorization of the original inventors.
- This facility is very important in African countries where the informal sector and small and medium-sized enterprises are considered major engines for industrial transformation.
- Invention on artemisinin was in the public domain

Technology Scanning and Reverse Engineering RE

RE a process of dismantling an existing technology with a view to learn and copy in order to produce similar technology

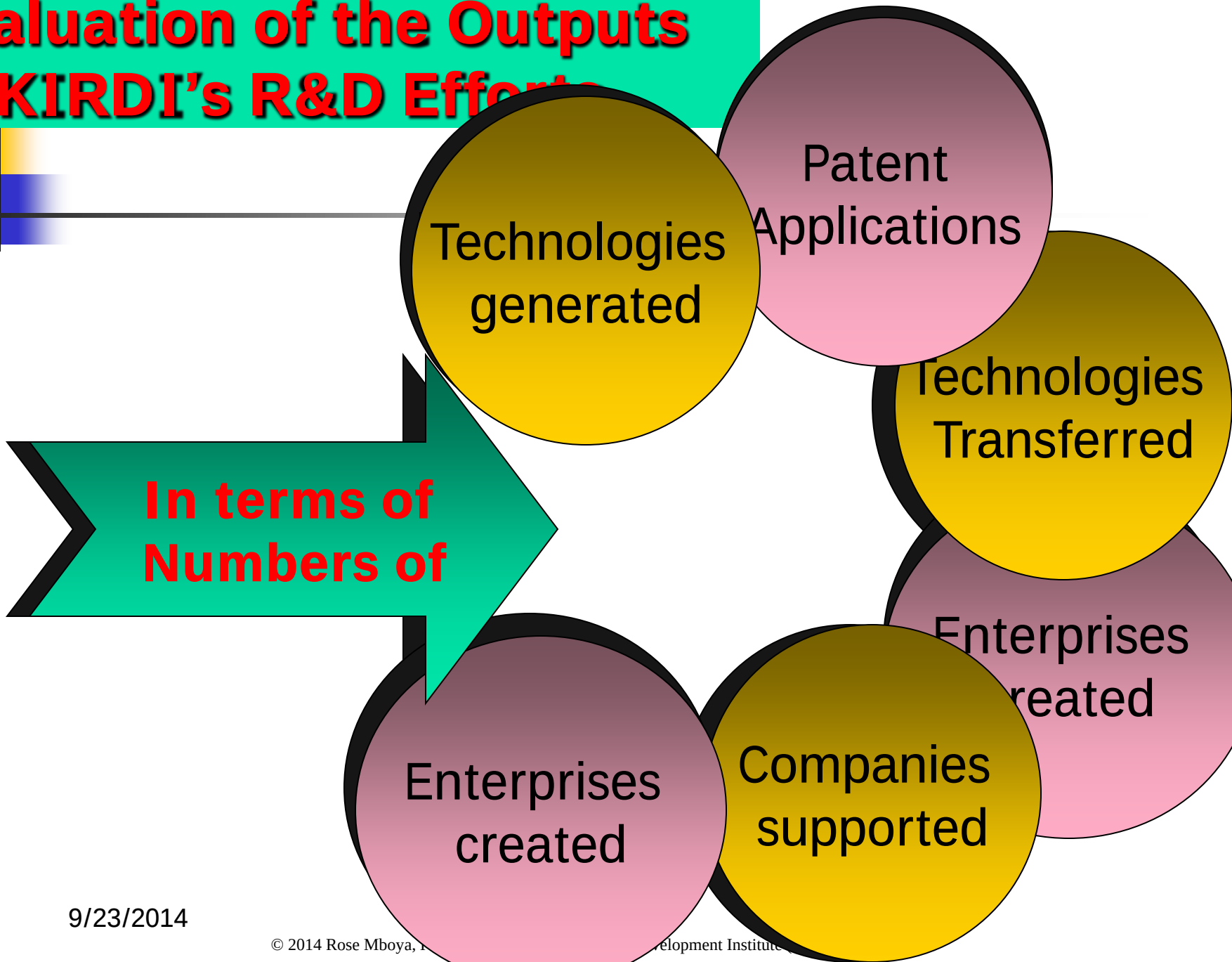
- This method is cumbersome and time consuming.
- It is common in the SMEs sector
- Most universities and research institutions use reverse engineering in developing technologies
- Use of patent information is valuable

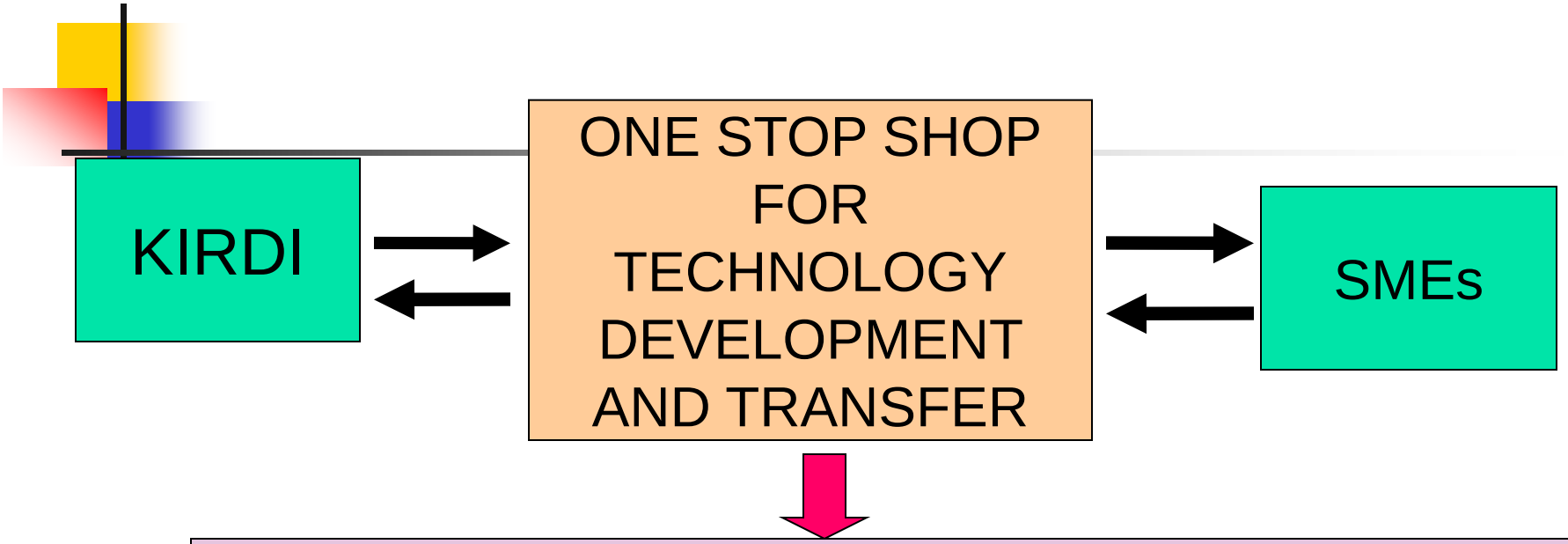
Providing Assistance during Development and Marketing of New Products

Patent searches important in the process of initiating, developing and marketing a new product or process. They are useful for:

- Identifying companies which are end-users of a particular product or equipment;
- Analysis of the patent holdings of specific inventors within a narrow research area can be used as an aid to recruitment, since it can identify a major player in the field, whose services could then be sought.

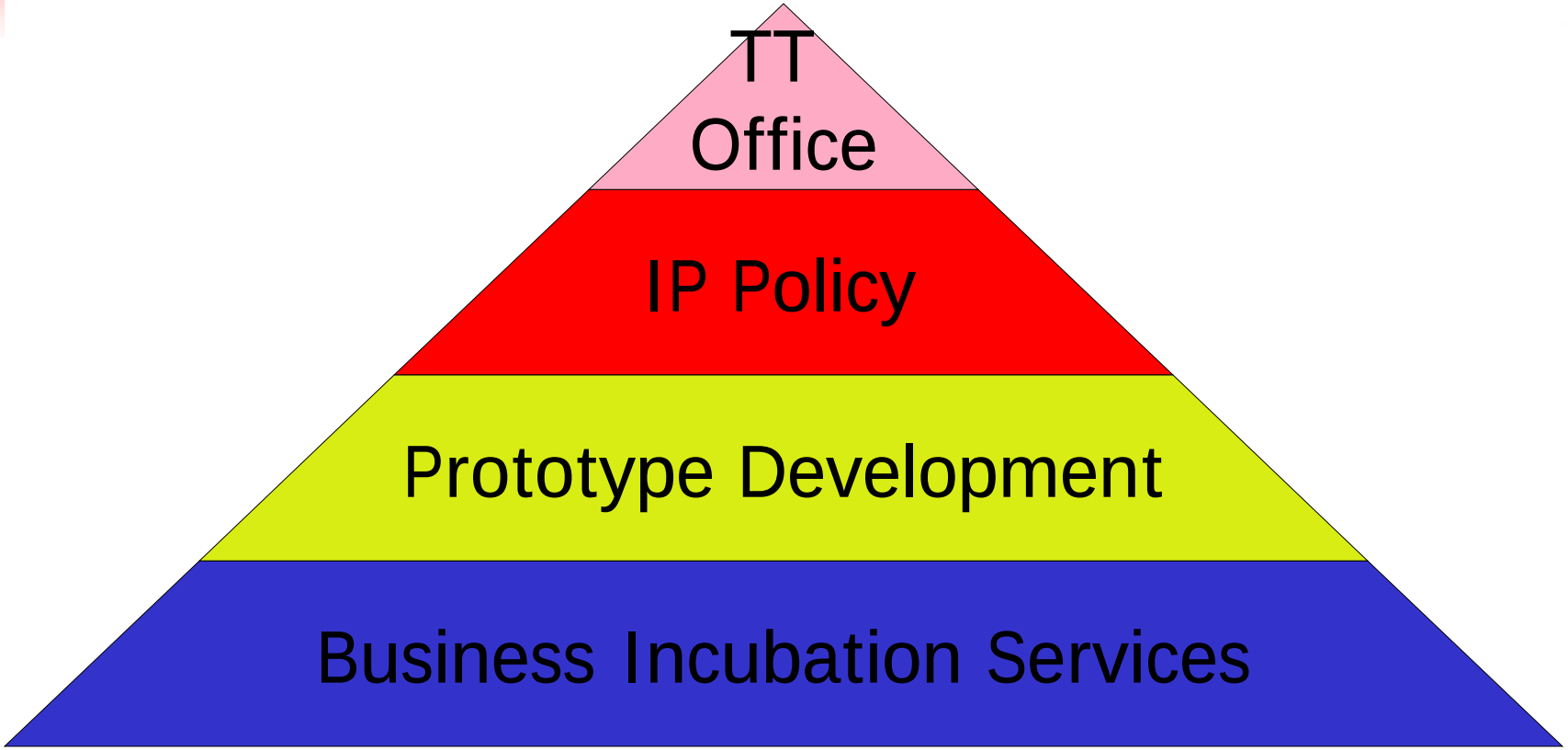
Evaluation of the Outputs of KIRDI's R&D Effort



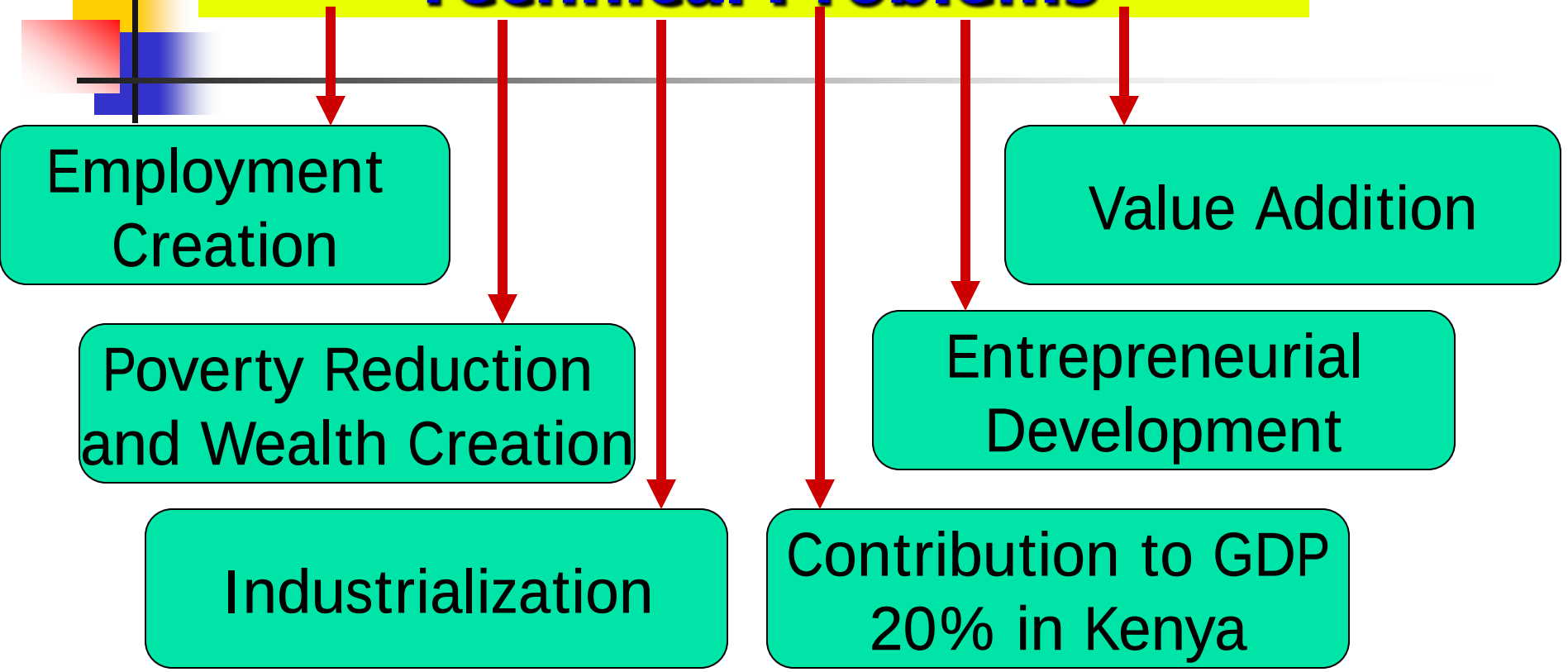


- Patent Information System
- Research and Development
- Reverse Engineering and Upgrading of MS ME products
- Prototype Development
- Incubation Services
- Common Manufacturing Facility

Facilities in Place for use of PI



Importance of SMEs to Technical Problems



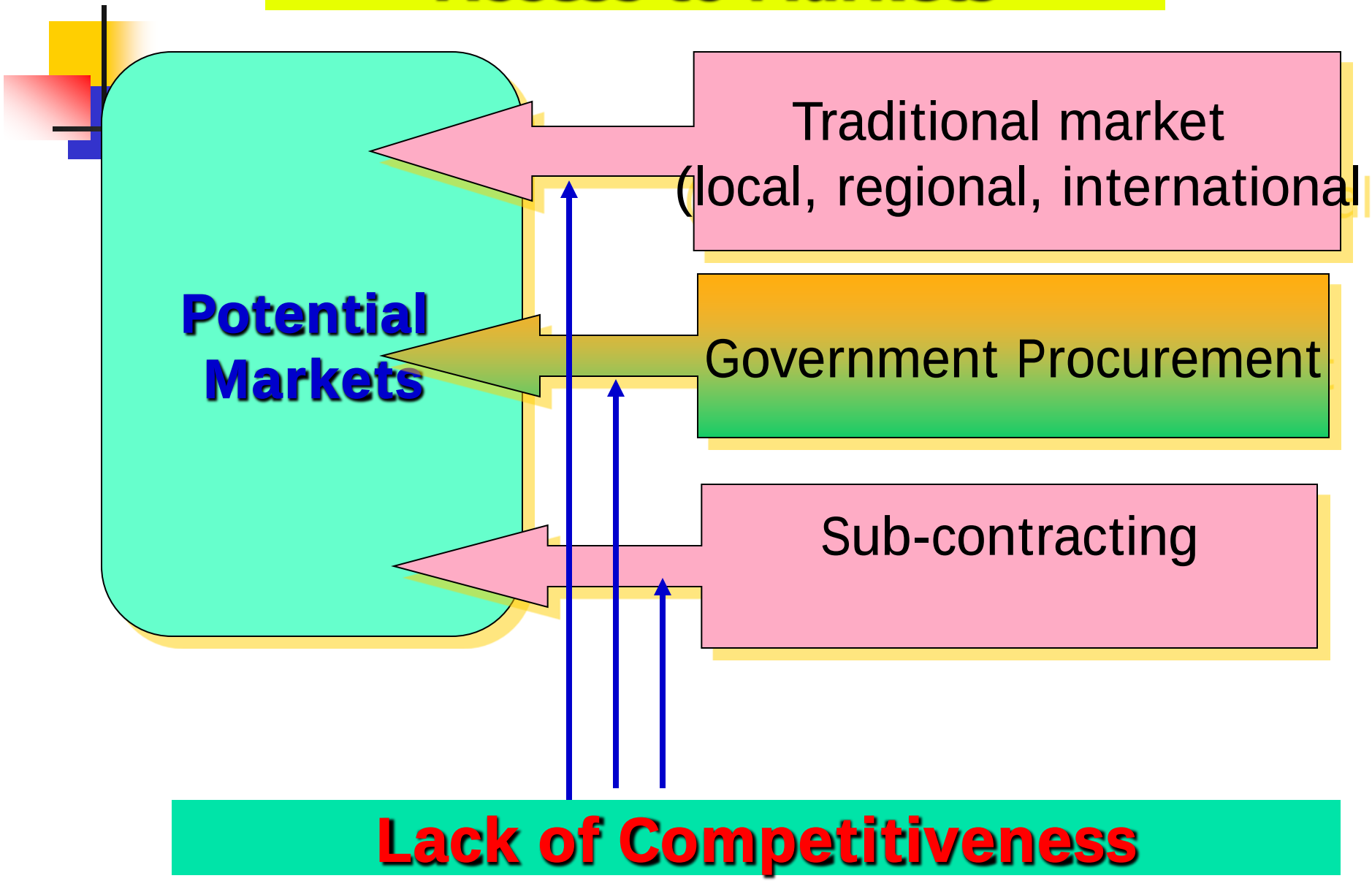
Characteristics of SMEs Products

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
- MSMEs are known to be very innovative.

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

Access to Markets



Technical Needs of SMEs for Innovation

Need for new technology

Need for new product

Need for new or alternative process

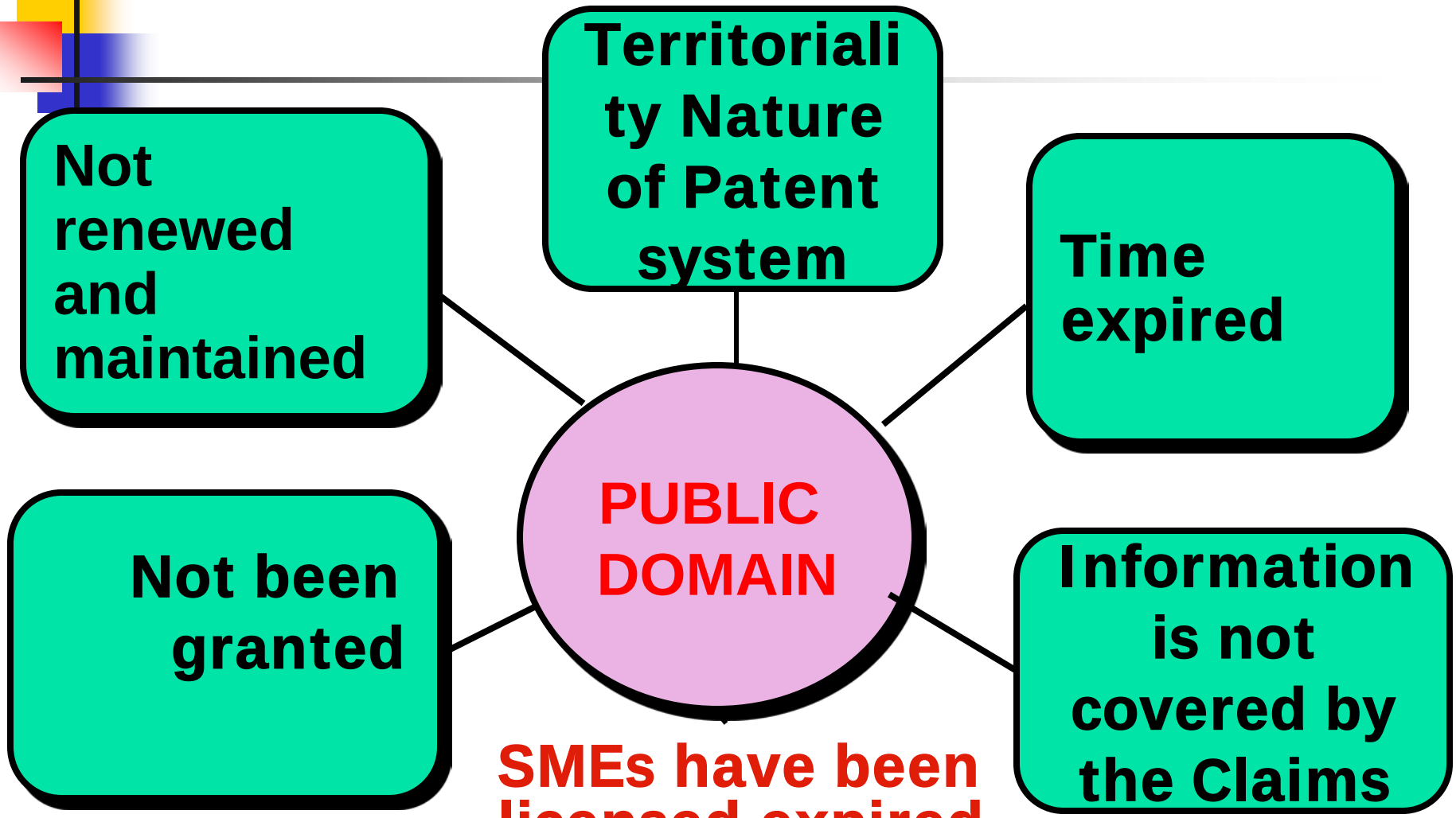
Need for alternative raw material

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

Legal Needs of SMEs for Innovation

- Most SMEs require technology for which they are ready to pay either through licensing or buying but still can not access such information
- SMEs are not aware of the legal provision that may allow use of other people technology without paying for it
- Some SMEs spend time trying to develop a new product that is already existing and protected and are disappointed when they can not use their products

Use of PI to meet the Legal and Technical Needs of SMEs for Innovation



4.0 Situation in Kenya

- Current use of Patent Information for R&D is still very low in most institutions
- Reverse engineering very common in the Universities and R&D Institutions
- Use of Patent Information depends on
  - Awareness of IP
  - Existence of Technology Transfer Offices
  - IP Policy
  - Technology Transfer Managers

4.0 Situation in Kenya cont..

- Kenyan institutions are putting in place infrastructure that will promote utilization of Patent Information for Research and Development
- Levels of IP awareness increasing steadily
- 3 Training of researchers on use of Patent Information
- Some institutions have already established TISC

4.0 Situation in Kenya cont..

Lessons learned

- **SMEs can produce quality product if supported to access technology and standards**
- **Patent Information and Reverse Engineering Offers a great opportunity for this**

Conclusions

- Patent information is interesting not only because of its legal and technical relevance, but increasingly because of its importance in a business context. Patent information provides a wealth of information for many people involved in business, especially corporate decision makers, investors, managers and innovators working in research and development.
- Use of Patent Information should be an integral part of R&D in Universities and R&D Organizations
- There is a lot of benefit that these institutions can obtain from patent data bases
- Effective utilization of patent information requires structures for identification and interpretation of relevant patent documents.

Thank you

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