Khazanah Megatrends Forum 2014:
Institutions, Innovation and Inclusivity

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Key Messages

- Economic development needs a systemic view of growth for jobs, inclusivity and environmental sustainability through new lenses of relationships, patterns and context
- Development is driven through innovation but subject to Three Hard Budget Constraints
- In Malaysia, equitable growth means that we need innovation and value creation in order to distribute to poor, needy and bring bulk of the population to enjoy prosperity
- Concentrate on how to get SMEs to thrive; get right eco-system for creativity, competition and growth. Much of this requires a new narrative of sharing and a sense of community
- Transformation cannot be done without adaptive institutions, continuous innovation and equitable risk sharing – these are foundational to Islamic finance.

Making Sense in Complex World

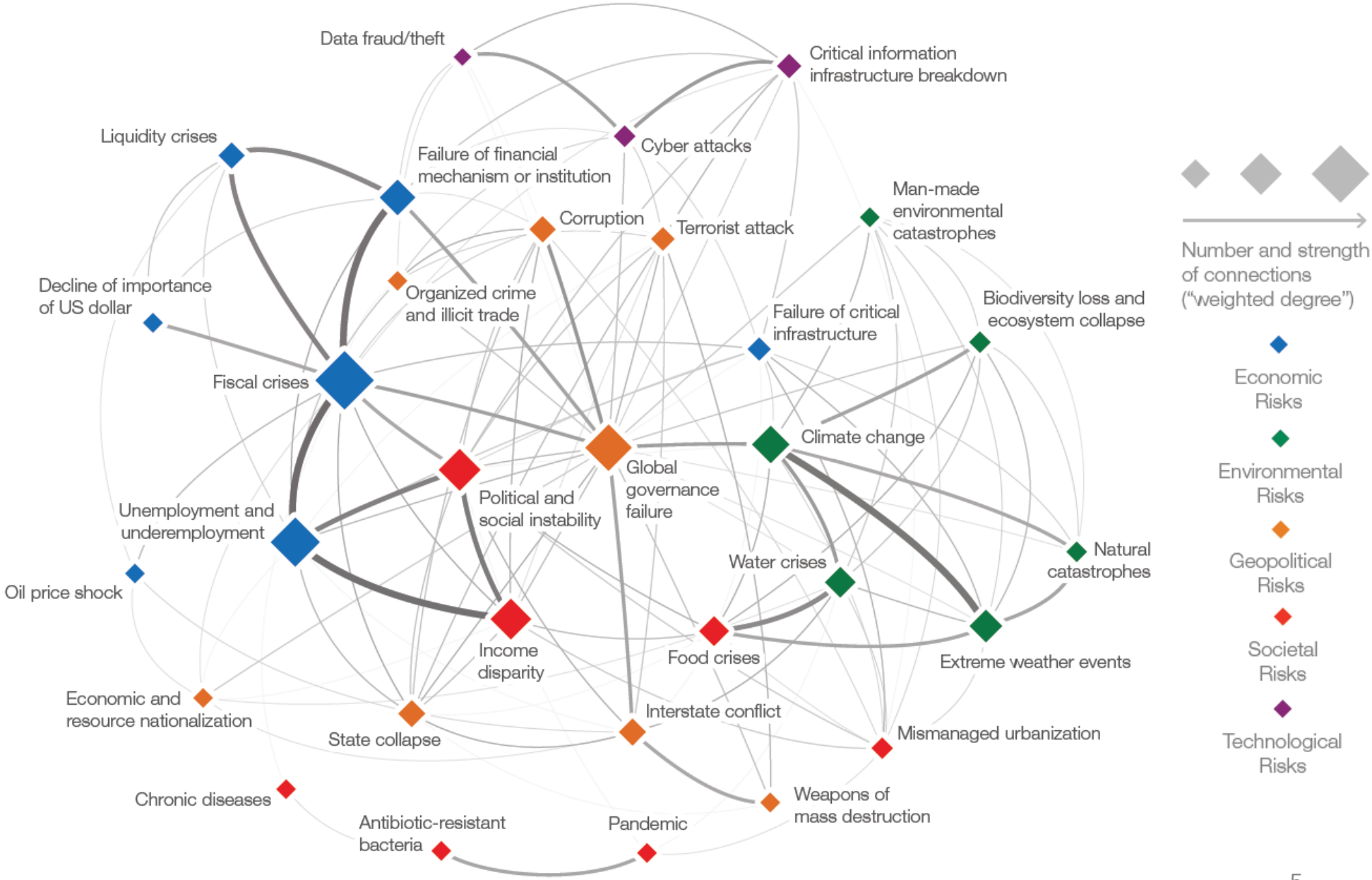
- Simple theory cannot explain complex change
- Current events (Ukraine, ISIS, Ebola) are phase-transition of systemic changes of systems interacting within systems in new, multipolar global system. Chaos is manifestation of transformational change
- Cannot examine our markets in isolation. Asian markets are inextricably tied to Western economies through complex, dynamic feedback mechanisms, viz, supply chains, financial and social networks
- We need a system-wide framework to chart these massive changes and manage evolving complexity through risk-sharing
- *Systems are also networks with hierarchy and complex feedback reflecting change, inequality/concentration and entropy*

System-wide problems can't be solved partially

– Capra & Luisi – Systems view of Life, Cambridge 2014

- Current thinking is reductionist – Breaking problems into parts, but ignoring externalities/spillovers – absolute/perfect, rather than relative/fuzzy continuum
- We are living in systems within systems. A system is more than sum of its parts, which exhibit adaptive, dynamic, goal-seeking, self-preserving, self-organising and evolutionary behaviour
- We need a systemic and systematic way of thinking and acting based on the interactive and interconnected way the world evolves
- "Development process is not purely an economic process. It is also a social, ecological, and ethical process, a multidimensional and systemic process…. must be understood in relationship, patterns and context"

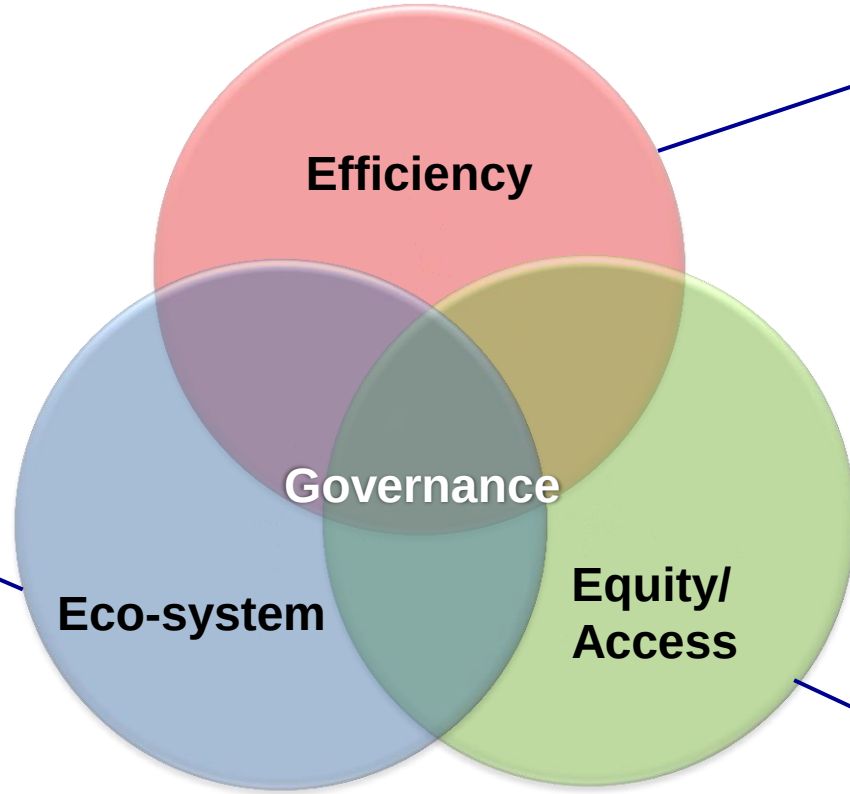
We live in a complex web of risks…with unknown unknowns



Source: WEF. 2014. Global Risks 2014 Report.

New Economic Model depends on Growth with Dynamic System Stability and Eco-Sustainability

- Jobs and Profits
- How to stimulate job creation and innovation?



- Heritage of huge biodiversity and water resources
- Opportunity to be innovative in Green economy
- Barriers to innovation?

- SME Access to financing
- Funding of long-term public goods
- Removing Financial Repression

We need to move to next stage of social inclusivity that addresses ethnic differences

Five I's of Dynamic Social Systems

1. Information Asymmetry – We live in a world of risk and uncertainty, including chaos. To manage such disorder, human society created
2. Institutions – Collective action to deal with uncertainty and internal and external threats, bound together by
3. Ideology – Common values and beliefs, that are at best imperfect "models" of reality, and when environments change, institutions adapt through
4. Innovation – That creates new things through Schumpeterian "creative destruction". The condition for institutional/societal cohesiveness and stability depends on
5. Inclusivity – The glue that binds – institutions are about sharing, current debt model is about risk-shift and inequality

Great Transformations must be managed through Sharing

21st Century Transformation – Multi-dimensional: Economic, Social, Ecological, Technological

- Demographics – from 2 billion (1929) to 7 billion (2011), 9 billion by 2025
- Urbanization – from 50% to 70%+ by 2025
- Third Industrial Revolution – from Waste to Green; from Products to Services
- Technology – Social Media, Robotics, Bio-tech
- Climate change – Carbon warming increases natural disasters
- Tensions/Conflicts from water stress, food security and territorial disputes

SECTION 1

Rethinking Ideology, Institutions, Innovation and Inclusivity in an Uncertain World

Behavioral Bias towards Status Quo –

Beinhocker (2007, p.374)

STATUS QUO is not an Option, given competition from everywhere

- *Individual* – Optimism dulls Recognition for change
- *Organization* – Loss aversion favours “do more what we are familiar with”
- *System structure* – “Silos” are difficult to coordinate to meet environmental change – Collective Action Traps
- *Closed culture* tends to blame outsiders for problems and unwilling to accept that environment has changed
- Innovation Is about Opening Up and taking risks to change Status Quo

Reactors and Actors in New Normal

- Nation-states are reacting to global trends, because of Collective Action Trap – no powers to deal with cross-border issues
- Three actors have most freedom to act:
  - *Cities* – Cities have to deal with local problems; both successful (Singapore) or failure (Lagos)
  - *Corporations* – Global in reach; not leveraged; highly innovative – Apple, Hyundai
  - *Civil Society* – Social Philanthropy making major changes (Gates, Rockefeller, Médecins Sans Frontières)

We Live in Imperfect Information –

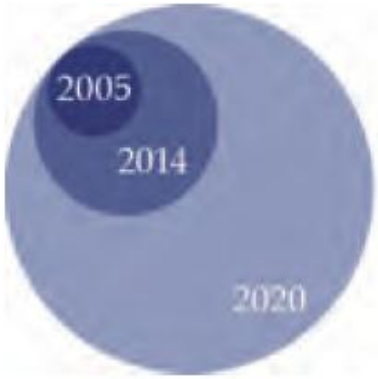
Andrew G. Haldane, Bank of England, August 2012

Over-active policy does not compensate for Lack of Knowledge

- Keynes, Hayek, Simon, Friedman all emphasized imperfections in information and knowledge
- Hayek's 1974 Nobel address, "The Pretence of Knowledge" laid bare perils of over-active policy assuming omniscience, when we don't know enough
- Human solution to Uncertainty is to create Institutions to (collectively) manage Risk and share losses
- Individuals learn, Institutions Adapt and Innovate to generate resources to deal with Uncertain Losses
- Transformations can only be managed through Sharing, hence the need for Inclusivity

Information is Growing in Speed and Volume

Examples of growth in data volumes



Every 2 years to 2020: the digital universe will double in size

Monthly: 30 billion pieces of user content

Daily: 8 terabytes in Twitter feeds

Daily: 1 terabyte of market data

Per second: 10,000 payment card transactions

Source: FSI Interim Report, July 2014.

How Bureaucracies/Institutions add complexity in implementation of Policy into Outcomes

- Institutions add complexity – like entropy
- Basel 1 (30 pages) ➔ Basel 2 (347 pages) ➔ Basel 3 (616 pages)
- Glass-Steagall (37 pages) – Volcker Rule (325 pages); Dodd-Frank (1,100 pages, including rules ≅ 30,000 pages) – 394 rules, 50% written, 20% still
- In financial regulation, is more more or is more less?
- Over-regulation or Under-enforcement of Simple Principles?
- Should Asians take medicine for which we do not yet have the disease?

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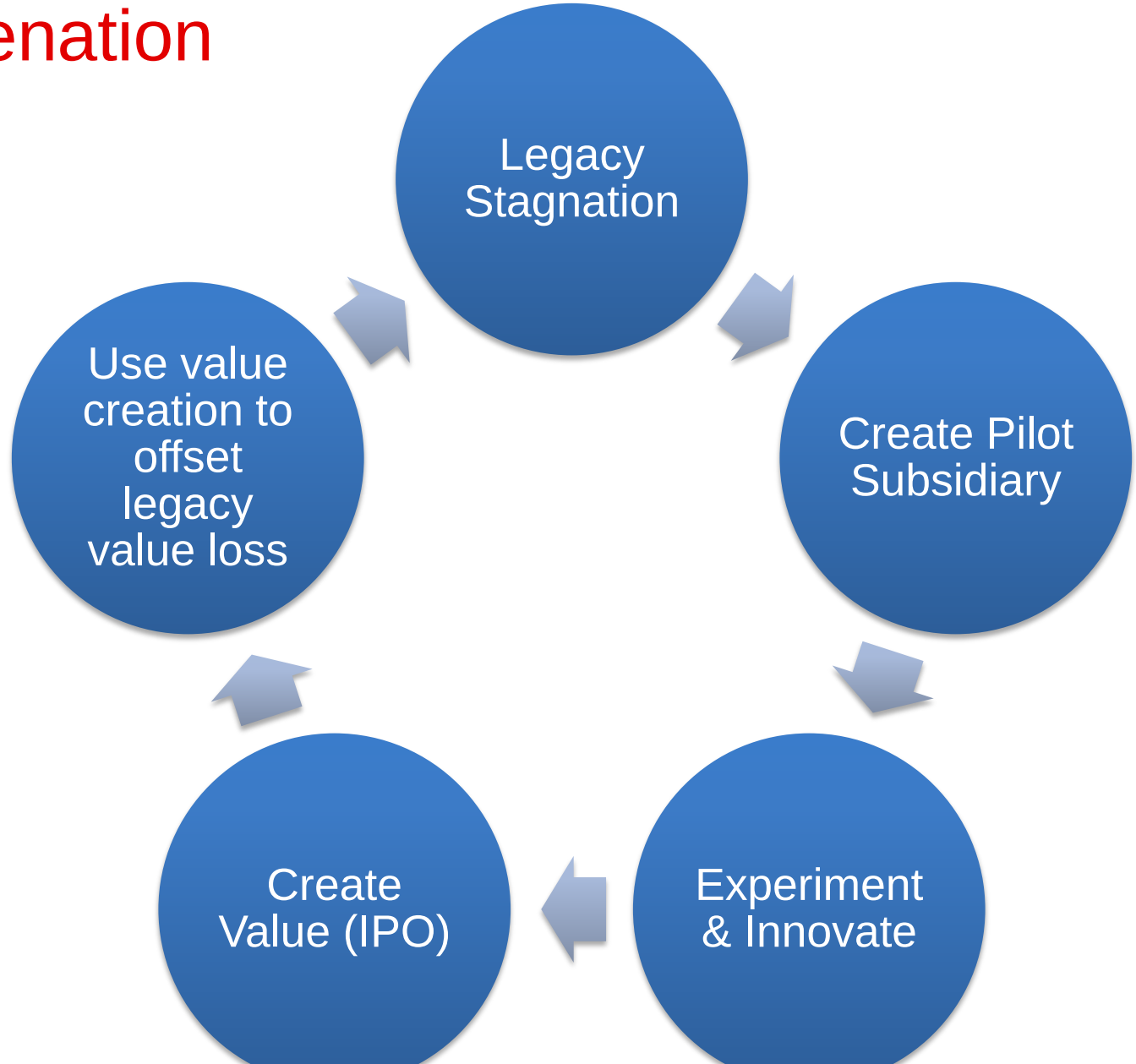
Innovation Blocked by Legacy Mindset, Processes and Institutions

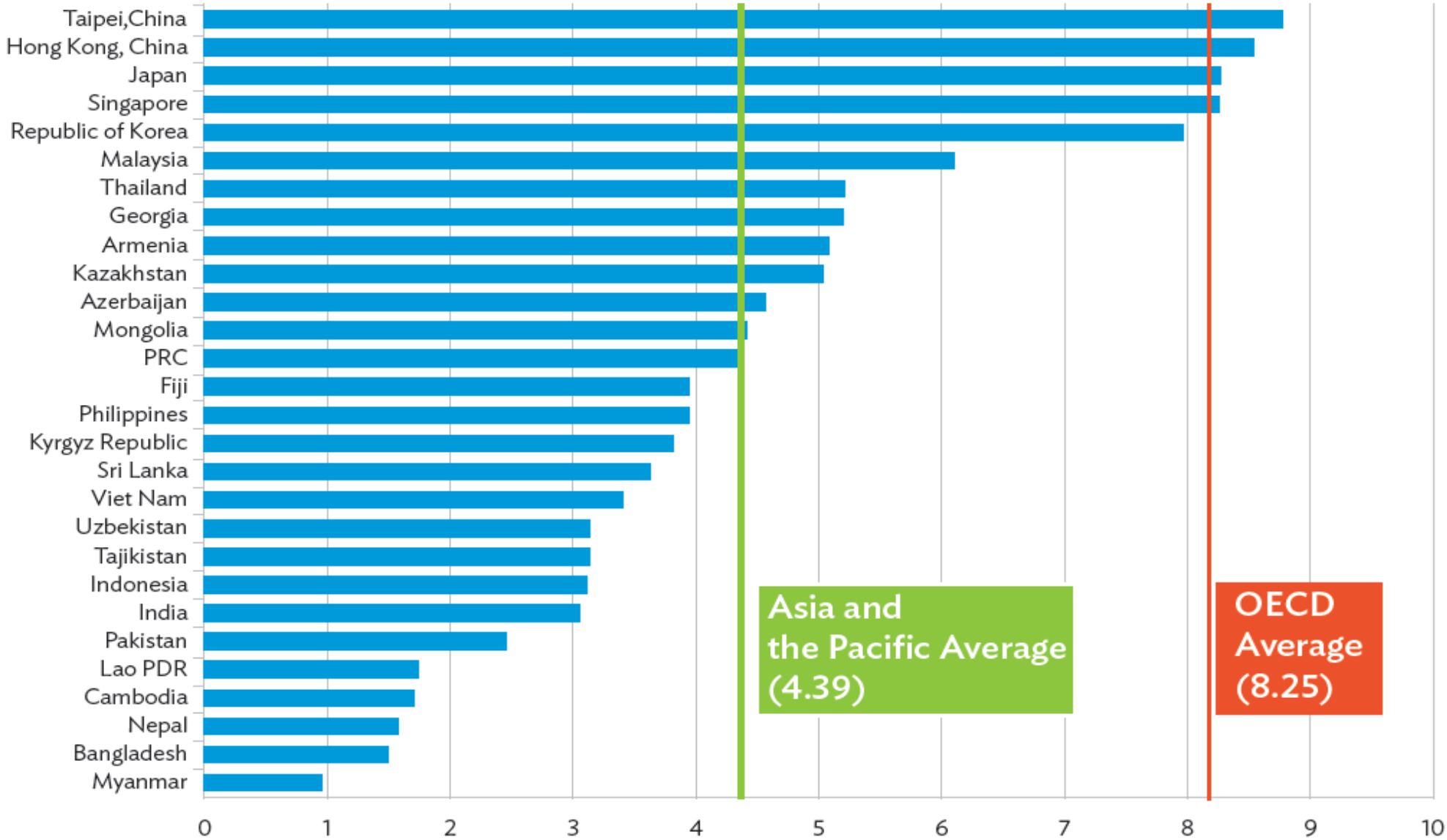
- Legacy mindset occurs when: it is not invented here mentality; no incentive to change; top will not allow bottom ‘smart-alecs’ to rise; protection of big institutions/franchises
- Legacy processes – Too difficult to change; hurts vested interest; needs pay-offs to change
- Legacy legislation – Obsolete laws do not permit more competition; law of unintended consequences; historical reasons for no change
- Legacy personnel – Too old to change, mindset locked into old strategy

Cycle of Transformation – from stagnation to rejuvenation



Asia scores half of OECD average in Knowledge Index

Knowledge Economy Index Scores: Selected Economies of Asia and the Pacific



Lao PDR = Lao People's Democratic Republic, OECD = Organisation for Economic Co-operation and Development, PRC = People's Republic of China.

Source: World Bank Knowledge Economy Index with data generation and analysis from ADB. http://info.worldbank.org/etools/kam2/KAM_page5.asp.

Source: ADB. 2014. Innovative Asia: Advancing the knowledge-based economy

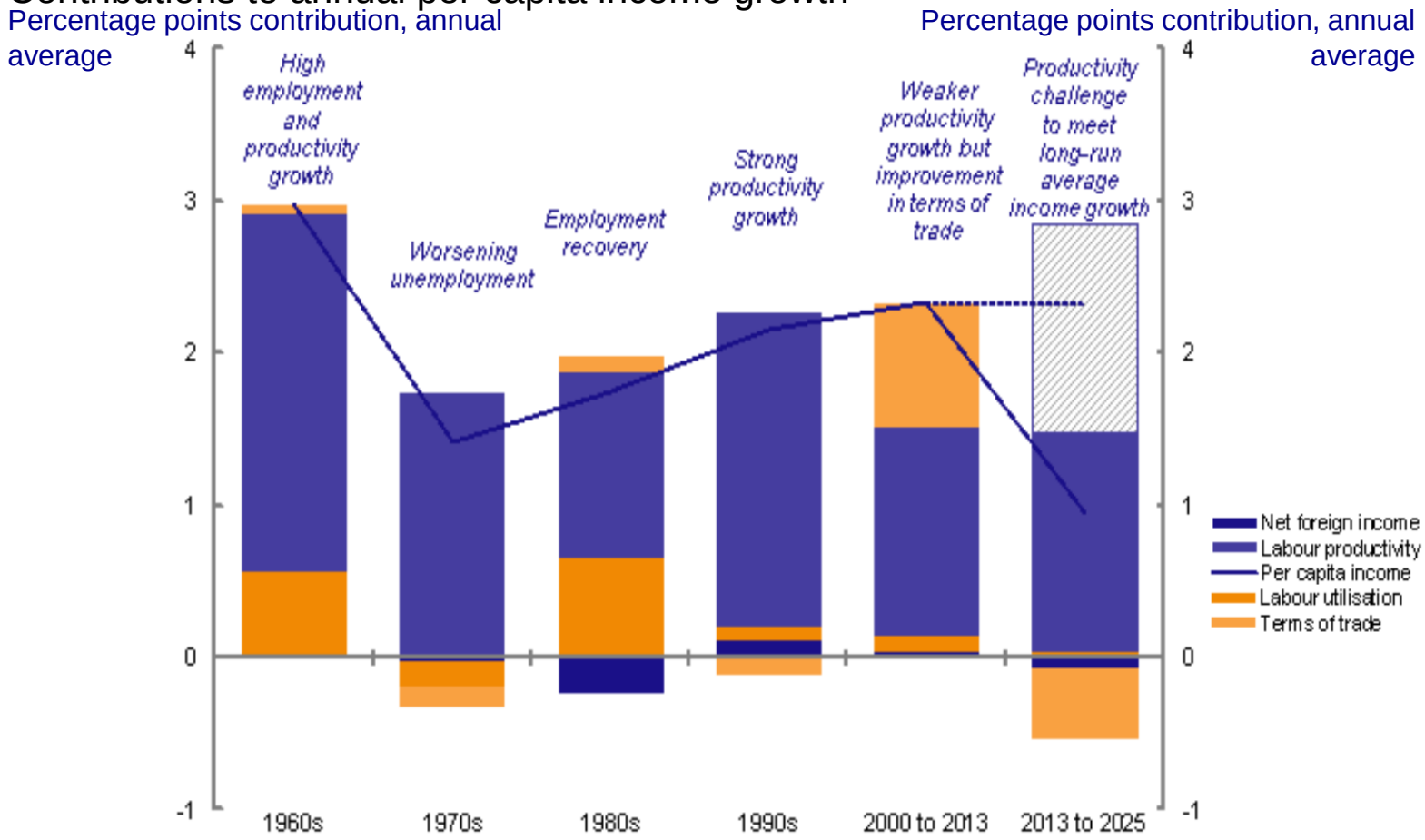
SECTION 2

Getting Innovation and Inclusion Right

We need institutional change, change at the catalyst level (SWFs), at process level (doing business easier) and at product level (allowing markets to compete and decide)

Productivity Challenge: Growth Must come from Innovation

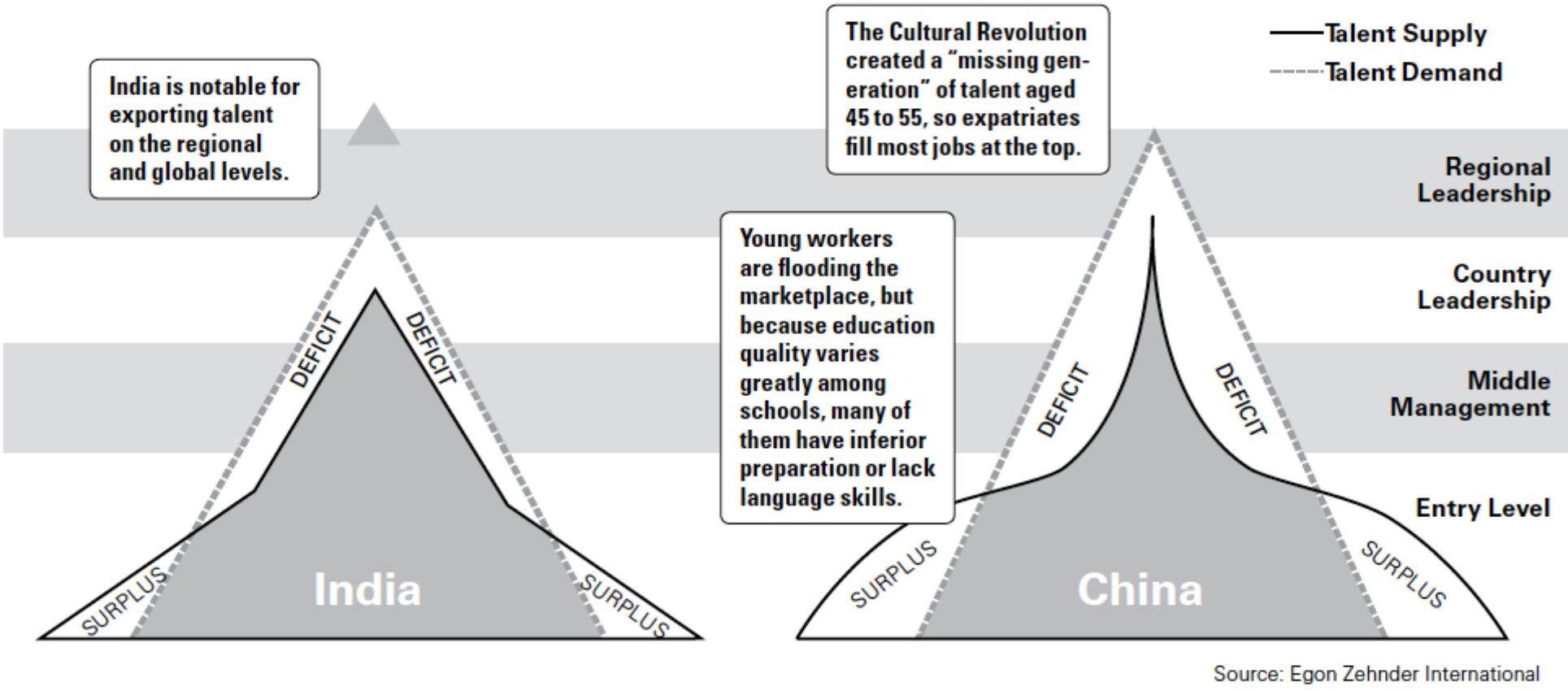
Contributions to annual per capita income growth



Note: Contributions to income growth in the period 2013-25 are consistent with the forecasts and projections detailed in the 2014-15 Budget Statement. The shaded grey area represents the additional labour productivity growth required to achieve long-run average growth in real gross national income per capita. Net foreign income is the differential between incomes payable to Australians by foreigners and incomes payable to foreigners by Australians, in real terms.
Sources: Australian Bureau of Statistics and Treasury.[34]

Source: Australia Financial System Inquiry. 2014. Themes and major issues.

HBR: Talent Deficits in EME



Source: Egon Zehnder International

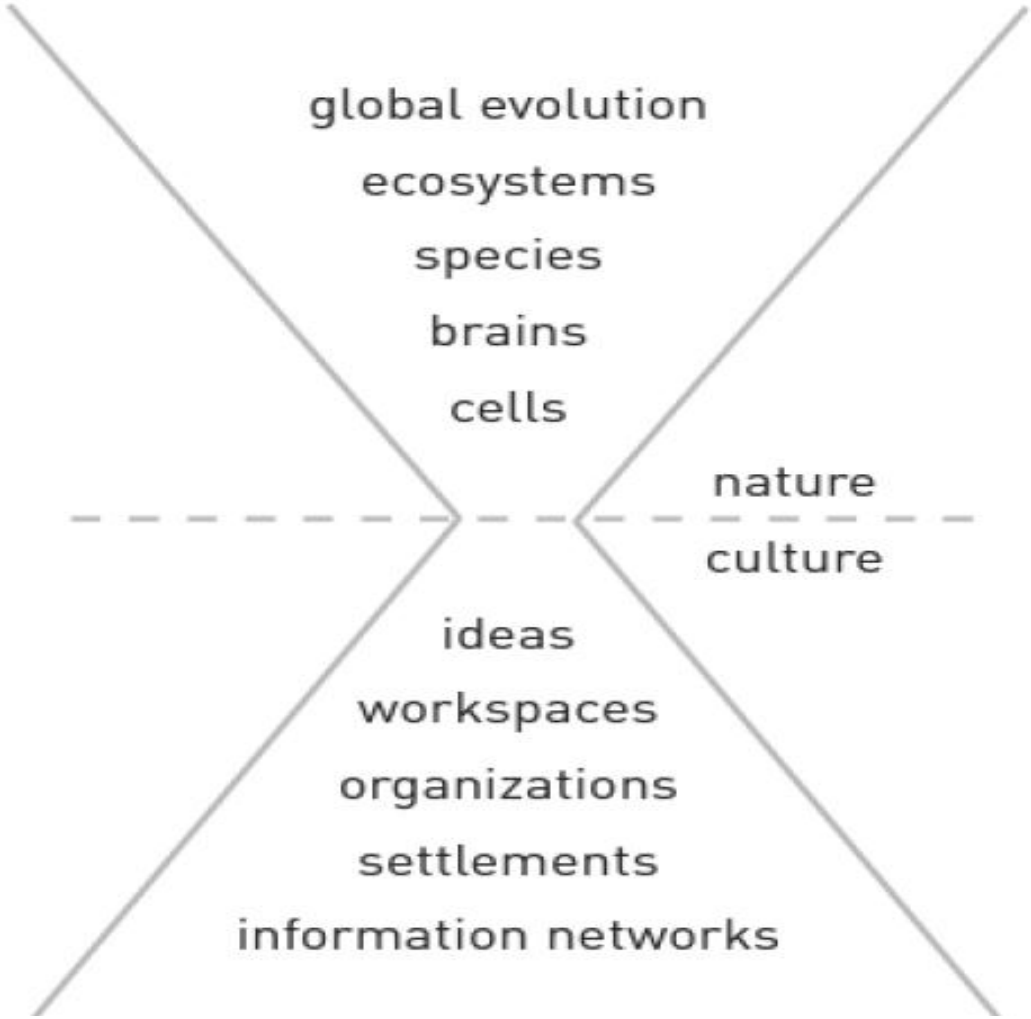
Source: HBR. 2008. Winning the Talent War in Emerging Markets.

Innovation Principal Driver of Productivity and Economic Growth

- There is Institutional Innovation, process innovation (supply and distribution) and product innovation
- Product innovation is best done by individuals and firm. Process innovation often needs government and corporate to approve
- Government can concentrate on fostering institutional innovation to help push product innovation
- What can and should we (government + corporates + individuals) do to promote innovation?
- How can we compete with millions of scientists and engineers in U.S., China and India?
- Should we fund R&D or concentrate on eco-system to promote Innovation?

The ecosystem of Innovation

Johnson: Where do good ideas come from? Penguin 2010



Innovation occurs in Clusters, hence we need to have Cluster Push

- Median values for patents granted by U.S. tripled between 1960s and 1990s. European patents quadrupled during 1980-2000. Variables, such as R&D finance, R&D personnel, and R&D performed by productive sector increased by more than 100% from 1960s to 1990s. R&D financed from abroad increased by more than 500%
- For EMEs, R&D financed and performed by the productive sector increased by more than 500% during this period. Also, total R&D investment and R&D performed by higher education increased by more than 100%. On the other hand, R&D performed by the public sector and R&D financed from abroad decreased over time in developing economies – ADB KBE study 2014

KBE as Tool for Tackling Major Growth and Development Challenges

- Managing exposure to a changing and volatile external environment
- Benefiting from rapid technological change
- Avoiding the middle-income trap
- Tackling persisting poverty, income, and regional inequality
- Promoting environmental sustainability. Asia needs to blend alternative growth paradigms for both sustainable and competitive development; green innovation could be an important avenue for both

Innovation Economy – Janeway 2012

- Innovation comes from Three-Player Game: Markets, State and Speculative Finance
- Both State and Markets Invest under conditions of Ignorance – unknown outcomes, but mistakes/ redundancy create conditions for next wave of innovation
- Speculation (market exuberance) enables that innovation to occur through boom and bust
- Real question is whether Innovation occurs through Equity (risk-share) or Debt (risk-shift)
- Inclusive, Ethical-based investing is Islamic Finance

Why Risk-Sharing is less of problem in Old Industrial Revolution

- *Agricultural Society* – Community-sharing because landlord needs farmers to produce food – symbiotic relationship
- *Industrial Society* – Entrepreneurs still need workers, but class-struggle on equality
- *Digital/Finance World* – Production of digital/finance is almost cost-less – top 1% does not need workers (robotics), finance derivatives is limitless under "my debt, your loss" – debt loss is risk-shifted to ultimate holder – the public and underwritten by QE. Conventional central bankers not acting to impose Hard Budget Constraint on limitless monetary creation

Conventional Finance worsens Inequality - Islamic Finance/Risk Sharing or Equity Finance is way to go

- Global finance operates on overleveraged real sector funded by overleveraged finance with bipolar interest rates – low for rich and high for poor
- Debt is an asymmetric contract of risk-shift, with stop-loss option – borrower bears all risk of failure
- Equity contract is about risk-sharing – it is about relationship and interdependence; the investor has responsibility in helping investee succeed. Hence banking system is not independent of the real economy. It must help finance innovation and improve corporate governance and transformation - equity contracts are balanced on upside and downside
- Islamic finance is about risk-sharing

Three Hard Budget Constraints of Sustainable Systems

1. *Flow Constraint* – Income must be higher than Costs – Value Creation larger than Value Destruction
2. *Stock or Solvency Constraint* – Sufficiency Solvency to cope with Uncertainty & Losses (Need for Capital, not debt)
3. *Distribution/Political Constraint* – Ability of leadership to tax winners to compensate losers – Current democratic Collective Action Trap – the inability to move due to inability to arrive at consensus on what to do under radical uncertainty

Who should sacrifice for breaking Collective Action Trap? All too often, natural environment is sacrificed – distribute more land or allow pollution

Progress comes from Collective Knowhow – Ricardo Hausmann

- Our lives were made easier and more prosperous by a large number of innovations… through a collective phenomenon whereby society's productive knowledge expanded dramatically over past two decades
- Modern societies can amass large amounts of productive knowledge because they distribute bits and pieces of it among its many members. But to make use of it, this knowledge has to be put back together through organizations and markets. Thus, individual specialization begets diversity at the national and global level
- Our most prosperous modern societies are wiser, not because their citizens are individually brilliant, but because these societies hold a diversity of knowhow and because they are able to recombine it to create a larger variety of smarter and better products

Source: Hausmann and Hidalgo et al. (2011). *The Atlas of Economic Complexity: Mapping Paths to Prosperity*.

Accumulating Productive Knowledge Requires Structural Changes, Trial and Error

- Accumulating productive knowledge… is tacit and hard to transmit and acquire. It comes from years of experience more than from years of schooling. Productive knowledge … requires structural changes. Just like learning a language requires changes in the structure of the brain, developing a new industry requires changes in the patterns of interaction inside an organization or society
- Countries accumulate productive knowledge by developing the capacity to make a larger variety of products of increasing complexity. This process involves trial and error. It is a risky journey in search of the possible. Entrepreneurs, investors and policymakers play a fundamental role in this economic exploration

Source: Hausmann and Hidalgo et al. (2011). *The Atlas of Economic Complexity: Mapping Paths to Prosperity*.

SECTION 3

Malaysia's Challenge in Institutions, Innovation and Inclusion

We need to drive change through the Knowledge Economy – via institutional change at the catalyst level, at process level (doing business easier) and at product level (allowing markets to compete and decide)

Malaysia ranked 13/24 in Asian Creative Productivity Index

Very high | High | Medium | Low

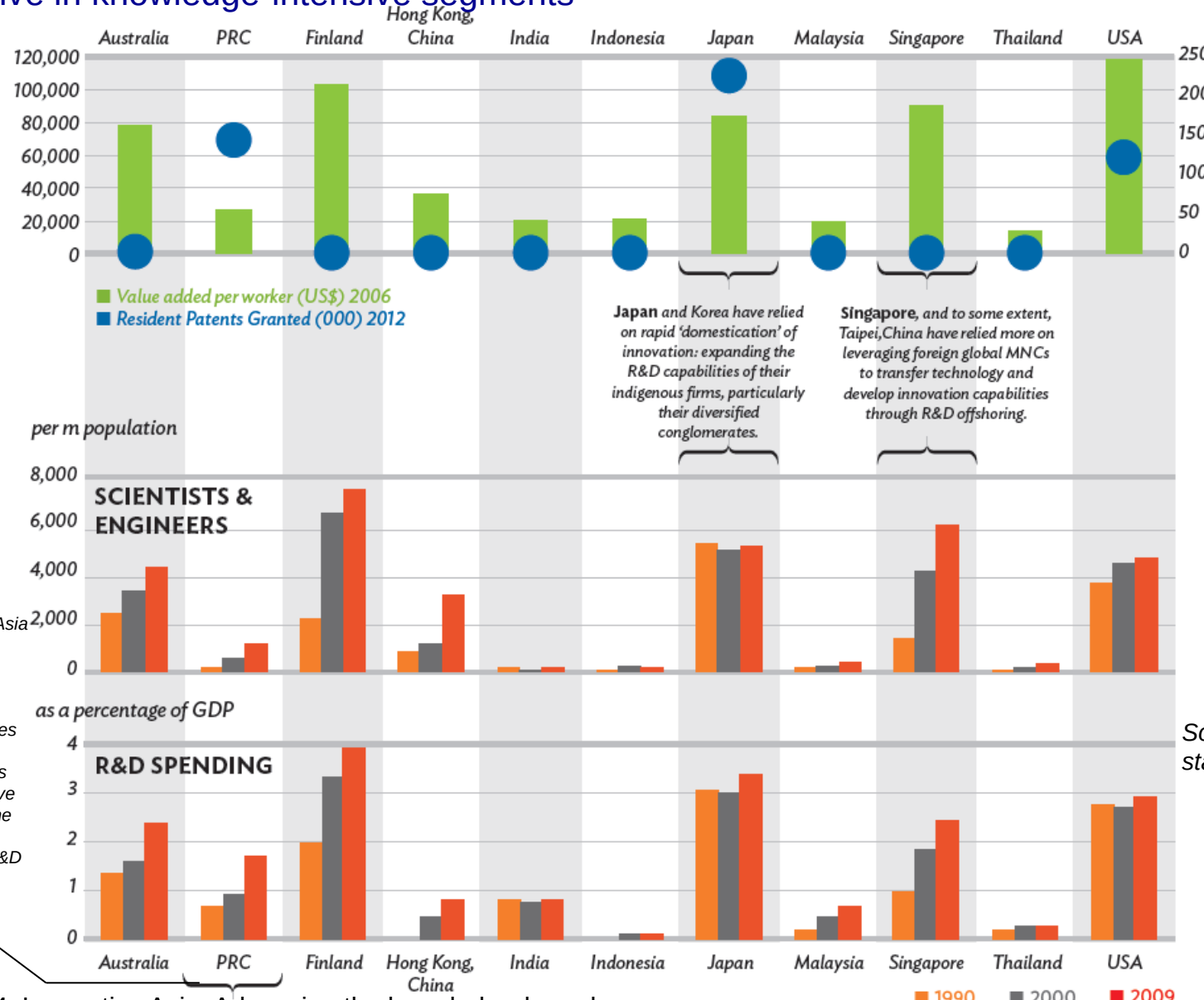
Economy	Overall	Input	Output
Japan	1	8	4
Finland	2	6	1
Republic of Korea	3	9	8
United States	4	3	3
Taipei,China	5	7	9
New Zealand	6	5	5
Hong Kong, China	7	2	2
Australia	8	4	7
Lao People's Democratic Republic	9	23	17
Singapore	10	1	6
People's Republic of China	11	11	11
Indonesia	12	21	16
Malaysia	13	10	10
India	14	15	13
Thailand	15	12	12
Viet Nam	16	14	14
Kazakhstan	17	13	15
Philippines	18	17	18
Sri Lanka	19	20	19
Bangladesh	20	22	21
Fiji	21	18	20
Myanmar	22	24	23
Pakistan	23	16	22
Cambodia	24	19	24

Note: Japan and the Republic of Korea are the two leading Asian economies in the Creative Productivity Index (CPI).

Source: ADB. 2014. Creative Productivity Index: Analysing creativity and innovation in Asia. EIU.

The Innovation Pillar

Innovation is a new source of growth in both AEs and EMEs. EMEs are becoming increasingly competitive in knowledge-intensive segments



Emerging economies in Asia perform way below advanced economies in relation to R&D activities. **Other than PRC**, *no emerging Asian economies have R&D investment of 1.5% of GDP—and that is still half the level of relative investment in Japan or the US. There is need to increase investment in R&D and address the efficient and effective use of R&D and its speedy commercialization.*

Sources: National statistics bureaus, EIU

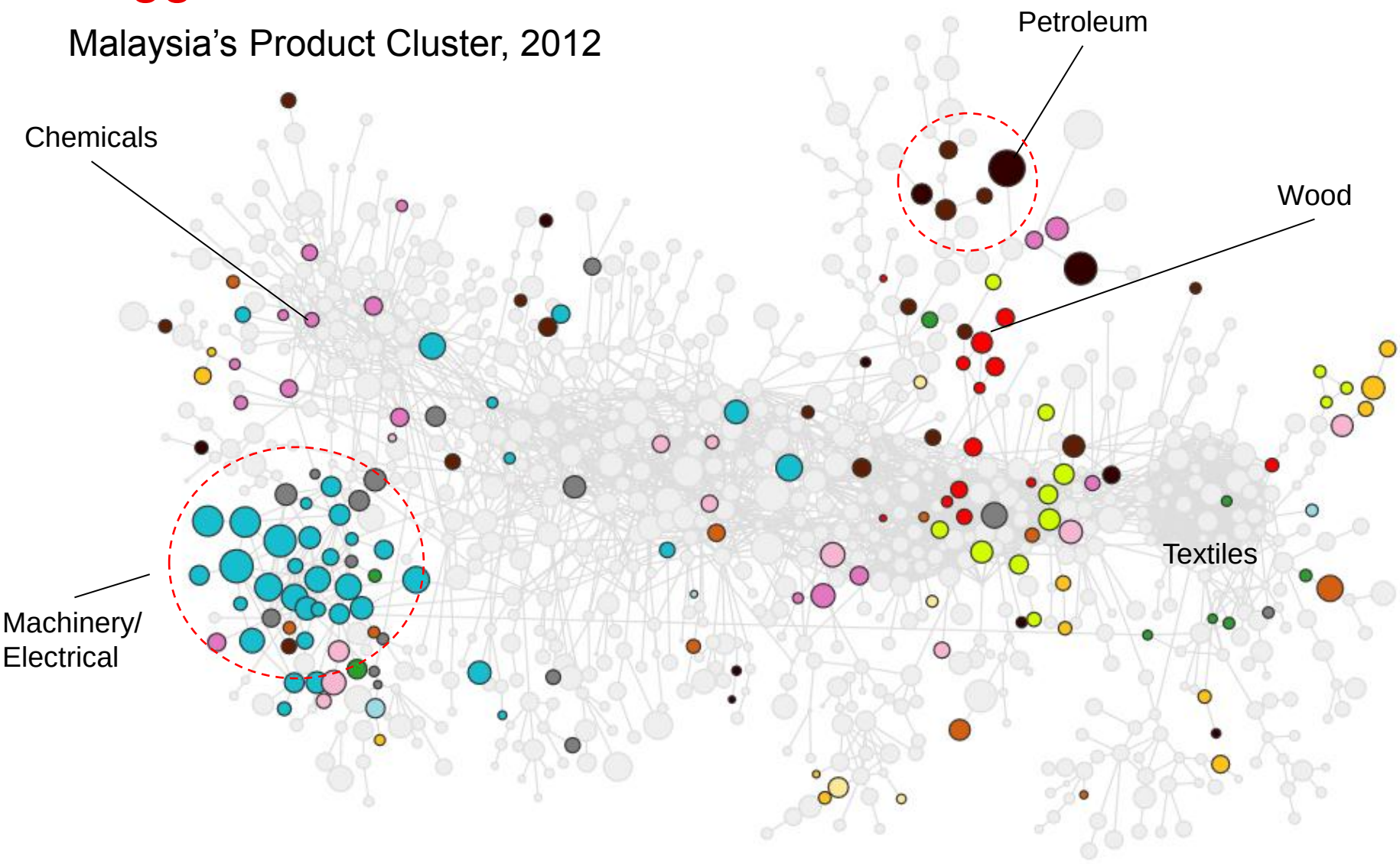
Source: ADB. 2014. Innovative Asia: Advancing the knowledge-based economy

Malaysia: Creative Productivity Performance

- Medium level of *creative productivity.* Slightly above-average on *financial institutions* and *governance*
- In terms of creative outputs, performs relatively well on macro measures of creative output, high level of *export sophistication*, but lags behind in *scientific output* and *agricultural productivity*
- On the input side, Malaysia's strongest area is its *appropriate institutions*, with a ranking of eighth for this indicator. Top rank for *protection of investors* with Singapore, U.S. and Finland
- In respect of its *financial institutions*, Malaysia ranks highly for the *availability of venture capital* and *access to credit*. Scores poorly for *investment openness*

Source: ADB. 2014. Creative Productivity Index: Analysing creativity and innovation in Asia. EIU.

Malaysia's Product Space is Sparsely Populated – Biggest Cluster Electronics



Source: Hausmann, Hidalgo et al. 2014. The Atlas of Economic Complexity. What did Malaysia Export in 2012?

Advancing Knowledge-based Economies in Asia: Special Advantages in Policies

- Promote technology adaptation for domestic markets and decentralized innovation hubs for local R&D
- A regional innovation strategy and regional R&D policies, e.g. ASEAN Science and Innovation promotion
- Policies to facilitate rapid expansion of m-services such as m-health, m-education, and m-money
- Focus on skills development to address information technology-based manufacturing technologies and the rise of the “gray collar” tech worker
- Innovation strategies for the services sector, particularly higher-value IT-enabled services and knowledge-intensive services
- Use of massive open online courses (MOOCs) for cost-effective solutions for tertiary education and blended technical and vocational education delivery
- Promotion and development of knowledge-based assets such as brands, and trademarks for creative goods and services

Source: ADB. 2014. Innovative Asia: Advancing the knowledge-based economy

Advancing Knowledge-based Economies in Asia: Catching up on Lags and Gaps in Policies

Provide economic incentives for knowledge

- Strengthen IPR protection and easy patenting
- Improve business environment, especially for high-tech entrepreneurial firms
- Improve governance and role of government in applying technologies

Help innovation to flourish

- Support both new technologies and technology adaptation
- Greater openness to domestic and foreign sources to increase innovation capabilities
- Create incentives for innovating for local low-cost markets

Introduce flexible education systems

- Expand polytechnics for gray-collar workers with professional credentials
- Support industry–university collaborations for commercializing R&D
- Establish effective qualifications frameworks for certification, accreditation, and quality assurance in education, including online courses

Promote market mechanism for ICT

- Extend ICT affordability and faster spread
- Expand ICT-based service delivery solutions
- Apply universal access and service programs for affordable broadband in rural areas and small towns

Source: ADB. 2014. Innovative Asia: Advancing the knowledge-based economy

Advancing Knowledge-based Economies in Asia: Catching up on Lags and Gaps in Investments

R&D and innovation

- Increase investment in R&D as share of GDP (at least 1.5% of GDP)
- More effective R&D investments
- Expand innovation intermediaries for rapid market-driven diffusion of commercial innovation
- Support entrepreneurship in high-tech industries

"Knowledge infrastructure"

- Expand "next-generation" ICT
- Universalize broadband connectivity

Higher education and skill base

- Expand relevant tertiary education
- Increase pool of skilled professionals and technicians from polytechnics
- Enable ICT-based education pedagogy and delivery

Source: ADB. 2014. Innovative Asia: Advancing the knowledge-based economy

Conclusions

- Malaysia is well poised to move into Knowledge-based high income, inclusive society
- But we must choose our comparative advantages well to build our innovative strengths
- We cannot tackle all fronts at the same time – we do not have the scale
- But we have to do this together, with inclusive partnership domestically and internationally
- Khazanah is an example of how inclusive networks work. We should build on this pioneering institutional innovation to help Malaysians improve innovative processes (supply chains) and products

THANK YOU

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