

FUTURE DECK



FUTURE DECK

Why Future Deck? The cards are intended to spark conversations about the emerging challenges and opportunities facing Singapore and Singaporeans.

Creating the Deck. The issues in the deck emerged from research by our team at the Centre for Strategic Futures, interviews with domain experts, and discussions amongst a cross-agency team.

Using the Cards. The deck can be used in workshops to prioritise issues for further research, to examine the impact of the issues on public policy, and to craft scenario narratives about the future.

Comments and New Ideas. We are always looking for new ideas to incorporate into the card deck. Do write to us with comments and ideas at csf.futuredeck@gmail.com.

Best wishes,



The Centre for Strategic Futures
Singapore
www.csf.sg

Note: The views expressed in the cards do not necessarily reflect the views of the Centre for Strategic Futures or the Singapore government.

FUTURE DECK

FUTURE OF SINGAPORE SOCIETY

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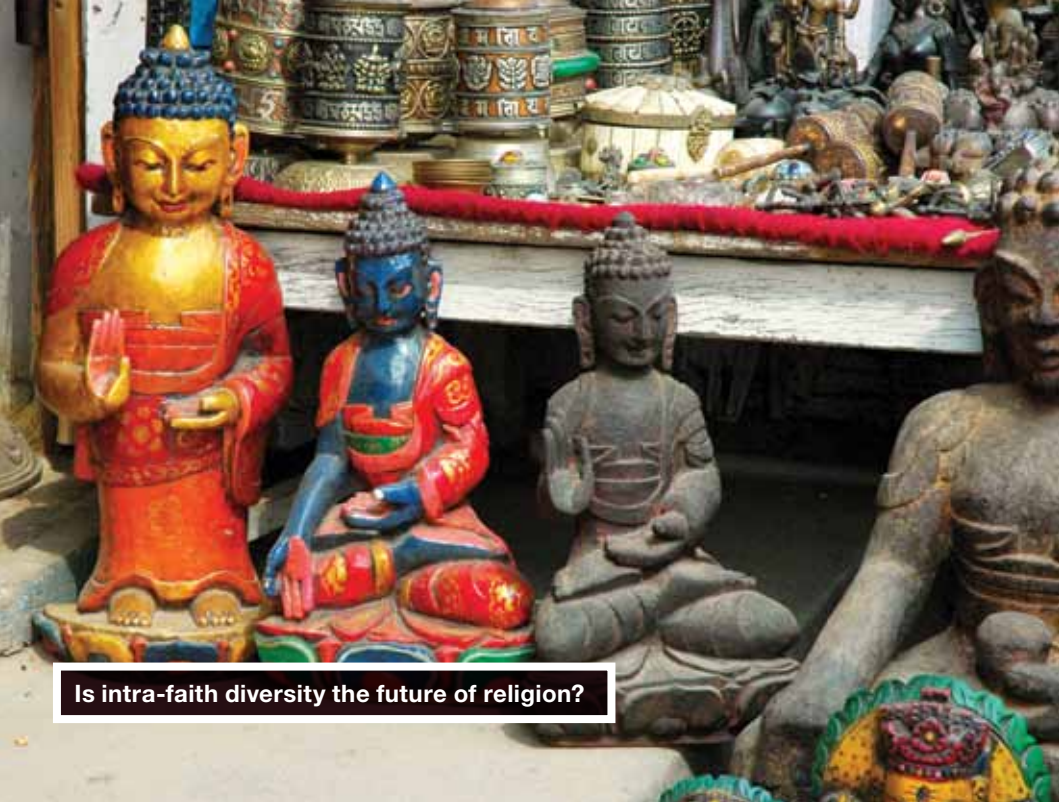
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Is intra-faith diversity the future of religion?

There is an emerging trend towards greater diversity *within* mainstream religions in Singapore. The driving forces behind this are globalisation and greater individualism.

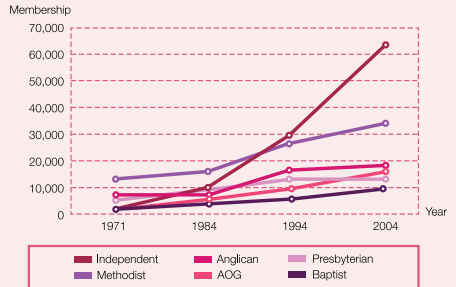
Globalisation is bringing new currents of religious thought into Singapore, as religious communities become more inter-connected globally. At the same time, the desire for greater individual expression is leading Singaporeans to seek new forms of religious practice in the “marketplace” of religion.

The result is greater diversity *within* Buddhism, Taoism, Christianity, Islam, and Hinduism.

For example, amongst Protestants, more Singaporeans are joining independent churches, rather than the established denominations.

Church Membership According to Protestant Denomination

(Daniel P.S. Goh, *Asian Journal of Social Science*, 2009)



REGARDLESS
OF RACE
LANGUAGE OR RELIGION

RELAY
TALK &
WALK

The **Relay** is a place where you
share on social media.
It's a place where you can share your story and your voice.

Is "race" still relevant?

Rising immigration means that a greater variety of ethnic identities are represented in our population.

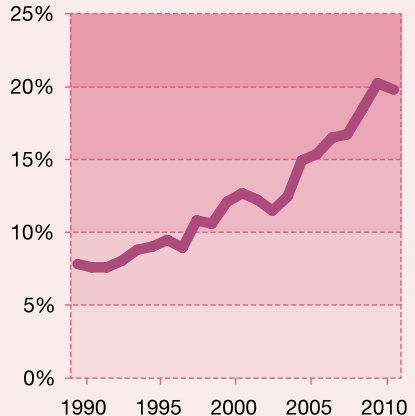
Categories such as “Chinese” and “Indian” have become less meaningful, because of greater diversity within the Chinese and Indian communities.

Transnational marriages, where one partner is non-Singaporean, now comprise 41% of new marriages, while 20% of new marriages are inter-ethnic, and this figure is rising steadily.

In the future, more Singaporeans may refuse to identify themselves as belonging to any particular ethnic group.

% of Marriages that are Inter-Ethnic

(Department of Statistics, 2011)





Will the “culture wars” come to Singapore?

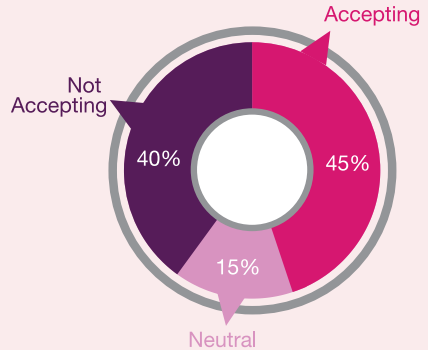
More Singaporeans identify with what might be termed “liberal” or “conservative” values and political beliefs.

“Conservative” groups such as pro-life and anti-gay groups are becoming more vocal. At the same time, “liberal” groups such as gay rights groups are becoming better organised.

There are signs that liberal and conservative groups in Singapore are networked with similar groups overseas that are actively engaged in the “culture wars” of countries like the U.S. In the future, could the “culture wars” come to Singapore?

Almost Evenly Balanced: Singaporean Views on Gay Couples

(Nanyang Technological University, 2011)





Does gender discrimination affect men?

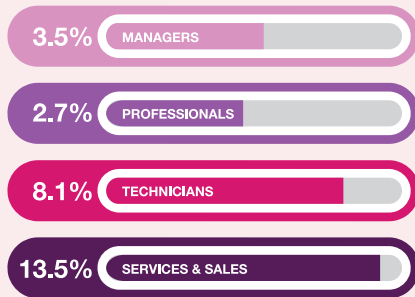
“Gender equality” may increasingly become a concern of men, rather than women.

There are signs of a reversal in the gender gap in wages. Women in Singapore in their late 20s now earn more than men for service sector jobs. Since 2007, there have also been more women than men enrolled in tertiary education.

Some are questioning the exemption of women from conscription, the disproportionate number of boys in the Normal Technical stream, and the inclination of the courts to award child custody to women.

Gender Differential in Favour of Women Aged 25-29

(Median Gross Wages, Ministry of Manpower, 2011)





What if marriage went out of fashion?

The traditional model of parenthood may be shifting in Singapore:

- **Single Women Choosing to Have Children**

There is more acceptance and support for single mothers, through groups like Flyin' Solo.

- **Gay Couples with Children**

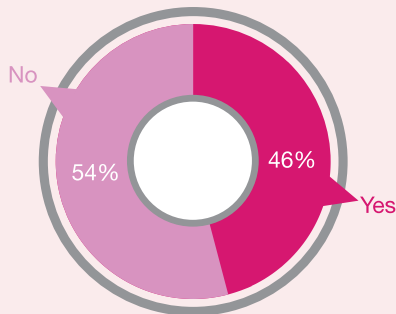
Gay couples are raising children together, after adoption or IVF treatment outside Singapore.

- **Unmarried Couples with Children**

In an informal poll of participants at a government dialogue, 46% reported that they accepted non-married couples having children.

Acceptance of Unmarried Couples Having Children*

(ChannelNewsAsia, 2012)



*Poll of 50 participants at a government dialogue.



The next powerful political force?

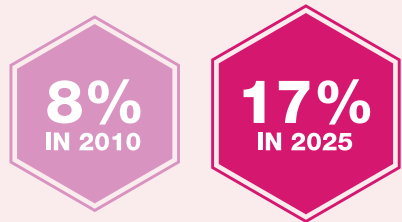
The elderly of the future might have higher expectations and be better organised and more politically active, as they will be more tech-savvy.

They may be “more demanding” than the current generation of elderly. They may expect better and costlier care, and assurances of a high standard of living, past retirement.

As with the AARP in the U.S. which is one of the most powerful lobbying blocks in the country, the elderly in Singapore could become a powerful political force, demanding greater benefits.

Voters Too: % of Singapore Population Aged ≥ 64 Years

(Accenture, 2012)



“Parents and grandparents may be worried about their offspring’s prospects, but not so worried as to sacrifice their own.”

– Robert Samuelson



**THERE'S PROBABLY NO GOD.
NOW STOP WORRYING AND ENJOY YOUR LIFE.**

www.atheistbus.co
THE DEPT. OF TRANSPORT PUBLIC CONVICTIONS

What if non-believers become more organised?

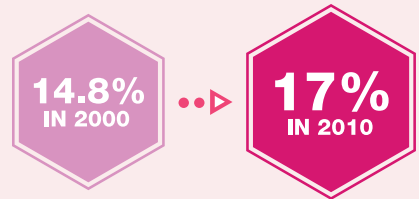
Non-believers in Singapore are becoming better organised, and more actively defending the principle of secularism.

In 2010, the Humanist Society was established in Singapore to advocate for the rights and privileges of non-believers.

The society has several hundred members. The group organises workshops and talks, and networks with other atheist organisations in Southeast Asia and beyond. They also invite members to participate in inter-religious dialogues.

% of Singaporeans That Profess No Religion

(Department of Statistics, 2010)



FUTURE DECK

TECHNOLOGY AND SOCIETY

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Does your organisation crowdsource effectively?

The potential applications for crowdsourcing continue to grow:

- **Venture Capital:** Crowdfunding may be the future for how entrepreneurs raise funds – retail investors provide start-up capital.
- **Public Policy:** Governments are using digital reporting from citizens for updates on the quality of service delivery, or to report corruption.
- **Academic Research:** Universities are using crowdfunding to fund research projects. Rather than relying on big donors, they are tapping “micro-philanthropy”.

Venture Capital Funds Raised on Kickstarter by Genre

(KickStarter, 2012)

(In millions of US\$)

27

TECHNOLOGY

51

DESIGN

52

MUSIC

66

GAMES

79

FILM & VIDEO

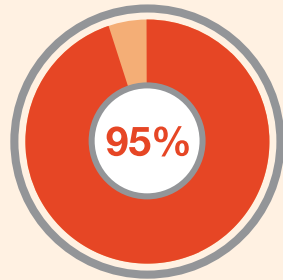


What if cars could drive themselves?

According to TechCast, 30% of cars will be “intelligent cars” by 2019. What are the implications of driverless cars?

- Roads can handle higher volumes of traffic, reducing congestion.
- Highly-optimised “robo-taxis” might become an alternative to traditional public transportation and car ownership.
- Distance becomes less important, because passengers can work, rest, and play while commuting.
- No more parking lots, because cars are on the go 24 hours a day, seven days a week.

% of the Lifetime of a Car Spent Parked in a Parking Lot



“Planes spend almost their entire lifetime airborne. The proliferation of driverless cars will have a similar effect.”

– Koushik Dutta, Entrepreneur



What if a drug could make you more productive?

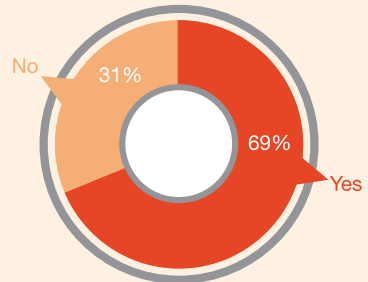
New technologies offer the possibility of enhancing human cognition.

Drugs that improve memory and cognition, such as Adderall to treat attention-deficit disorder and Provigil to treat narcolepsy, are being used “off-label” by students and professionals to boost performance.

In the future, cognition-enhancing drugs may become the norm, and may even be mandated by employers. The U.S. Air Force makes available Modafinil – a drug which enhances alertness – to pilots before long missions.

Would you take cognition-enhancing drugs despite mild side effects?

(Survey by Nature, 2008)



“Caffeine is a cognitive enhancement. I don’t think there’s anything special about enhancing with drugs that makes it morally different.”

– Prof. Hank Greely, Stanford Law School



What if machines can access your thoughts?

Researchers are making progress in deciphering the patterns of brain activity associated with words and images.

In our brains, there are about 20,000 regions called “voxels” containing neurons in 3mm x 3mm cubes. When we think of a particular word or look at a certain image, a unique combination of these voxels lights up with activity.

As a result, machines are able to identify the word a person is thinking about or the type of image a person is viewing, through a functional MRI (fMRI) scan. This technology can be used to create thought-controlled machines.

Emotiv EEG Neuro Headset



“The neuro headset tunes in to electric signals produced by the brain to detect the user's thoughts, feelings and expressions in real time.”

– Emotiv Marketing



Who is watching you?

Today, surveillance comes from below, and the targets are often elites and the authorities, as well as ordinary people who violate social norms.

In China, “human flesh search engines” use crowdsourcing to identify officials clad in expensive clothing, and mark them as corrupt. In the U.S., secretly-filmed remarks threatened the electoral fate of presidential candidate Mitt Romney.

In future, smaller, cheaper, and more discreet monitoring devices will make it even easier for the public to record the actions of those around them. Firms and governments will face greater reputation risk.

% of Internet Forum Users in Singapore Who Have Engaged in “Online Shaming”

(Nanyang Technological University, 2010)



“While the online news portal Stomp was not set up with the purpose of public shaming in mind, it has nevertheless provided a platform for many Singaporeans who are eager to play social police.”

– Prof. Marko Skoric, Nanyang Technological University

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THE FUTURE OF WORK

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Can a robot do your job?

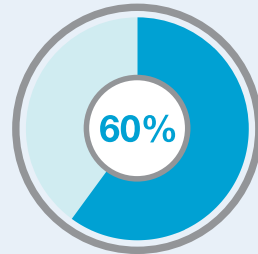
The pace of automation has increased. Machines now possess capabilities previously thought to be uniquely human, such as understanding speech and recognising complex patterns.

Whereas the previous wave of automation hit manufacturing jobs, the next wave will affect higher-end service jobs – such as those in accounting, finance, sales, marketing, and legal services.

This means that in future, the skills required in high-end jobs will be those abilities that machines lack – asking the right questions, solving unexpected problems, and programming machines.

% of Existing Jobs Likely to be Displaced by Computers by 2030

(National Research Council, 2008)



“By one estimate, one lawyer is now as productive as 500 used to be. You might not lay off 500 lawyers, but the next time you might hire a few people and some software to read documents.”

– Prof. Andrew McAfee, MIT

KAFE INTERNET
ENCA Internet Cafe
INTERNATIONAL PHONE CALL & FAX

INTERNET
PHONE CALL LAUNDRY PHOTO PROCESSING
INTERNET (HIGH SPEED) BROAD BAND
LANGUAGES: ENGLISH JAPANESE ARABIC CHINESE KOREAN
SCANNER LEADER

- LAUNDRY SERVICE
- PHOTO PROCESSING
- MOBILE RELOAD

What if Stanford were accessible from every internet café?

CUSTOM TAILOR SHIRTSE



Massive Open Online Courses now allow hundreds of thousands of motivated students from around the world to learn sophisticated skills from professors at top universities.

Lectures are delivered in the form of video clips, questions are answered over web-based forums, and assignments are marked by machines. The final step may be certification at a testing centre, with the promise of job offers from partner companies.

This democratisation of higher education means more paths to success, but also greater competition from low-wage, high-skill workers abroad.

Recent Artificial Intelligence Course at Stanford University

(New York Times, 2012)

200

Stanford Students

Online Students

23,000

0

Stanford Students
with Perfect Scores

248

Online Students
with Perfect Scores



What job can a degree get you?

The income distribution is becoming more polarised.

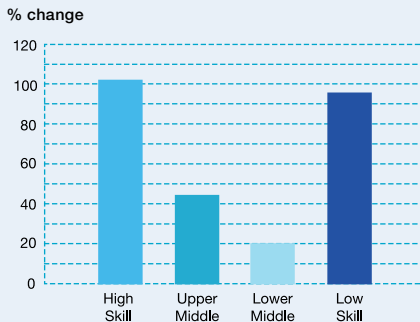
Technological change is wiping out routine middle-skill jobs, and the vast expansion in higher education in India and China has brought stiff competition for these jobs.

Those with unique, high-end skills benefit from tapping a global market for their skills, and capturing the productivity gains from automation.

At the same time, the number of low-end jobs like cleaning – which cannot be outsourced or cheaply automated – is growing, but there are fewer jobs suited to most diploma or degree holders.

Change in U.S. Employment By Skill Group, 1980–2010

(U.S. Census Bureau, 2012)





Corporate ladder or roller-coaster ride?

As technological change and industry re-structuring proceed at a faster pace, the obsolescence of swathes of job categories could force more workers to undergo retraining and mid-career job changes.

This means that the traditional career-wage trajectory, where wages rise with greater years of work experience, might be dismantled.

In its place might come a “roller coaster”-shaped wage trajectory, which is less conducive to the pursuit of traditional priorities like home ownership and raising children.

The New Career Trajectory?

Monthly wage



Traditional Career Path New Career Path



Might the freelancer be better-qualified than your employee?

Increasingly, companies turn to freelancers not only for routine, labour-intensive work, but also for high-end, specialised tasks.

On Elance, the fastest-growing skill categories include network security engineering, security analysis, speech writing, and game programming.

Of the two million registered freelancers, 42% have a Bachelor's degree, while 24% hold a Master's.

The future of work may be workers juggling multiple “gigs”, and local SMEs operating like “mini-multinationals”.

The Global Market for Freelance Labour (Elance, 2012)

Hiring Countries

1.  United States
2.  Australia
3.  United Kingdom
4.  Canada
5.  Germany
6.  United Arab Emirates
7.  Netherlands
8.  Israel
9.  Singapore
10.  Switzerland

Freelancers

1.  United States
2.  India
3.  Pakistan
4.  Ukraine
5.  United Kingdom
6.  Russia
7.  Canada
8.  Romania
9.  Philippines
10.  China



When her daughter is older, will mum return to work?

More top companies are offering “returnships” – internships for professionals who have been out of the workforce for several years.

For example, Goldman Sachs offers returnships at their Singapore office.

The returnships are a way to attract top talents who have spent the last few years as stay-at-home mothers (or fathers), and also to assess their work performance before hiring.

Initiatives such as these tap a pool of high-skilled workers, some with over ten years of experience, who may otherwise have difficulty re-entering the workforce.

No. of Graduate Women in Singapore Not Working

(Ministry of Manpower, 2011)

58,000



“It’s a chance to have the participant interview the company, as well as the company interview the participant.”

– Participant in Goldman Sachs Programme

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DRIVERS OF GROWTH

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Will America be an industrial power-house once again?

Manufacturers may be shifting production back to developed economies, particularly the United States. Drivers of this phenomenon include:

- **Rising Wages in China:**

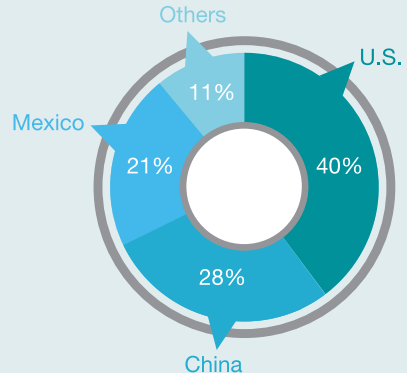
Wages and benefits in China are rising at 15-20% per year, narrowing the gap between wages in China and developed economies.

- **3D Printing:**

3D printing could support the growth of high-end custom manufacturing that spurs innovation and the creation of new, niche markets in the developed world.

Where U.S. Companies Relocated Factories To, 2010-2012

(Accenture, 2012)





Would you work in Visakhapatnam?

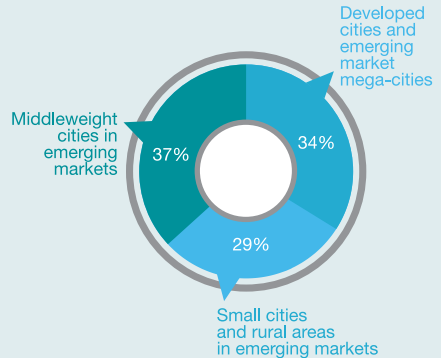
The “second-tier” cities of the world are emerging as important drivers of global growth. These are cities with 150,000 to ten million inhabitants.

McKinsey estimates that about 400 mid-sized cities in the emerging markets could generate 37% of global growth by 2025. These are the cities whose names many of us do not know – Visakhapatnam, Fortaleza, Huambo.

This means companies will have to venture “deeper into the interior”, or risk being left out of the major growth opportunity of the coming decade.

Projected GDP Growth, 2010-2025

(McKinsey Global Institute, 2011)





Will technology bring energy abundance?

There are signs of a possible major shift in the global energy landscape, because of new technologies that will increase the global energy supply:

- Extraction of shale gas and shale oil
- More efficient solar, nuclear energy
- New energy sources, such as algae

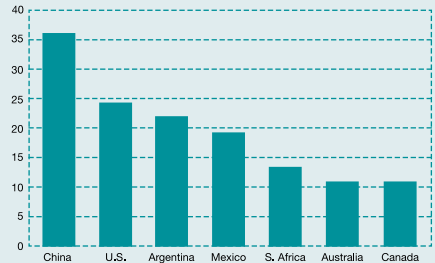
The result could be a shift from a world of energy constraints to a world of energy abundance.

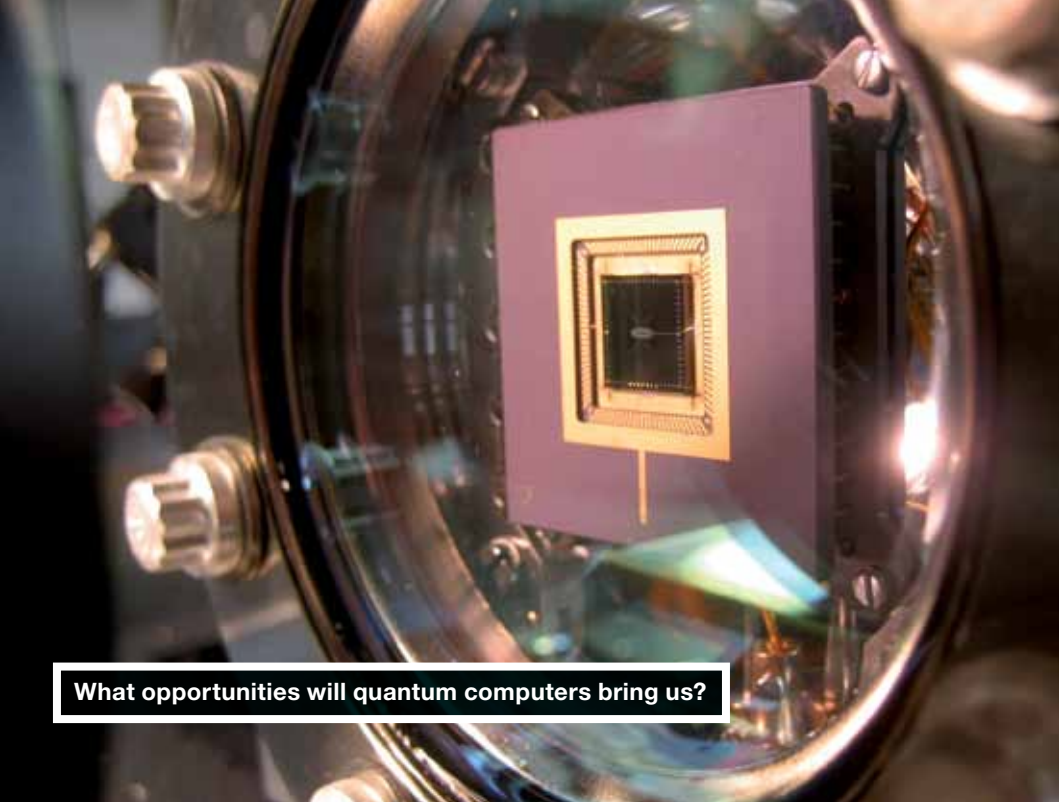
A dramatically different energy landscape could usher in a new era of technological progress. Who will the winners and losers in this new landscape be?

Top Reserve Holders for Shale Gas

(Reuters, 2012)

In trillion cubic metres





What opportunities will quantum computers bring us?

The technology forecaster TechCast predicts that the first quantum computers could enter the commercial market in 2026.

Unlike a traditional computer, a quantum computer works with switches that exist not only in “on” and “off” states, but also in states that are simultaneously “on” and “off”.

This allows a quantum computer to perform many calculations in parallel. In theory, this means that quantum computers could provide unlimited computing power.

Currently, quantum computing is being applied to code-breaking.

In the future, it could be used to analyse extremely large sets of equations with many variables – such as those that describe stock markets or the weather.



Can you build a business with this?

By 2018, 3D printing is expected to be widely available commercially.

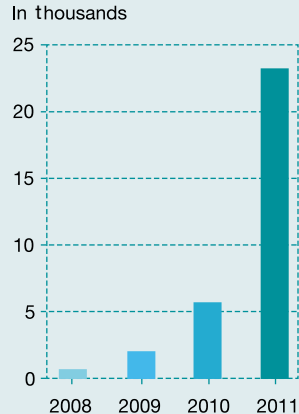
Industrial 3D printers used to cost US\$100,000 to US\$1 million, but some now only cost US\$10,000, while home 3D printers are available for US\$1,000.

3D printing allows the possibility of mass customisation and the creation of new, niche markets. This should drive innovation and produce new jobs, in areas that did not previously exist.

The societies that will benefit most from this transformation of industry are those that can develop these as-yet-unimagined entrepreneurial niches.

Global Sales of Home 3D Printers*

(Wohlers Associates, 2012)



*Machines priced US\$500-4,000



Why buy when you can rent?

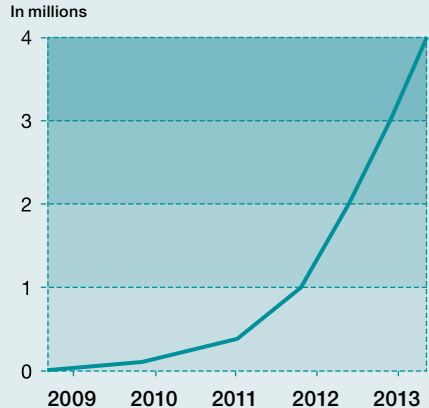
We are seeing a shift towards pay-per-use business models.

This means that instead of owning an expensive fixed asset, you only pay for what you consume. Some examples:

- **Airbnb.com:** Home-owners rent rooms to travellers, providing an alternative to hotels.
- **Nextdoor.com:** Hyper-local sharing of household items and exchange of services like childcare amongst neighbours.

No. of Guests Booking Accommodation on Airbnb.com

Source: TechCrunch, 2013



FUTURE DECK

MACRO ECONOMIC SHIFTS

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Which currency will retain its value?

The world is moving towards a multi-polar currency system based on the U.S. Dollar, Chinese Yuan, and Euro.

Despite questions about its long-term soundness, the U.S. Dollar remains the safe-haven currency of choice, and despite current travails, the Euro still accounts for 25% of global reserves.

However, in the future the Yuan is likely to play a larger international role. How soon depends on China's economic prospects, the liberalisation of the Chinese financial system, and how the U.S. and Europe confront the long-term challenges to their fiscal stability.

Currency Composition of Foreign Exchange Reserves

(IMF, 2012)





Are your safe assets “safe”?

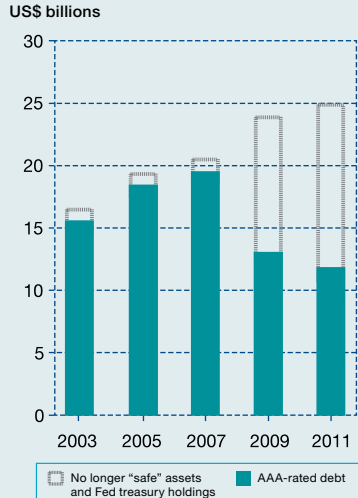
LOSS OF “SAFE” ASSETS

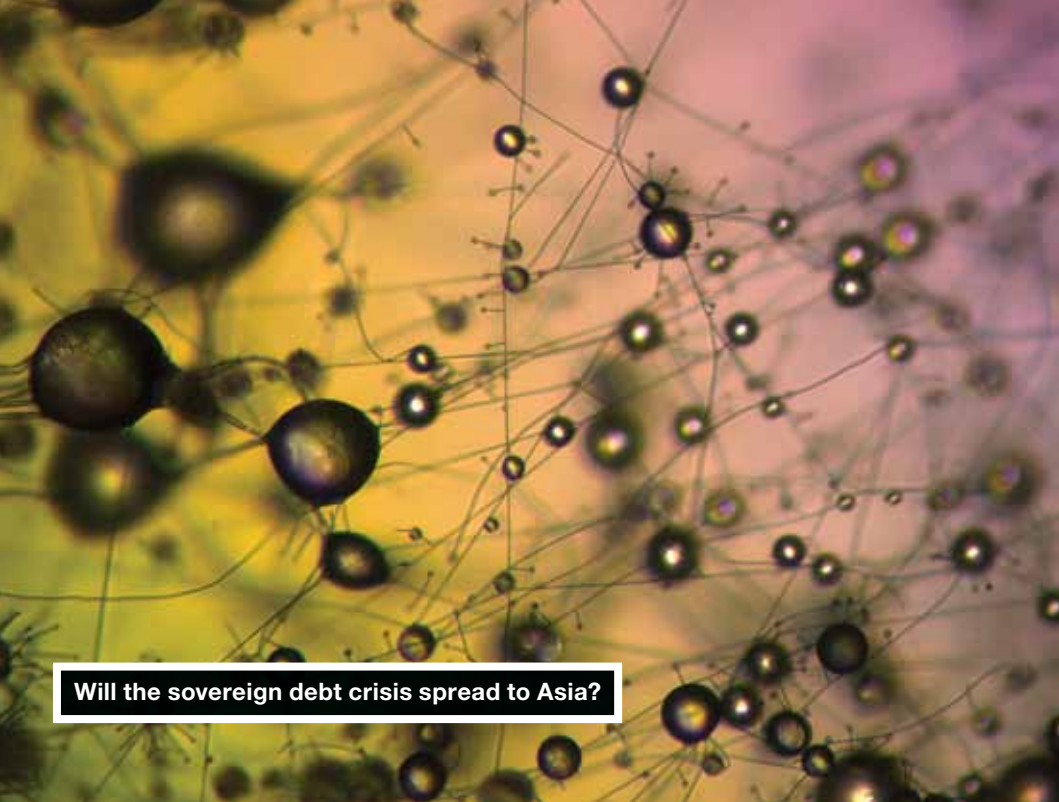
Long periods of volatility create a high demand for “safe” assets. However, the number of sovereigns whose debt is still considered “safe” has fallen.

According to the IMF, some US\$9 trillion or 16% of projected sovereign debt will be taken out of the “safe” asset supply by 2016.

This compels investors to look for alternative asset classes, which can lead to asset bubbles. Another risk is short-term spikes in volatility, because of shortages of liquid, stable collateral as a lubricant for financial transactions.

Stock of “Safe” Assets
(Credit Suisse, 2011)



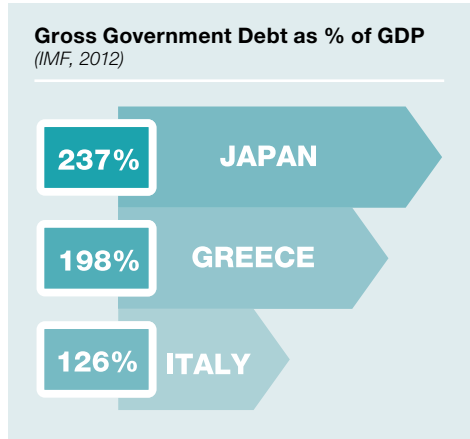


Will the sovereign debt crisis spread to Asia?

The risk of the sovereign debt crisis in Europe spreading to Asia is growing. Japan is carrying a government debt burden much higher than the troubled Eurozone economies.

Although most Japanese government debt is held domestically, the savings rate in Japan has fallen from 16% of GDP in the 1990s to 2% today. This means a smaller “captive audience” for Japanese government debt.

If Japan were to face a sovereign debt crisis, there would be knock-on effects across many Asian countries, for whom Japan remains a major trading partner and investor.





Are currency controls back in vogue?

The IMF has endorsed the use of capital controls when countries are faced with volatile, speculative capital flows.

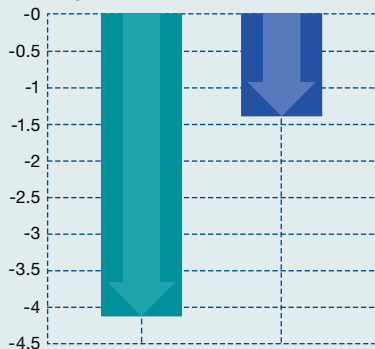
They published evidence showing that countries that used capital controls experienced a 2.5-3.5% smaller decline in growth during the 2008-2009 global financial crisis.

More countries are likely to adopt capital controls to combat the effects of the “liquidity tsunami” from the U.S. and Europe, which is causing asset bubbles and currency appreciation in many emerging markets.

Use of Capital Controls and Resilience in 2008-2009 Financial Crisis

(IMF, 2011)

% decline in growth rate during financial crisis
(in percentage points)





Will he leave for a better job back home?

Economic growth in countries like Indonesia and the Philippines will result in higher wages, and this will draw back migrant workers from countries such as Singapore.

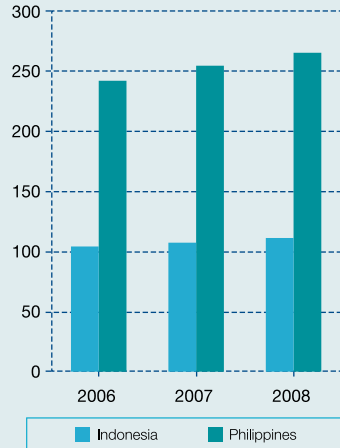
For Singapore, this would mean fewer foreign domestic workers and foreign construction workers, and those who stay can command higher wages and better working conditions.

This will impact the ability of households to manage childcare and eldercare and cause inflation, yet also drive productivity in sectors reliant on foreign labour.

Wages in Manufacturing

(ILO, 2012)

Monthly earnings in S\$





Do we still need banks?

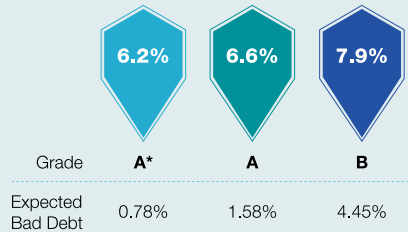
The loan volume for peer-to-peer lending via websites has hit US\$1 billion in the United States.

Savers and borrowers both receive better interest rates on peer-to-peer lending sites than they do from traditional banks.

Risk is spread out as funds are divided into smaller blocks spread out amongst borrowers, whose credit scores are verified.

This market is expanding, with institutional investors now providing 40% of funding for sites like Lending Club.

Returns from UK-Based Peer-to-Peer Lender Zopa



“There is no reason why end-savers and end-investors cannot connect directly. The banking middle men may in time become the surplus links in the chain.”

– Andy Haldane, Director, Bank of England

FUTURE DECK

FUTURE OF SUSTAINABILITY

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What value do we place on nature?

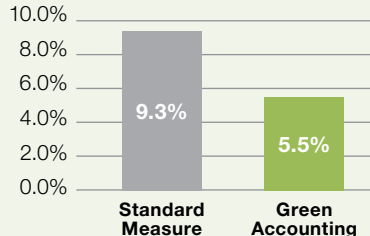
In 2012, the World Bank encouraged countries to adopt “green accounting” measures, that capture the long-term costs of changes to the natural environment.

For example, a new oil refinery might produce pollution that results in higher future healthcare costs. On the other hand, preserving mangrove swamps improves the resilience of coastal areas to storm surges, in turn reducing economic losses from tropical storms.

Is there a way to better “price” the value of natural assets, so that we better understand the long-term consequences of decisions?

Impact of Green Accounting on Chinese GDP Growth

(World Bank, 2012)



“Conservation is not a trade-off between the economy and the environment. It is a trade-off between the long and the short term.”

– Carl Safina, Scientist



What if cities are *not* the future?

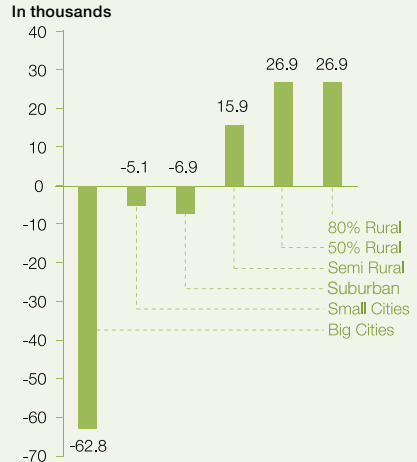
Rural areas are attracting people away from cities. 54,000 Britons moved from urban to rural areas in 2009-2010.

The desire for more space and greater access to nature is driving this shift. Technologies that allow people to work remotely can help unlock job opportunities in rural areas. Some U.S. companies are now turning to “rural sourcing” to lower costs.

In future, will people migrate out from cities into rural areas? What does this mean for the future of cities?

Internal Migration in the U.K., 2009-2010

(U.K. Department for Environment, Food and Rural Affairs, 2012)





Are insects the future of food?

Some drivers of change in agriculture in the next 10-15 years include:

- **Urban Agriculture:** High-rise farming could allow Singapore to become self-sufficient in vegetables. Today, 90% of fresh produce is imported.
- **Lab-Grown Food:** Meat grown from stem cells could become a cheap and environmentally-sustainable food source. This is expected to be commercially available by the 2020s.
- **Insect Farms:** There are 1,400 species of edible insects, and they are high-protein, low-fat, and environmentally-sustainable to farm.

- **Ocean-Farmed Seaweed:** The techniques used for production of algae energy can also be used for the cultivation of seaweed as food.

Cricket vs. Beef

(U.N. Food and Agriculture Organization, 2012)

Per 100 g	Cricket	Beef
Protein	21 g	26 g
Fat	7 g	15 g
Calories	140 kcal	250 kcal
Iron	1.9 mg	2.6 mg



What if waste were viewed as a resource?

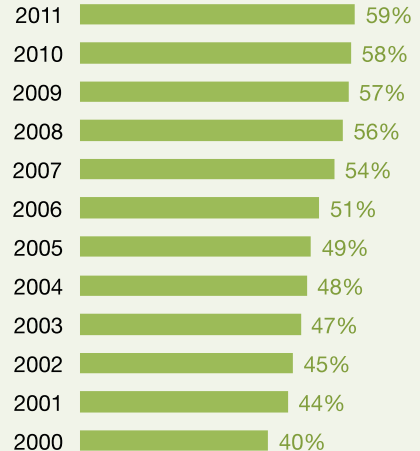
Resource constraints, sustainability concerns, and land shortages could bring a move to a zero-waste society:

- Manufacturers designing products with recyclability in mind.
- Advances in waste management technology that allow better sorting and re-processing of waste, and energy generation from waste.
- City-managed systems for composting, allowing food waste to be converted to fertiliser.

This results in waste being viewed not as waste, but as a valuable resource.

% of Waste Recycled in Singapore

(National Environment Agency, 2012)





The site for New Singapore?

“Seasteading” is a movement to create large-scale settlements in the ocean. While there are significant engineering challenges to be overcome, the prospect of livable, ocean-based spaces is a long-term possibility.

These cities on the ocean would likely adapt existing technology for building oil rigs, as well as desalination and wind, solar or wave energy systems.

One factor driving innovation is the prospect of rising sea levels due to climate change affecting populations in coastal areas.

Already, there is a plan to station a ship 12 nautical miles from the coast of San Francisco in international waters to serve as a base for foreign tech entrepreneurs.

Larger, More Comfortable Than This



FUTURE DECK

CITIZENSHIP AND GOVERNANCE

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Is city-level cooperation the future of diplomacy?

Stronger ties amongst cities could result in certain configurations of cities becoming more important than traditional state-based structures.

Cities may be the level at which “things get done”. For example, inter-city cooperation has achieved progress in areas like climate change where country-level negotiations have failed. Decentralisation has also brought greater political power to cities in China and Indonesia.

In the future, cooperation amongst cities may become the new norm in diplomacy.

In the Future, a Global Parliament of Mayors?



“Radical interdependence requires that we respond to problems through the actors that are not jurisdictionally limited by sovereignty.”

– Benjamin Barber, Political Theorist



Are you aligned with your community?

Most Singaporeans no longer cleave to one ethnic, religious, or class identity that provides a clear sense of group identity. Instead, many Singaporeans have multiple and shifting identities.

The sense of belonging to a particular segment of society and thus being “spoken for” by the leaders of that community is declining.

This loss of natural collectives means that the mediation of societal interests, through bargaining amongst “grassroots leaders”, may no longer be effective, and that new dispute resolution mechanisms are needed.

Doing Your Own Thing?



“Increasing numbers of Singaporeans do not regard the established religious organisations as representing their interests.”

– Workshop on Future of Singapore Society, May 2012



What if other Asian countries offer multiple citizenship?

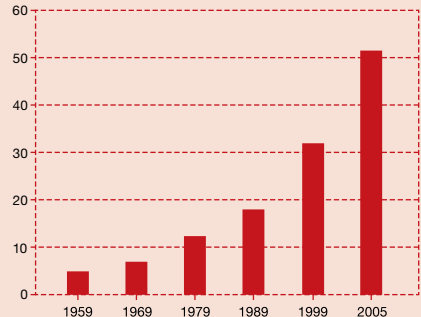
There is a slow-moving trend towards more countries allowing multiple citizenship, as a tool to attract talent from diaspora populations, and to encourage permanent residents to convert to citizenship.

In 2011, Korea began allowing dual citizenship for those who had previously given up Korean citizenship, foreigners married to Koreans, Koreans married to foreigners, and “exceptionally talented” foreigners.

In the future, could norms shift such that the notion of exclusive loyalty to one political entity becomes old-fashioned?

Countries with Legislation Allowing Dual Citizenship

(International Migration Review, 2008)





What rights do we accord diasporas?

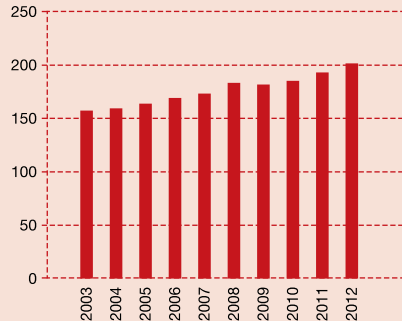
Governments are experimenting with strategies to engage their diasporas:

- **Dedicated Constituencies for Overseas Citizens:** In 2012, France created 11 new constituencies to represent overseas citizens. This means dedicated members of parliament represent the interests of the overseas French community.
- **Special Rights for Ex-Citizens:** Former Indian citizens and descendants of former Indian citizens – up to four generations removed – enjoy preferential access to working and investing in India.

Overseas Singaporean Population

(National Population and Talent Division, 2012)

In thousands



FUTURE DECK

INTERNATIONAL LANDSCAPE

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Will tomorrow's leaders be China-educated?

Over time, political and business leaders everywhere may become more China-oriented, as more of the global elite choose to work or study in China.

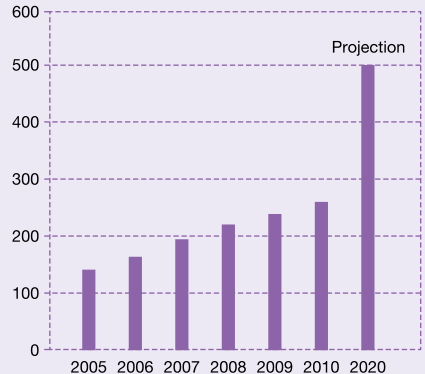
There are 260,000 foreign students studying in China, and if China becomes more influential geo-politically, the attractiveness of its universities will likely grow as well.

After studying or working in China, members of the global elite may adopt norms of behaviour and ways of perceiving the world that are more “Chinese”, just as the global elite today is more Western-oriented.

Overseas Students in China

(China Daily, 2010)

In thousands





Is the winning candidate someone unexpected?

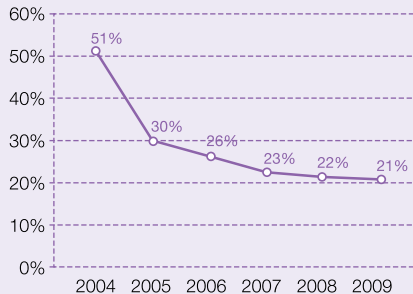
The ability to mobilise support via social media, and popular frustration with entrenched elites, means political outsiders have fared unusually well in a series of election contests in Asia.

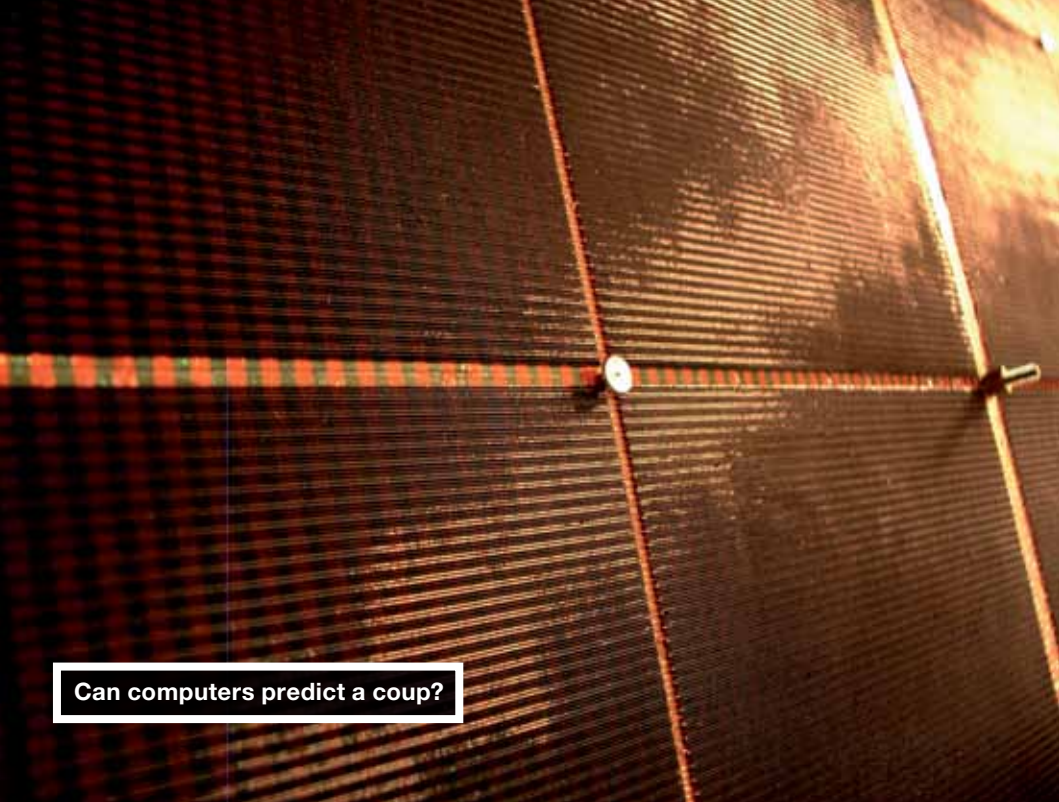
In Indonesia, Joko Widodo won the race to become Governor of Jakarta against political insider Fauzi Bowo. In Korea, Ahn Chul-soo, a doctor and tech entrepreneur, won unexpected support during his candidacy for the presidency.

The same factors propel movements like Anna Hazare in India and Bersih 2.0 in Malaysia, which influence politics without engaging directly in politics.

Percentage of Indonesian Voters who Identify with a Political Party

(Indonesian Survey Institute, 2009)





Can computers predict a coup?

Data analytics can now contribute to analysis of political risk.

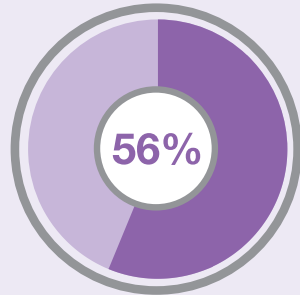
There are algorithms to predict outbreaks of ethnic violence and public protests, as well as to predict election outcomes and trends in trust in government.

DARPA has developed a system that aggregates analyses of “macro” social, economic and demographic data, and “micro” data such as news reports. Combined with agent-based modelling, this system can be used to predict political upheaval in foreign countries.

In trials, the system successfully predicted nine out of 16 coups or outbreaks of violence.

Success Rate of DARPA System Predicting Political Upheaval in Pacific Nations*

(Wired, 2012)



**Event occurred within one year of predicted date.*

FUTURE DECK

FUTURE OF CONFLICT

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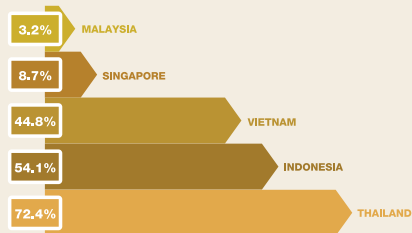
Is defence spending headed up?

Military expenditures in Southeast Asia are growing. Thailand, Indonesia, and Vietnam have significantly increased defence spending to modernise their armed forces.

Increased spending is driven in part by strong economic growth, but also strategic uncertainty in the Asia-Pacific, given the uncertain future trajectory of U.S.-China relations.

While Singapore now maintains the highest defence budget in Southeast Asia, in future, other regional heavyweights may hold that title.

Increase in Defence Spending in 2005–2011
(Stockholm International Peace Research Institute, 2012)





Would you let the drone choose its target?

The age of robotic warfare is slowly dawning. Already, 30% of all U.S. military aircraft are unmanned drones.

In the future, better artificial intelligence may allow robots to make lethal combat decisions – if their control systems can take into account the law on armed conflicts, making decisions on proportionality and weighing military necessity against human costs.

Researchers are developing “ethics software” for armed robots, to assess if a missile strike will damage a nearby civilian building, for example.

Counter-IED Robot





Where should I fly my drone?

Sophisticated military technology is now increasingly available off-the-shelf.

Hezbollah was already operating drones against Israel in 2007, and a group of thieves in Taiwan recently used robotic helicopters armed with cameras to carry out a jewellery heist.


In future, “designer pathogens” – modified strains of influenza with heightened transmissibility and virulence – may be within reach for “garage-based” bio-technologists.

Quadcopter Piloted by iPhone App



	Cost
Drone*	US\$299
iPhone App	US\$6

**Available from Amazon.com*



Do our networks make us vulnerable?

Armed forces are increasingly building up asymmetric warfare capabilities intended to disrupt an opponent's command and control networks.

Capabilities such as electro-magnetic pulse attacks could also destroy civilian communications and power transmission networks, which may be vulnerable to such attacks.

In future wars, some defence analysts have argued, the objective may not be to destroy enemy assets, or even to disable them, but to co-opt them – for example, to “persuade” a tank to do something its owner does not want.

In 2011, Iran Claimed They Hacked and Brought Down a U.S. Spy Plane



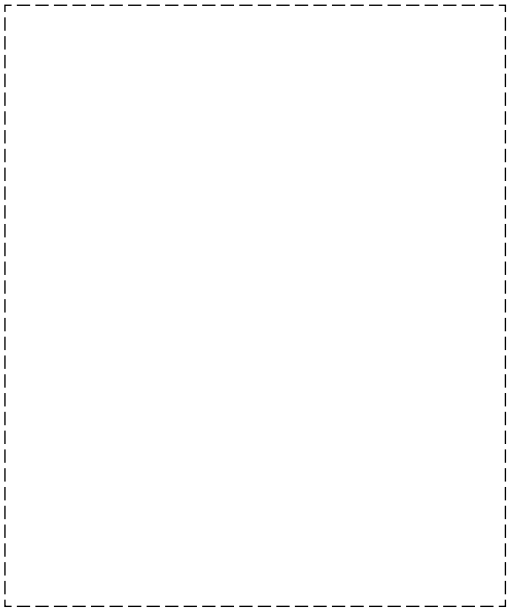
TenSafeFrogs

“An aggressor nation or extremist group could use these cyber tools to gain control of critical switches. They could derail passenger trains or contaminate the water supply.”

– Leon Panetta, U.S. Defence Secretary

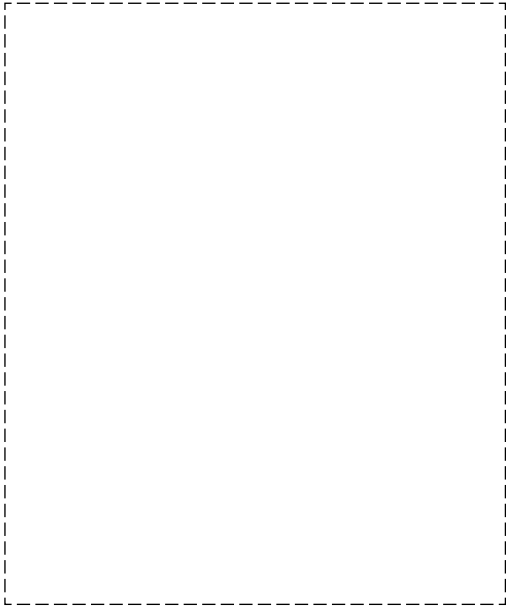


Will that cygnet grow up to be a black swan?



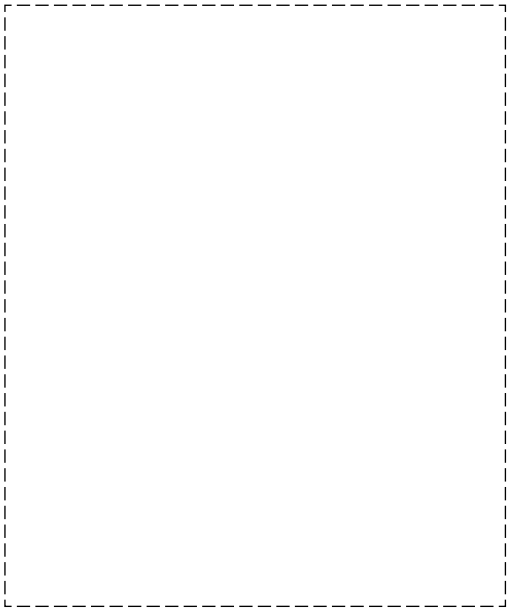


Will that cygnet grow up to be a black swan?





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