

# Technological Transformation in Action & National Visions on the Transitions to Sustainable Development Models

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Under the theme “Pursuing Our Transformative Journey”, the 2018 National Budget of Mauritius aims to position the country on the global map as a financial hub and a leading Smart Island Nation to drive research, investment and development in emerging sectors powered by fintech, virtual reality, artificial intelligence and blockchain networks.

Mauritius has made leaps in incorporating the use of Information and Communication Technologies (ICT) to accelerate development. It is currently using ICT to facilitate the implementation of the Sustainable Development Goals (SDGs). In this increasingly digital world, we want to ensure that no one is left behind in benefitting from the dividends of technological advances and having access to pathways to economic and social empowerment, including in education, agriculture, marine activities, finance and telemedicine.

Mauritius has made significant progress in the development of its Information Technology sector which contributed 5.6% of GDP in 2017 and employs over 23,000 people. Over the last decade, internet connectivity speed increased tenfold while costs decreased by 70% with mobile penetration rate reaching 145%. According to the Global Competitiveness Report 2016-2017, Mauritius ranks among the top African countries in terms of its performance indicators. In order to fulfil the SDGs, foster social cohesion and economic development and increase the standard of living in the country, Mauritius has introduced a series of measures to: bridge the digital divide; lower the cost of telecommunication; make access to the internet a basic citizen's right and position the country as a safe and reliable ICT destination: capitalising on their bilingual workforce, modern ICT infrastructure and good governance.

Mauritius agriculture is considerably affected by climate change with climatic conditions like temperature increase, rainfall scarcity and solar radiation. On average, local temperature has increased by 0.7°C to 1.2°C since 1950 coupled with a decrease in annual rainfall of 63 mm per decade. Global warming is expected to further increase the intensity and frequency of drought in the coastal and low-lying areas. To address this existential challenge to the industry and fulfil SGD 2, climate data will be updated to redefine the different climatic zones of the island, and to produce a new agro-climatic map, which would be useful for selection and recommendation of optimally adapted varieties to the various agro-climates. The programme is supported by: biotechnological tools such as molecular markers to enhance the efficiency of selection with the view to reduce the time for producing new varieties; genomic selection, editing and cloning are new promising activities to determine the breeding value of progenies; collection and analysis of field data through powerful statistical tools supported by High Performance Computing (HPC) systems and; the use of DNA fingerprinting and modification of the sugar cane genome to allow for faster diversification.

A recent addition to the potentials of the Mauritian economy is its extensive of 2.3 million km<sup>2</sup> of maritime zone. Mauritius is promoting the development of an ocean economy which is in line with its national policy and its engagement under SDG 14 for the preservation, protection and improvement of

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their marine environment. With the growth of economic activities in the maritime zones of Mauritius, proper planning of the use of maritime spaces has become crucial overlaps and conflicts of use especially in the coastal zones. To protect its marine resources and activities related to navigation, leisure/tourism, aquaculture, deep-water ocean applications (DOWA) and marine renewable energies are leading to an increase in pressure on the ecosystem, spatial overlaps and conflicts of use especially in the coastal zones. To protect its marine resources and ensure the sustainable use of the ocean, the government of Mauritius has been implementing Marine Spatial Planning (MSP). MSP allows for the analysing and allocating of spatial and temporal distribution of human activities in marine areas. It facilitates decision-making using scientific and geospatial information to address conflicts and organize human activities in the ocean, while maintaining ecosystem, health, function and services.

To realise its vision of creating intelligent, innovative and sustainable cities of tomorrow (SGD 11), Mauritius launched an ambitious economic development programme: The Smart City Scheme. The Smart Cities, revolving around the work, life and play concept, incorporate mixed use developments in cosmopolitan conurbations with smart technology and pioneering innovation at their core. The focus is to deliver a happier lifestyle through the development of self-sufficient cities offering integrated sustainable solutions and ensuring minimum wastage and maximum comfort for the long-term benefit of all citizens and the future generations irrespective of social and economic class. Enterprising visionaries have already presented compelling smart city development projects that complement the scenic spots of the island.

Earth observation from space is a cost-effective way of obtaining crucial and unbiased data to enable decision-makers understand trends and evaluate needs to create sustainable development policies. Hence, satellite technology could provide Mauritius with a way to mitigate typical challenges of middle income Small Island Developing States.

Mauritius has the potential to tap into the opportunities offered by satellite technologies and data. The Republic of Mauritius was awarded the first prize of the KiboCUBE programme by the United Nations Office for Outer Space Affairs and the Japan Aerospace Exploration Agency in June 2018.

Mauritius is poised to launch its first Nanosatellite, the MIR-SAT1, into space. It is the first satellite that has been designed, will be built, tested and operated by Mauritians.

Satellite imagery, has found a place in everyday lives, but satellite imagery is more than just a curiosity. Mauritius plans to use this technology for a wide range of applications, including construction, agriculture, maritime surveillance and natural disaster recovery.

There are several changes that are required in the national and international policy environment to facilitate technological transformations. Traditional developmental approach to technology, which focuses on access to technology as a barrier to development, is now less relevant. Developing countries have access to a wealth of technology. The challenges our countries and societies face are how to leverage these technologies for positive economic and social benefits, while minimizing the downside risks and drawbacks. While the upside benefits for Mauritius have been illustrated above, some of the downside risks include: the spread of misinformation, 'fake news', extremist viewpoints and their societal implications and; technological disruptions to traditional sectors like robotics replacing labour-intensive industries and limiting the pathways to development for Least Developed Countries (LDCs). There are a few key issues that governments and societies in the developing world need to address.

The key challenge for governments worldwide is how to create robust, shared frameworks to govern technology and automation. Not to restrict their spread, but to ensure that the positive potential of these sectors is leveraged while minimizing the downside impact in terms of economic dislocation and damage to social fabrics. This is where collective action is critical for developing countries. The scale of the technical and policy challenge is broadly the same for a small state as for a large one: the technical and policy requirements to deal with the spread of extremism and 'fake news' online is, broadly

speaking, the same for Mauritius as it is for the US. However, small states have limited resources to throw at this set of problems, and a much more limited negotiating power vis-à-vis large technology companies such as Facebook or Google. Hence the only effective approach is a collaborative one.

The impact of digitalisation on sustainable development and all the new technology holds both promise and disruption. Underpinned by technological innovations, disruption is changing the world around us. The future of social relations is radically different and the world is at a crossroad. Social relations, basic to human nature, health and well-being are increasingly under strains. We must now know which turn to take, to learn and strategise and to create a road map for the development of the country.

While taking into account the preservation of the environment, welfare and well-being of the population while at the same time uplifting the social moral and spiritual value of the people.

Mauritius is looking deep in the future of an inclusive sustainable intelligent society.