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THREE I'S TO BUILD THE SUPPORTING ECOSYSTEM FOR OUR FUTURE ECONOMY: INFRASTRUCTURE, INSTITUTIONS, IMPLEMENTATION

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ABSTRACT

This paper discusses the supporting ecosystem for sustaining a future vibrant economy that can co-exist with a strong Singapore society. Challenges and opportunities will be explicated and specific recommendations will be made in three areas, namely, (1) the development of Singapore's physical and virtual infrastructure; (2) the integration of the roles of universities and research institutions in research, education and practice; and (3) the adaptation of Government policies and the functioning of the public, private and people sectors.

Economic future is always uncertain, but it is important to be clear about the intended direction for Singapore's future economy. The country needs to set specific, challenging and realistic goals related to the economy. It also needs plans on how to get there and monitor progress.

Many important issues about the future economy will not resolve themselves without explicit decisions and interventions. Singapore's policymakers have the difficult task of understanding and integrating many different but inter-related issues to address critical aspects of our future economy.

It is useful to think about the issues in terms of the substantive content of the economy and the ecosystem that supports it.

THREE I'S OF THE FUTURE ECONOMY

Three substantive aspects of Singapore's future economy are critical, and they are being addressed specifically by the Committee on the Future Economy. These are the three I's – industries, innovation and individuals.

Industries

The future of industries is closely tied to technological advances in many areas including robotics, autonomous vehicles, 3D printing, Internet of Things or applications of blockchain technology and other cyber technology in finance, commerce and other domains.

Manufacturing, finance and other key industrial sectors in Singapore will undergo major transformations. The nature and pace of change directly affect Singapore's economic capabilities and people's lives.

Our future economy is highly dependent on the way we respond to these technological changes, and what and how we decide on the technology-related industries to develop as our economic growth engines.

Innovation

There is a national focus on innovation with efforts to develop innovation-driven industrial clusters in specific areas to help drive Singapore's economy.

But innovation is also about doing things differently and better, which contributes directly to individual, organisational and sectorial productivity.

To function more effectively, we need to innovate and adapt the current nature of jobs and work processes. This requires teams and organisations to innovate, which depends on individual innovation of the employee and the employer.



Individuals

The goal of Singapore's efforts to build the future economy should be the "I" that matters most, which is about "individuals". The essence of the economy is about what it means for our citizens.

Ultimately, the future economy has to be about the well-being of individuals, their competence and functioning, and the kinds of job and nature of work that they can expect and will experience.

The three critical I's are inter-related. Will a new growth industry create good jobs for Singaporeans? Do we have the Singaporean core with the relevant skills to work in the industry and sustain it?

The government has made a political commitment to calibrate the inflow of foreigners. More importantly, relying on the foreigner workforce it is not an effective solution. Having economic engines that are critically dependent on a foreigner workforce is likely to create many unintended negative consequences related to social, sustainability and security issues.

If Singaporean workers do not have the relevant skills, should we still invest in the new growth industry now? Or should we wait for some time, but can we afford to wait?

Is our strategy – and the timeline required – to develop the skills of our Singaporean workforce well aligned with the nature and pace of industry and technological changes? If not, what does this mean for Singaporeans' way of life and quality of life?

It is important to understand the complexity of the relationships linking industries, innovation and individuals. This explains why the Committee on the Future Economy is consulting diverse stakeholders and involving experts from different disciplines and industries in various ways.

It is true that the government cannot do it alone in charting Singapore's future, not only in security and social issues, but in

economic ones as well. This is most evident when it comes to building the ecosystem to support the future economy.

THREE I'S OF THE ECOSYSTEM

There are three more I's that are equally important because they build the ecosystem to support the development of substantive issues of industries, innovation and individuals. These are infrastructure, institutions and implementation.

For each category, I suggest three principles to guide the way we frame, approach and evaluate the issues.

Infrastructure

Singapore has accomplished much in building the infrastructure to support the economy. This includes both the physical space such as transport connectivity and integrated amenities and the virtual space such as efficient e-government services for meeting business and social needs.

It is important to reinforce three guiding principles when developing Singapore's infrastructure.

- Design and develop every infrastructure beyond its primary intended function. It may be an amenity in a walkway, a transport node or an e-government service. Every infrastructure item is part of a larger system with the potential to impact other parts of the system or even another system, either positively or negatively. A good guide is to always see how an infrastructure item can have multiple effects and therefore serve multi-purpose or interfacing functions, and also prevent unintended negative consequences.
- Enhance flexibility and adaptability in land use to integrate economic and social goals. Singapore's past 50 years of success in infrastructure development happened because urban planning and design are not driven only by the need to support economic activities but also the mission to improve people's quality of life, characteristic of both a cohesive



country and a global city. Many trade-offs in land use situation are real and urgent. However, so much more can be accomplished when the approach focuses on what economic and social goals have in common and how their differences can in fact complement each other.

- Incorporate social and behavioural insights in urban solutions and smart nation advances. This requires knowing the scientific evidence on how people think, feel and behave when they interact with things, data and other people in different environments. Apply the research adequately to design and implement land use, urban management and the use of smart devices and big data in a manner that that will lead to a way of life that enhances people's quality of life.

Institutions

Singapore has invested a lot in promoting research, innovation and enterprise. There is a research ecosystem that can be further developed for the future economy.

Three principles are important to guide the efforts to integrate the roles of universities and research institutions.

- Promote cross-disciplinary and translational research that produces effective real-world applications. Knowledge and professions are organised into distinct disciplines, but real-world problems and solutions are not similarly compartmentalised. Research should improve people's lives and practice should be evidence-based. So, universities and research institutes may need to revisit some of their strategic research areas, personnel selection practices and incentive systems. Funding agencies may need to revise some grant policies. But a change may also be needed for many researchers and professionals. A silo mentality that sets up barriers between disciplines or between science and practice needs to be broken. The support for cross-disciplinary and translational research must lead to constructive actions if it is not just paying lip service.

- Enrich the experiences for students and workers by improving the fit between what they do and what they want and are able to do. Optimise their match with the courses or nature of work. Consider their competence and choices when making selection and assignment decisions. Redesign work processes where practical. Provide a learning environment that helps individuals develop their abilities and interests and acquire relevant knowledge and skills. People can then translate their aptitude and passion into effective actions to function adaptively. The outcome is increased economic and social well-being.
- Revise and integrate education models and workforce development programmes so that pre-employment training and continuous education and training become mutually reinforcing. Close collaboration between educational institutes and industries should become the norm rather than the exception. Examples include meaningful student internships, industry-based degree programmes and integrating employee continuous education in career development.

Implementation

Economic strategies and related initiatives must be implemented effectively rather than always deterministically as prescribed by fixed rules.

Three principles are relevant to help government policies and the public, private and people sectors function more adaptively.

- Review land use and related urban policies. With technological advances and revision of training models, the land use needs for educational institutes and industries such as manufacturing and logistics may change quite drastically. Zoning policies for land use may need to be more flexible to make provisions for mixed use and time-related use. For example, if a building or a piece of land is earmarked for a particular long-term use but is left vacant for a long period due to delayed implementation, then perhaps the default is to allow it for a variety of other uses in the interim rather than



increasing the opportunity cost and having to justify the non-usage.

- Transform the Singapore Public Service into a future-ready organisation. This involves developing adaptive organisational structures and work processes. More importantly, it means an organisational culture of public officers with adaptive attitudes, behaviours and mindsets. The adaptability, which ensures that policies and work operations are meeting public needs, has to be rooted in the values of integrity, service and excellence. A future-ready public service is a people-centric organisation that prioritises the well-being of the citizens and also its own employees.
- Refine structures and processes and develop norms to ensure intentions for whole-of-government and whole-of-society approaches are effectively implemented. Identify and address the barriers to information sharing and collaboration. These could be bureaucratic procedures, work processes, decision-making authority, incentive system, fear of errors, organisational cynicism, and conflicting needs of the agencies, sectors or stakeholders involved.

In summary, it is important to develop the different I's and integrate them for our future economy. This inclusive approach is a necessity, not a nice-to-have.