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“Governance at the Leading Edge: Black Swans, Wild Cards, and Wicked Problems”

Over the last few years, in addresses at various Strategic Perspectives Conferences and Public Service Staff Conferences, I have spoken about the challenges we can expect to confront as the Singapore Public Service. In the face of growing strategic uncertainty and complexity, we need a more exploratory and entrepreneurial approach, which is a willingness to try while acknowledging that some things will work and others will not.

This morning, I will speak on the challenge of governance at the leading edge, a forward position that we have reached through a combination of inherited good practice, and continuous, pragmatic and innovative adaptation of best practice in the public and private sectors around the world. But looking ahead, we will have fewer benchmarks and best practices to copy or adapt from, as we are operating largely at the head of the pack. Boiled down to its core, the key challenge—whether for the private or the public sector—is to sustain good governance when the road ahead is unmarked.

Have we achieved good governance in Singapore? Our standing in various global rankings suggests that we have. Our official foreign reserves on a per capita basis at US\$32,000 are the highest in the world—quite remarkable for a country without any natural resources. Singaporeans enjoy one of the highest living standards in the world. Per capita GNP was S\$40,000 in 2005, equal to US\$24,000 at the prevailing exchange rate. The economy has been at virtually full employment since 1975, with the unemployment rate averaging just over 3% over the last thirty years. Singapore has enjoyed the fastest rate of economic growth in the world since 1965. GDP in real terms grew by an average of 8% per annum between 1965 and 2005. Singapore has also one of the best records of macroeconomic stability—the result of sound monetary policies and fiscal discipline. Of course, good governance is more than just delivering strong economic performance. Its results are far more wide-ranging, because it is about creating the systems, policies and conditions that assure security, enable opportunity, build communities and foster a sense of identity. Singapore is a

harmonious, multiracial society, despite ethnic and religious diversity. Universal education is achieved in tandem with quality education, where Singapore students consistently top global rankings in science and mathematics. The Singapore Armed Forces and the Singapore Police Force are rated highly for their professionalism and competence.

Singapore's development record is astonishing especially when we look at many other countries which started out in similar circumstances in the 1960s and are still locked in a less-developed status. Although our commitment to a freely competitive market regime has helped our progress, that alone cannot explain our current economic well-being and stability that have been achieved despite Singapore's small size and openness to business cycles, external competition, and the challenges of international shocks. We even have the same or better quality housing, education, and healthcare made affordable to our citizens, despite much lower levels of public expenditure compared to the industrial economies, especially in contrast to the European "social model". We have overcome the constraints of size and resources to ensure that "things work", that there is a ready supply of water and land, that the traffic flows freely, and that the city remains safe, liveable, clean and green despite rapid urban development.

This is the Singapore story—a story of how a small island nation overcame its many disadvantages to become, if not a First World economy, most certainly an advanced developing economy.

How did we achieve so much in such a short period of time? Political stability, rule of law, secure property rights, a non-corrupt administration, meritocracy and well-run public institutions—the traditional attributes of good governance—plus luck, good people, strong leadership, a culture of excellence, communitarian social values, emphasis on education, and so on, all probably played a part. Also, our stability enables us to take a longer term view and to consistently apply principles that bring about longer term benefits instead of reaping short term gains at the expense of the future. Of course, good governance is not just about sound policy-making. Implementation matters. Policies are only as good as their execution. In Singapore, implementation is emphasised as much as policy-making.

Unburdened by ideology, Singapore has adopted an eclectic and pragmatic approach to policy-making. We have drawn on various models, synthesising and adapting them to the

local context. In other words, when appropriate, we have eschewed conventional wisdom, or the politically correct, and dared to go for pragmatic, innovative solutions—such as the Central Provident Fund, public housing, the 3Ms in healthcare, congestion charging, and so on.

Indeed, innovation and adaptation are important features of the Singapore approach to good governance. PS21 aims to embed a culture of continuous improvement and learning in the public sector. At the same time, other government initiatives like the National Research Foundation and **World•Singapore** look for strategic innovation or game-changers that can propel Singapore forward towards its desired future. I am making a distinction between incremental and disruptive innovation—while making the point that there are many players at all levels in the Singapore Public Service who have a hand with innovation. By innovation, I do not only mean making new products or delivering new services, but rather developing the capability to continuously realise the future that we want, by driving appropriate efforts towards that desired transformation. The government benchmarks Singapore against the best in class in every area of public policy and administration, and continually seeks to adapt global best practices to the local context. Singapore’s public policies are essentially a story of innovation: they are borne out of Singapore’s unique circumstances, and they reflect a high degree of rationality, pragmatism, and constant adaptation.

The practice of good governance in Singapore has evolved over the years. We study best practice everywhere, we copy, but not blindly, and we constantly adapt. And it is not as if we started from scratch. We inherited our system of government from the British. We adapted it to meet our particular challenges—the challenges of what some have called the improbable nation—a nation that never sought independence, with no natural resources and no hinterland.

Because of our antecedents, it is natural that we look at developments in administrations that are based on the Westminster system of government. It is easier to understand them than other systems. So it is not surprising that governance in Singapore has closely tracked the trajectories of governance in countries like the United Kingdom, Australia, Canada and New Zealand. Let me explain.

Margaret Thatcher came to power in Britain in 1979. She was a strong believer in small government, and in the ability of the private sector to provide goods and services more

efficiently. She believed that the private sector was often better placed to deliver public services, and that market forces should be given a free hand and entrepreneurial energies unshackled.

Privatisation began in the United Kingdom in the early 1980s. State-owned enterprises such as British Gas, British Airways and British Telecom were privatised. The intent was to introduce competition and the profit motive into the provision of essential goods and services, on the conviction that such competition increased efficiency.

Like many others around the world, Singapore adopted this market-oriented approach in its governance and public policies. The privatisation of our state-owned utilities began with Singapore Telecoms in 1993. This was followed by the liberalisation of the telecommunications sector. In the electricity sector, our own privatisation and liberalisation experience was also very much influenced by the experience of the British government, particularly in its decision to vertically separate the industry. This means separating the naturally monopolistic grid from the competitive parts, namely generation, distribution and retail. In other parts of the economy, we also explored ways in which government could divest its interests and allow for entrepreneurial energies to flourish.

The 1990s saw another evolution in the thinking about government. The focus of the 1980s on “smaller, limited government” shifted in the 1990s towards integrated or joined-up government—one that coordinated efforts across departments, harnessed new information technologies, and partnered the private sector to deliver better services. Some of you might be familiar with David Osborne and Ted Gaebler’s ground-breaking book *Reinventing Government*, in which they wrote:

“Governments that steer more and row less are clearly stronger governments. After all, those who steer the boat have far more power over its destination than those who row it.”

The aim is no longer to shrink governments, but to make governments more effective, more efficient, and more focused on delivering better services. Governments, it is argued, should emulate best practices in the corporate world to stay relevant. These would include adopting new service-relevant technologies, embracing principles of customer-centred design,

and giving greater attention to customer experience. This leads to the notion of a next generation public sector approach to service.

So governments started to harness the expertise, innovation and flexibility of the private sector to deliver public services. In the United Kingdom, the Private Finance Initiative of the Conservative government was re-packaged and presented by the Labour government as Public-Private Partnerships, a term that we have adopted in Singapore. In Singapore, what we now call PPPs started in places like the Ministry of Defence where maintenance and logistics support to the SAF, and even the running of internet portals and call centres, were outsourced to the private sector. But it was only in 2004 that the Ministry of Finance put in place a proper system for evaluating and establishing PPPs.

Today, much of the work of government is still carried out within the silos of our respective ministries and agencies. But many services that government provides require agencies to work together. This is often described as “networked government”, which is the synthesis of four trends:

- *Joined-up government:* the increasing tendency for multiple government agencies to join together to provide integrated service.
- *The digital revolution:* the technological advances that enable organisations to share information, exchange data and collaborate in real time with other government agencies and with external partners in ways previously not possible.
- *Outsourcing:* the use of private firms and non-profit organisations—as opposed to just government employees—to deliver better services and achieve policy goals.
- *Increasing consumer sophistication:* increased citizen demand for more control over their lives and more choice in their public services, to match the customised service provision that already exists in the private sector.

The Economic and Development Board pioneered the concept of the “one-stop shop”. Potential investors only have to deal with a single point of contact, rather than a plethora of approving agencies. Creating a “one-stop shop” of course requires a lot of coordination in the

backroom among various agencies and ministries. It requires them to work together in a networked, coordinated fashion. The alternative is a bloated bureaucracy, slow service and frustrated customers. Yet networked government does not come naturally. This is because governments are essentially hierarchies, in which instructions and information flow vertically within the silos of agencies and ministries. It requires a real change in culture for networked government to work.

But for Singapore, networked government is not just about the “one-stop shop”, or the drive to harness public-private partnerships and to use leading-edge technologies to provide more integrated public services. More fundamentally, it is also about developing the capacities to operate in a more complex and uncertain world, and to be able to continually generate the innovations in government that will sustain Singapore’s success. An environment that encourages the spontaneous horizontal flow of information, knowledge and best practices will enlarge the narrow world view of departmental silos, because it improves the chances that we will see connections, challenges and opportunities. It will take advantage of the diversity of our talent base and harness the value of new entrepreneurial and brokerage roles within the public sector. This is another reason for networked government.

In this regard, **World•Singapore** is not just Singapore’s growth formula for the future, or for developing “blue ocean” initiatives that together will invigorate and change the way we think, work and live. **World•Singapore** is also a strategic catalyst of networked government. It brings people from different agencies together to look at complex strategic issues. It facilitates the horizontal flow of information, the exchange of insights, and the integration of experience, expertise and ideas. **World•Singapore** is a strategic public service initiative of great significance for Singapore’s future.

But even as all these efforts to strengthen government and governance in Singapore are necessary, they are not sufficient.

As we grapple today with more complex issues such as globalisation, climate change, and ageing demographics, we have to rethink our paradigms of governance. It is arguable whether the private sector alone has the capacity to cope with the disruptions and discontinuities created by these forces. It is short on relevant scale, regulatory tools, and capacity to integrate broadly across geographies, to name but a few factors. In time, a new

framework of governance will be needed that spans private and public sector skill-sets. Meanwhile, governments face a choice of either becoming the *de facto* insurers of the worst outcomes resulting from inaction in these areas, *or* addressing these challenges ahead of time with the boldness, exploratory mindset and innovation of an entrepreneur.

Exploration, discovery and experimentation will be a vital approach for the Public Service going forward, as we navigate through an environment that is constantly changing and inherently unpredictable.

Certainly the world we operate in is too complex and too fast changing for the people at the top to have the full expertise and all the answers to call all the shots. For us to operate in the complex environment of the world today, we must have horizontal reach in a networked government, readiness to discover and experiment, in order to gain insight, decision and action. Initiatives like **World•Singapore** are mechanisms that involve people from different parts of the system to create a new common language, re-codify information into common insights and a shared sense of destiny. These boost transparency and openness. They define, communicate, and reinforce our common purpose. This way, we can better cope with uncertainty, and better operate in the complex interconnected world.

In aerodynamics, the term “leading edge” refers to the front edge of the wing. It is that part of the wing that is in first contact with the air. The design of a wing’s leading edge is critical, because it provides the lift. A poorly designed leading edge creates drag and in the worst-case can result in turbulence and crash the plane.

“Leading edge” has become a metaphor for those leading at the front. You often read about leading edge technologies, leading edge concepts. Those at the metaphorical leading edge are positioned to provide lift, and transform. But they can also fail, if they do not fit the role.

That Singapore is already operating at the leading edge in many areas of governance means that it is no longer sufficient for our policymakers just to copy and adapt from elsewhere. For many of the emergent issues we have to deal with, Singapore will have to evolve its own strategies and approaches. To achieve real breakthroughs, we will have to depend more and more on our own policy innovations. And our Public Service will have to

assume new levels of entrepreneurship with its attendant risks and uncertainties. A government that explores will also at times have to sacrifice some degree of efficiency in service of discovery. And it will need to become expert at conducting bounded experiments. Indeed, the emergent, complex issues of the 21st century suggest the need for a new paradigm in governance—one that is networked, innovative, exploratory and resilient in the way it confronts the challenges of our time.

At a Pentagon briefing in 2002, Donald Rumsfeld, who was then Secretary of Defense, said:

*“Reports that say that something hasn’t happened are always interesting to me because as we know, there are **known knowns**; there are things we know we know. We also know there are **known unknowns**; that is to say we know there are some things we do not know. But there are also **unknown unknowns** - the ones we don’t know we don’t know.”*

His remarks attracted some ridicule for their inability to come straight to the point. But “unknown unknown” is a legitimate, indispensable concept in decision analysis that we should expect a Defense Secretary to understand very well. In fact, Rumsfeld also said that “the absence of evidence is not evidence of absence.”

Some of you may have read Nassim Nicholas Taleb’s book *The Black Swan*. A black swan is a large-impact, hard-to-predict, and rare event beyond the realm of normal expectations, an “unknown unknown”. Before the discovery of Australia, people believed that *all* swans were white, an unassailable belief as it seemed completely confirmed by empirical evidence. With understatement, Taleb wrote that “The sighting of the first black swan might have been an interesting surprise for a few ornithologists... but that is not where the significance of the story lies. It illustrates a severe limitation to our learning from observations or experience and the fragility of our knowledge. One single observation can invalidate a general statement derived from millennia of confirmatory sightings of millions of white swans. All you need is one single... black bird.”

Taleb identified three characteristics of a black swan. First, it is an outlier, as it lies outside the realm of regular expectations, because nothing in the past can convincingly point

to its possibility. Second, it carries an extreme impact. Third, in spite of its outlier status, human nature makes us concoct explanations for its occurrence *after* the fact, making it explainable and predictable. In other words, a black swan is a metaphor for a rare, extreme, and discontinuous event.

Taleb convincingly argued in his book that “A small number of Black Swans explain almost everything in our world, from the success of ideas and religions, to the dynamics of historical events, to elements of our own personal lives. Ever since we left the Pleistocene, some ten millennia ago, the effect of these Black Swans has been increasing. It started accelerating during the industrial revolution, as the world started getting more complicated, while ordinary events, the ones we study and discuss and try to predict from reading the newspapers, have become increasingly inconsequential.”

In the same vein, John Petersen, a futurologist, wrote about “wild cards”. These are major surprises. They are high-impact events which come out of the blue. He explains that wild cards are not simple trends, nor are they by-products of anything else. They are events on their own. They are characterised by their scope, and a speed of change that challenges today’s capabilities. Wild cards develop very fast, and challenge governments, societies and nations to respond effectively since there is a tendency to react to warning with discussion and compromise, rather than rapid, cohesive response.

We have had our own wild cards or black swans: the Asian Financial Crisis of 1997, December 7th, 2001 (I am referring here to the detention of members of the Jemaah Islamiyah), the severe acute respiratory syndrome (SARS) crisis of 2003, and perhaps the sub-prime mortgage crisis of 2007 and the rice “shortages” of 2008. In fact, I tend to agree with Taleb’s thesis that black swans are more frequent than commonly perceived. The human mind has a tendency to underestimate such events. The obvious conclusion is that we will have to make an extra effort to brace ourselves to deal with greater uncertainty and unpredictability.

Wild cards or black swans generate what the political scientist Horst Rittel first called “wicked problems”. A wicked problem is essentially unique. But it could also be a symptom of another problem. Wicked problems have no immediate solutions. Wicked problems are large and intractable issues—highly complex problems, often framed in political, social, economic and scientific dimensions that have multiple stakeholders who see the problem in

different ways. Wicked problems require a high degree of process knowledge about creativity and collaboration in order to make even a dent in them.

Let us look at an example of a wicked problem. In the 1970s, Singapore had an education system that was not well-suited to the needs of a country that was undergoing rapid economic change and moving quickly up the value-added ladder. We had a one-size-fits-all curriculum and an academically-based system with limited opportunities in vocational and industrial training. We took a *mass production, survival-driven* approach to education: the aim was to maximise the flow of students through the system. It did not matter as much that students were not developed according to their abilities.

What was the result of this approach? From 1964 to 1973, more than 40% of each cohort failed their Primary 6 examinations. This was a consistent trend, and a worrying one. Many Singaporeans fell out of the system, and had very few second opportunities to develop their potential—academic or otherwise. For a small country like ours, with a dearth of human resources, this was clearly not an acceptable state of affairs.

So Dr Goh Keng Swee, with a group of systems engineers from our Ministry of Defence, went in, studied the problem, and recommended a new, restructured education system. As a result of their recommendations, MOE shifted from a *survival-driven* education system to an *efficiency-driven* one—to support our move into higher value-added industries. The team of systems engineers recommended the development of alternative streams and academic paths, so that students of different abilities and aptitudes could be developed differently. They recommended the constant assessment of pupil performance, to allow lateral movements between streams, and to ensure that their strengths were developed at a pace that maximised their chances of remaining in the formal school system. The education system we have today—notwithstanding the adjustments and refinements we have made in the last twenty years—still bears the imprint of the changes that Dr Goh and the systems engineers made in the late seventies and early eighties.

I can think of several other wicked problems that Singapore has to deal with today. One is our birth rate. Another is a greying population. A third is the environment, and a fourth is long-term energy security. Then there is the wicked problem of affordable healthcare. These wicked problems, and others like them, would not be considered wild cards or black

swans today, although I think that when we first realised that they were problems, they had all the characteristics of black swans or wild cards.

Of course there are also good black swans and wild cards, like the emergence of the Internet, Google, and the economic resurgence of China and India. If we are able to identify them early and understand their significance, we then must be able to exploit them to our advantage.

The key challenge for good governance going forward is how to identify black swans and wild cards, and then how to deal with their consequences: wicked problems. We need to be good at strategic foresight as well as strategic planning. But these are fundamentally different skills and mindsets.

The fundamental assumption underlying much of the practice of good governance that we are familiar with today is that a high level of predictability and order exists in the world. This is a dangerous assumption, because it encourages simplifications that are useful in ordered circumstances but which can lead to leadership failures if they are applied in more complex or chaotic situations, where black swans or wild cards are more likely to appear.

In recent decades, a new approach has emerged to address problems of complexity. This approach, of managing complexity, moves towards, rather than away from, the kinds of problems that the social sciences have been grappling with. This new complexity science has given us valuable insights on leadership and decision-making under conditions of uncertainty and inherent unpredictability.

Going forward, I believe that the practice of governance in Singapore cannot merely copy and adapt from other systems, because few if any governments are thinking about how to organise and prepare themselves for the more uncertain world that we will have to face. So we must develop our own new and unique capabilities in governance. And we should have the confidence to do so, because we have an impeccable track record in policy innovation.

The first of these new capabilities is *managing complexity and disruptive change*. In this regard, we need tools like scenario planning and horizon scanning—which is the ability to detect emerging trends, threats (as well as opportunities)—the wild cards and black swans that

are beginning to appear on the horizon. Last year, I introduced the Risk Assessment and Horizon Scanning system at the Public Service Staff Conference. RAHS is a tool that we hope will help us better anticipate wild cards and black swans that may be lurking just over the horizon. As a shared platform, it has the potential to connect silos, and to therefore encourage greater collaboration between different agencies. In this way, analysts will be able to benefit from the expertise of their colleagues across Government. But, to be able to do this, analysts need to be willing to work with their counterparts in other agencies. This requires a change in mindset, which we hope RAHS will be able to encourage. In these ways, we hope that RAHS will be able to facilitate the realisation of a much larger goal—that of moving towards a whole-of-government, networked approach to strategic planning and thinking about the future.

The second of the new capabilities we need is *risk management*. As more black swans appear, they will transform the world we live in, in unrecognisable ways that we cannot fully predict. While we may not have formulated a complete set of strategies to replace the existing ones, that is no reason for inaction. Rather than plan exhaustively for every contingency before we move, we should adopt a “search and discover” approach: to act before the window closes, and to act boldly in areas where we sense opportunities. We must be prepared to experiment, even if we cannot be entirely certain of the outcome. The approach is to probe, sense patterns, and to act, even in the absence of complete information. As I have emphasised before, we must learn to operate not in a “fail-safe” mode, but instead to operate in a “safe-fail” mode.

Many black swan events and wild card situations offer opportunities even as they present threats and challenges for us. Climate change could be one of them. Climate change is potentially a big black swan. We will not escape the impact. It is a wicked problem that we will have to tackle. But undoubtedly, there are also opportunities. For example, the global problem of water security is an area where Singapore has built up considerable expertise in water management, technology and policy. We should also be plugged into the global network for clean technology research and for green financing in order to take advantage of any opportunities as they arise. If we recognise and seize the opportunities early, we will have first-mover advantage.

But there are also risks, for example in going into unfamiliar markets like the Middle East. This means we must have the capability to manage risk. We must find an approach and an organisational framework that allows us to take risks, but without betting the whole house and our future on a wrong throw of the dice. Ministries are now beginning to employ enterprise risk management as a tool to manage strategic risk. The Ministry of Finance has developed an integrated risk management framework for the whole-of-government level. The Civil Service College will have to develop programmes on risk management as it will have to be part of the toolkit of civil servants in the future.

Systems thinking, whether in Dr Goh's solution to the education system or in designing our road transport system, remains a very important tool in dealing with inter-connected problems. However as more black swans or wild cards emerge, we must have the ability to deal with complex systems whose antecedents and consequences are more unpredictable than simpler systems in the past. In such complex cases, historical precedents are not a sufficient guide to future actions. For example, the current sub-prime and banking crisis have required Central Banks to consider responses that had not been adopted in the past. As complexity increases and along with it the inter-relation of problems from various domains, we need to develop solutions that draw from an understanding of the entire system and all its dimensions—social, political, economic.

We must also build on our existing efforts to strengthen the innovation culture in the public sector such that we not only have the capability to innovate incrementally, but also to innovate in disruptive ways, all the while maintaining a climate that is open to change and new opportunities. If innovation is the engine of progress for our society, we will also need the work of entrepreneurs to create bridges between the fruits of discovery and the realisation of value, or as they say in Silicon Valley “to bridge from bench to IPO”.

Finally, leadership must be the steward of the vision. Our ability to innovate must serve a higher purpose. Certainly we must strive for ever higher levels of efficiency and effectiveness as a public sector, to ensure the security and prosperity of Singapore. Yet our growing ability to innovate also poses a challenge for us, to identify its purpose. The psychologist Maslow described a hierarchy of needs: basic survival and prosperity as the foundation and what he called “self-actualisation” at the top. The question that looms in our future concerns the nature of that higher calling and its relation to our evolving national idea.

In this regard, leaders must learn to practice a new skill-set, creating an appropriate sense of urgency, empowering key people to drive change and strategy, and assuring organisational agility that comes from a combination of resource flexibility, the willingness to make useful exceptions, placing and defending talent, and championing an open, supportive climate that is conducive to innovation. We should “have strong opinions but hold them lightly”.

I started off this talk by asking whether there is good governance in Singapore. I should end it by asking whether there will be good governance in the future. As we enter a more turbulent, complex and even chaotic era, the Singapore Public Service will need to consider what skill-sets we will need to deal with black swans, wild cards and wicked problems. I believe that good governance in future requires traditional capabilities to co-exist with a new set of entrepreneurial and creative capabilities. All the virtues of good governance must be complemented by new capabilities in managing complexity and risk management. We should resuscitate old capabilities like systems engineering and strengthen existing ones like leadership and innovation. The Civil Service College is already beginning to look into these requirements, and I expect that these will be brought into the core capabilities of present and future civil servants in Singapore.

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