

Leveraging Science, Technology and Innovation to Foster Creative and Innovative Research and Education Communities

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Introduction

- Multifaceted and interrelated scientific, technological and socio-economic issues that require coherent government support across disciplinary, sectoral and policy silos (OECD, 2019).
- Tackling global challenges of unprecedented scale and scope requires better strategic orientation and holistic co-ordination of Science, Technology and Innovation (STI) interventions.
- More recently, the COVID-19 pandemic has reinforced the urgency for better frameworks of collective action towards common and well-defined objectives (OECD, 2020b).



An STI policy perspective

Limitations of traditional STI policies, such as weak directionality, lack of holistic co-ordination and fragmentation of the policy mix led to various types of systemic interventions, commonly labelled as 'Mission-oriented innovation policies' (MOIPs).

MOIPs are defined as a co-ordinated package of policy and regulatory measures tailored specifically to mobilise science, technology and innovation in order to address well-defined objectives related to a societal challenge, in a defined timeframe.

These measures span different stages of the innovation cycle from research to demonstration and market deployment, mix supply-push and demand-pull instruments, and cut across various policy fields, sectors and disciplines.

Marks a major shift from the traditional narrow R&D to embrace social transformation in various fields and tackle "grand challenges".

Characteristics of MOIP



FOLLOW AN OPEN AND NON-PRESCRIPTIVE APPROACH, IDENTIFYING PROBLEMS, NOT SOLUTIONS', BUT BROAD PRIORITY AREAS OF FOCUS.



SET OBJECTIVES THAT HAVE THE EXPECTED MISSION CHARACTERISTICS: CLEAR, BOLD AND INSPIRATIONAL, WITH WIDE SOCIETAL RELEVANCE, AMBITIOUS BUT REALISTIC, TARGETED, MEASURABLE, TIME-BOUND AND SOLUTION NEUTRAL.



SETTING MISSIONS IS A GRADUAL AND INCLUSIVE PROCESS, THROUGH WHICH THE SCOPE OF OBJECTIVES IS PROGRESSIVELY NARROWED DOWN FROM BROAD CHALLENGES AND MISSIONS TO OBJECTIVES SET IN PROJECTS.



INITIATIVES MIX SOCIETAL AND ECONOMIC OBJECTIVES. THIS CAN GENERATE SOME MISMATCH IN TERMS OF THE GEOGRAPHIC SCOPE OF THE POLICY INTERVENTION NEEDED TO FULFIL THESE DIFFERENT OBJECTIVES.



MULTI-LEVEL GOVERNANCE STRUCTURE, E.G. 'NESTED', MULTI-POLAR AND CROSS-MINISTERIAL / CROSS-AGENCY GOVERNANCE STRUCTURE.



ALLOWS A COORDINATED EXPLORATION OF THE DIFFERENT OPTIONS TO A GIVEN CHALLENGE.

Grand Challenges



Refers to long-term and complex problems that are not always solvable through market processes, as they have also social and organizational dimensions.



They typically require combinations of different technologies and require some degree as well of behavioral changes, depending on the nature of the problem to be addressed. Examples of grand challenges include climate change, pandemics, and sustainable mobility systems.



Overall, when policymakers consider STI policy goals to address grand challenges, it requires thinking about the governance of STI policy in a new and more 'actionable' manner, due to the complexity and high-level ambition of these objectives.



Traditionally, the main goals of STI policy have been twofold, namely, to enhance the frontiers of human knowledge and to improve the technological competitiveness of industry in the economy.



Not an alternative, replacing the two traditional goals. Instead, it can be seen as an additional goal. Therefore, today, the two traditional goals (knowledge frontier and technological competitiveness) continue rightly so to be at the core to STI policy rationale.

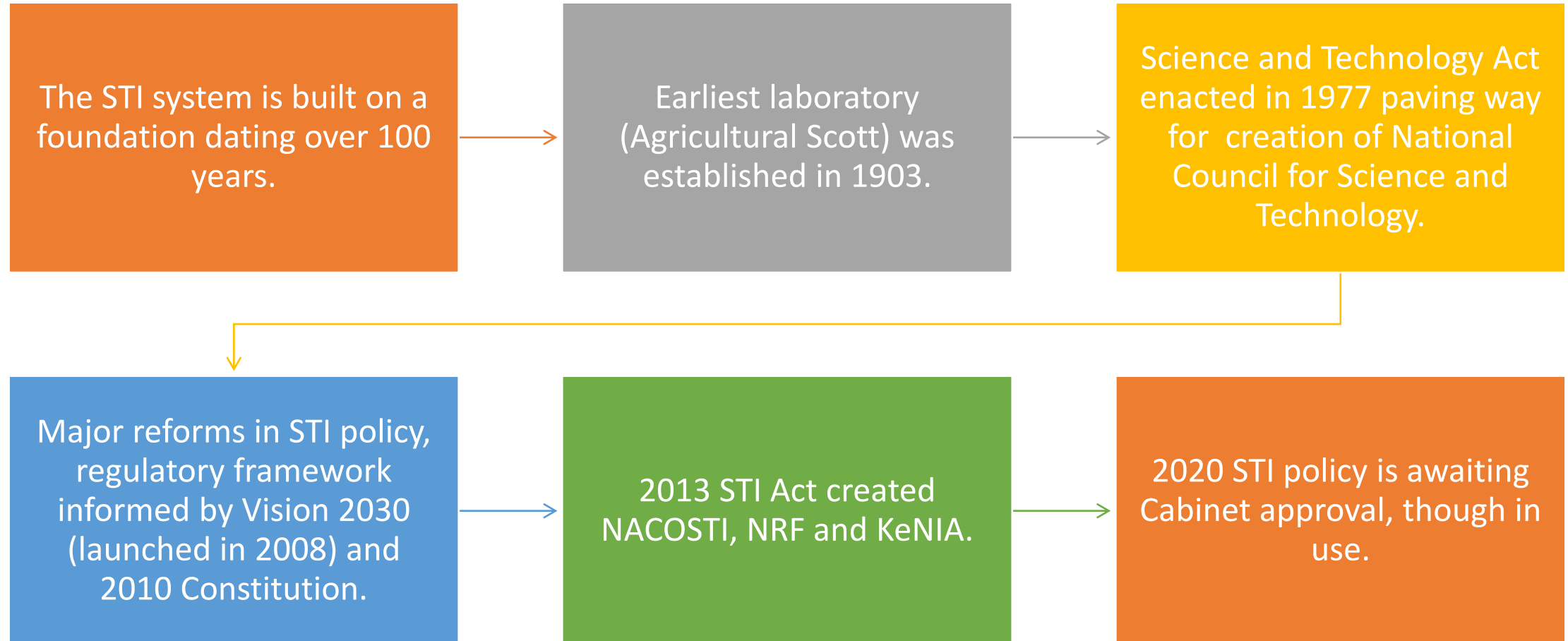


The new approach of STI policy is to induce large, durable, and systemic change.



The impact-oriented nature of grand-challenges STI policy instruments requires not only funding or R&D support but also measures addressing regulatory, organizational, behavioral, and issues that might hinder rapid uptake and real-world impact of new knowledge.

Kenya's STI policy and regulatory framework



Three purposes of STI Act

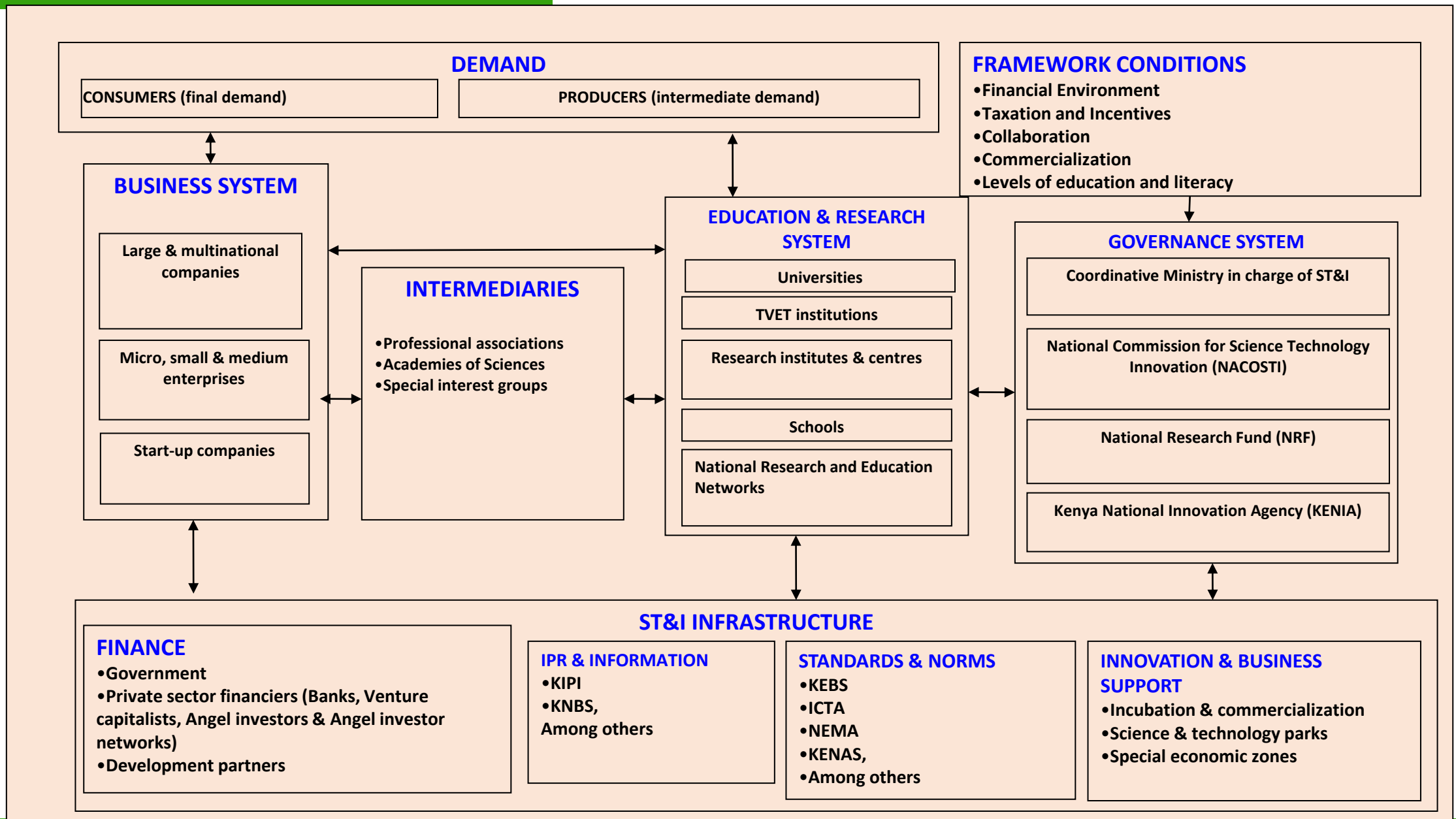
- to facilitate the promotion, co-ordination and regulation of the progress of science, technology and innovation in the country;
- to assign priority to the development of science, technology and innovation;
- to entrench science, technology and innovation into the national production system and for connected purposes



Broad Vision for STI

- Embedded in Kenya's Vision 2030 whose overall goal is: "Transform Kenya into a newly industrializing, middle-income country providing high quality of life to all its citizens by the year 2030 in a clean and secure environment".
- The Vision is anchored on three pillars (Economic, Social and Political) together with a set of foundations or enablers that include STI.
- Kenya's global and regional obligations e.g. SDGs, Africa Agenda 2063 call for increased investment in science and technology, with an objective of generating innovations (goods and services) that can overcome economic and environmental challenges.
- Chapter 2 article 11 section (2) and section (3) of the Constitution state that: The State shall recognize the role of science and indigenous technologies in the development of the nation; Chapter (4) article (40) section (5) on intellectual property rights states that: the State shall support, promote and protect the intellectual property rights of the people of Kenya.

Kenya's Innovation System



Kenya innovation survey 2015



Minimal cooperation between firms in the development of product and process innovations.



Innovation development was undertaken independently or through the adoption or modification of other companies' products.



A negligible 2.7 percent of the survey firms cooperated with universities or research institutions in implementing product innovations.



The low-level of cooperation resulted in low absorption of new technologies by these firms.

Opportunities



Cross-sectoral collaboration allows for broad, all-encompassing perspective with increased information sharing.



Utilization of private R&D investment and collaboration with the private sector.



Academics and policymakers can engage in processes of co-creation on MOIP/grand challenges oriented STI policies.



system-thinking, embedding STI innovation policy instruments in suitable mixes for the uptake and scaling up of new technologies.

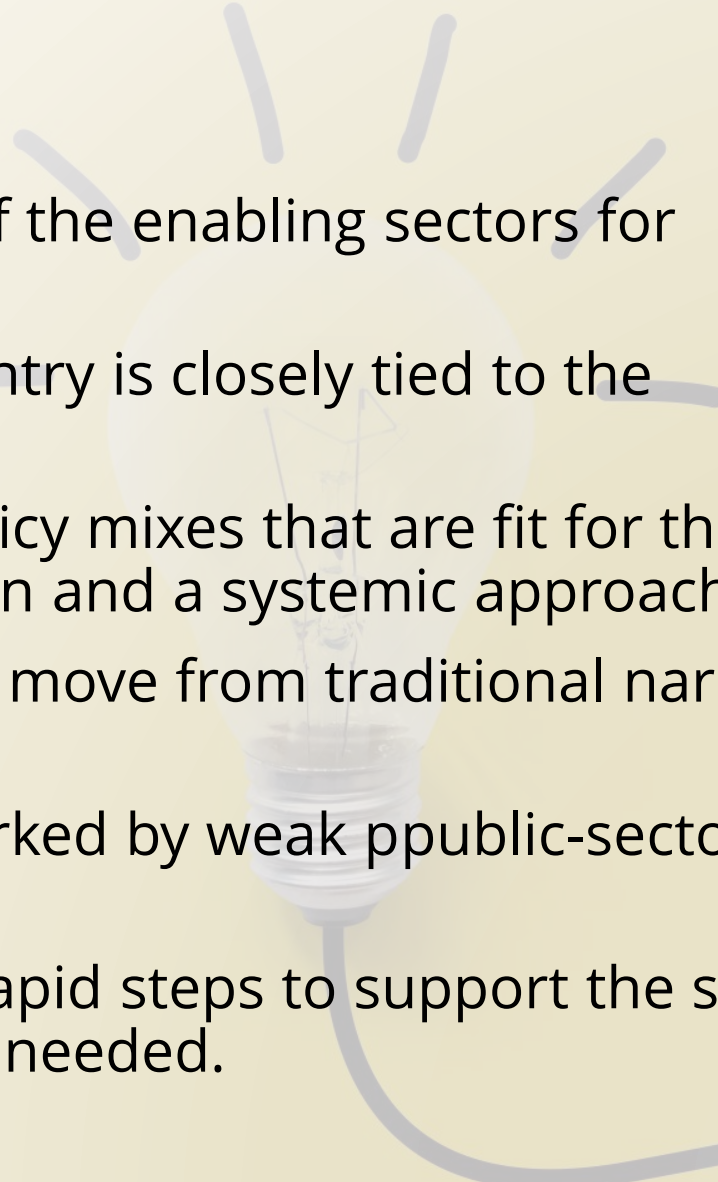


Granularity remains rather coarse, consulting with stakeholders to achieve a sharper focus.



Involvement of experts and practitioners from various sectors, as well as relevant ministries and agencies within the government.

Conclusion

- Science, Technology and Innovation is one of the enabling sectors for national transformation.
 - The socioeconomic performance of any country is closely tied to the application of science and technology.
 - There is need for policy instruments and policy mixes that are fit for the purpose, designed with an impact orientation and a systemic approach.
 - Notable strides in STI policy development to move from traditional narrow focus towards broader MOIP.
 - Uneven and slow policy implementation marked by weak public-sector organizations.
 - Opportunities for transformation exist but rapid steps to support the sector, foster inclusive coordinated approaches are needed.
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THANK YOU