



TOWARDS INNOVATION ECONOMY: ***Strategic Dos & Don'ts for the Next Phase of China's Economic development?***



Partha Ghosh

July 19th 2019

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The illiterate of the 21st century will not be those who cannot read & write, but those who cannot learn, **unlearn**, and **re-learn**.

Alvin Toffler

Author of “Future Shock”



A few early thoughts.....

“Our ability to **challenge the present**, guides the possibility of securing advantage in the future”

Partha S Ghosh

“The loosing organizations of the 21st century will not those who cannot *innovate & serve*, but those who cannot learn, unlearn, and re-learn”

Partha Ghosh

Today three high level points....



1

Our Planet in Perspective
In the 21st Century?

2

Next Phase *Imperatives*
Of China's socio-economic
advance?

3

Towards Innovation Economy:
Dos & Don'ts?

Significant Changes are in the making



1

Our Planet in Perspective

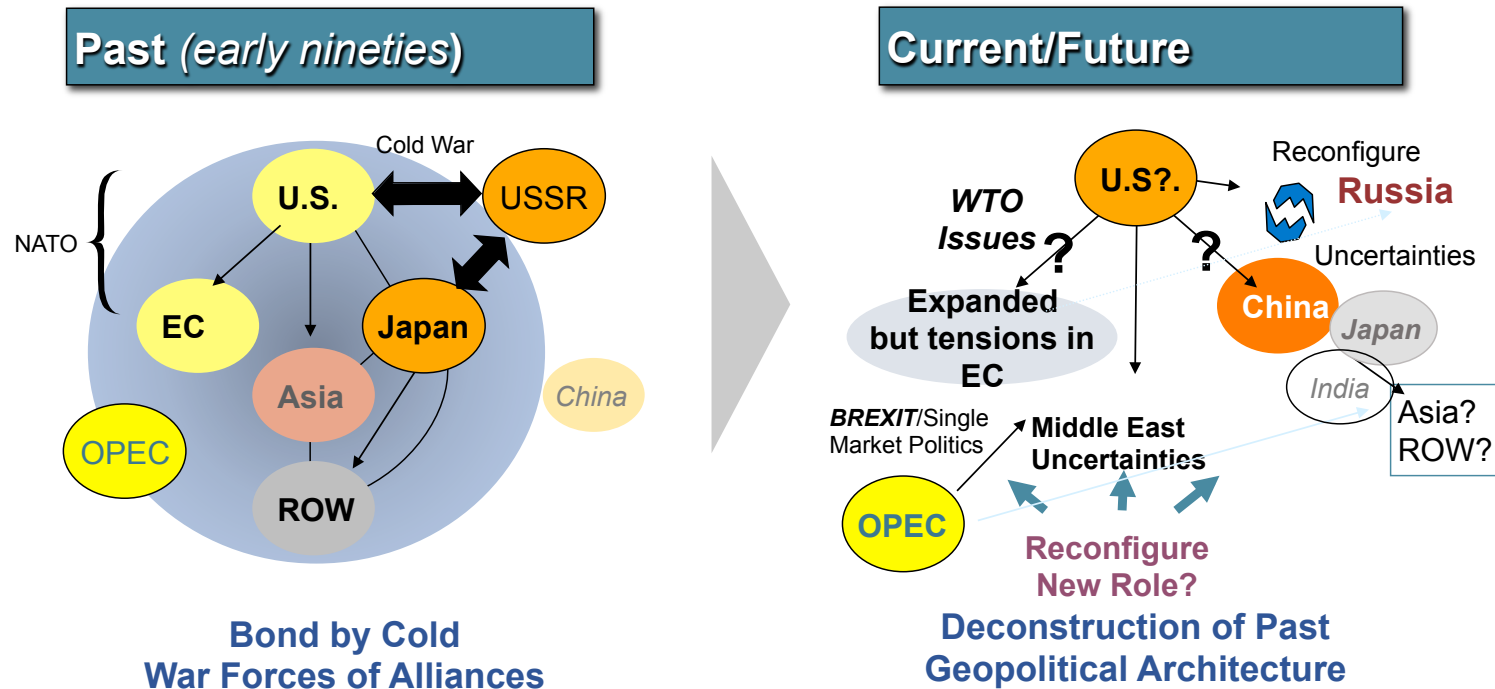
AT MACRO LEVEL.....

- GEO-POLITICAL DISORDER
- SHIFT IN ECONOMIC CENTER OF GRAVITY
- DIS-EQUILIBRIUM ? IN **3ES**
- CONFLICT OF "ISMS":

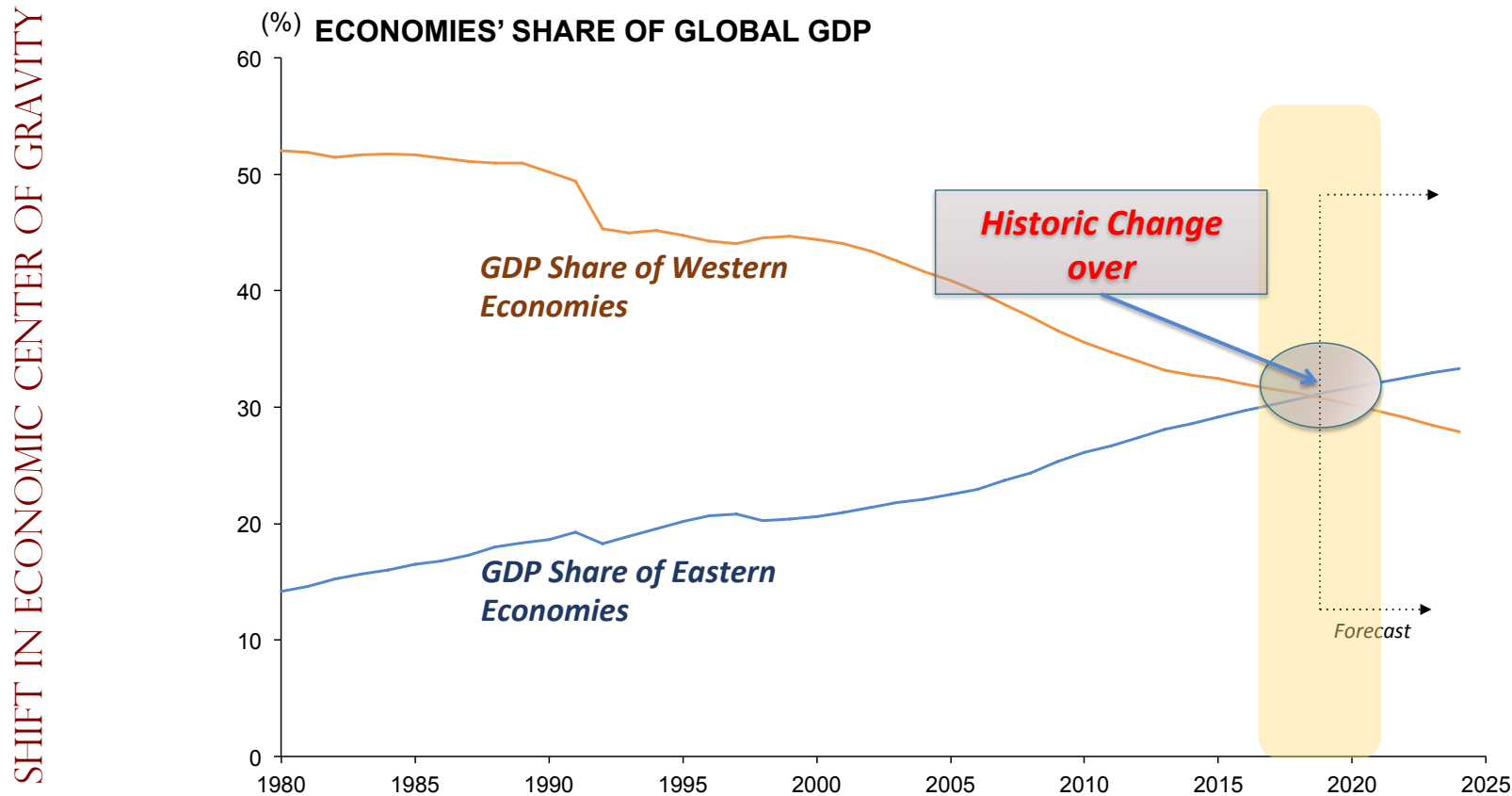
Geo-Political Alliances are in a state of transition since the early nineties



Paradigm Shift



Economic Power shift is obvious: strategic consequences could be significant



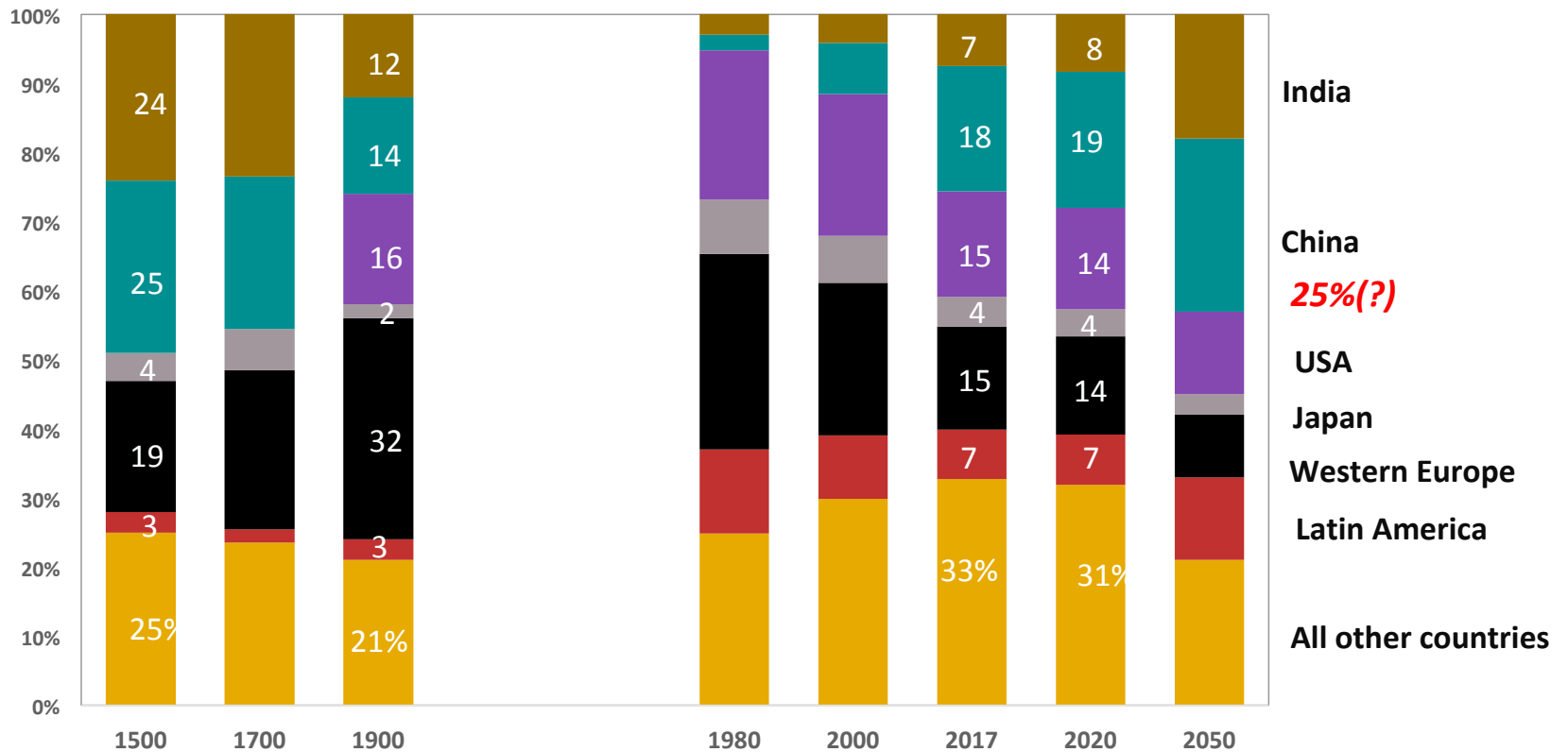
,Source: IMF

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Particularly impressive is China, - on its way to gain its past glory?



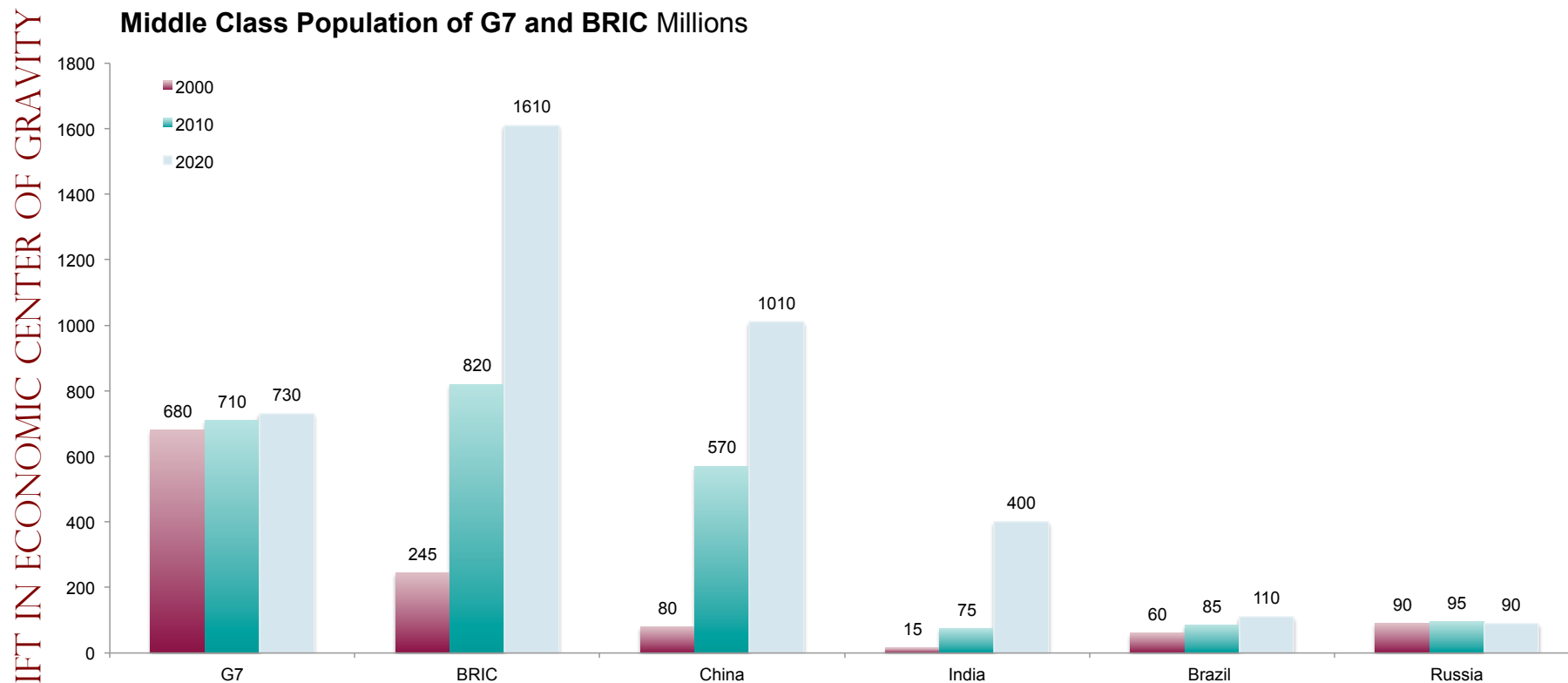
World GDP (in Trillion \$ / percentage based on PPP)



Source: IMF/Maddison Historical Statistics/PWC analysis

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Rising middle class in China....



Source: World Bank and Goldman Sachs

*Middle Class: Annual income(current value) >\$6000, <\$30000

Shifting the economic center of gravity from the Atlantic to the Pacific area

The world's economic center of gravity*



Regional contribution to world in next 10 years (%)

, the Economists, BBVA

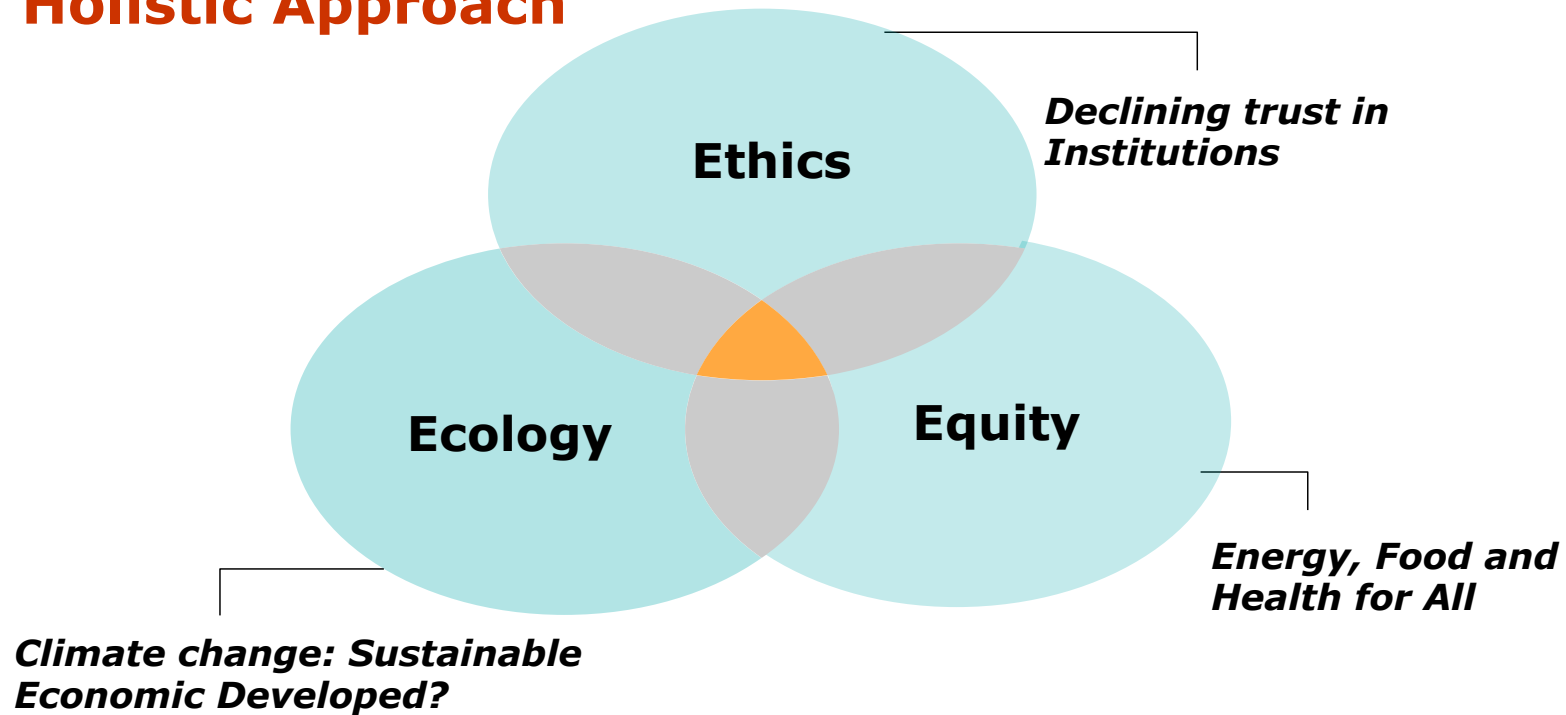
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On going decadence in 3Es is making the planet increasingly fragile



PROBLEMS \approx OPPORTUNITIES

Holistic Approach

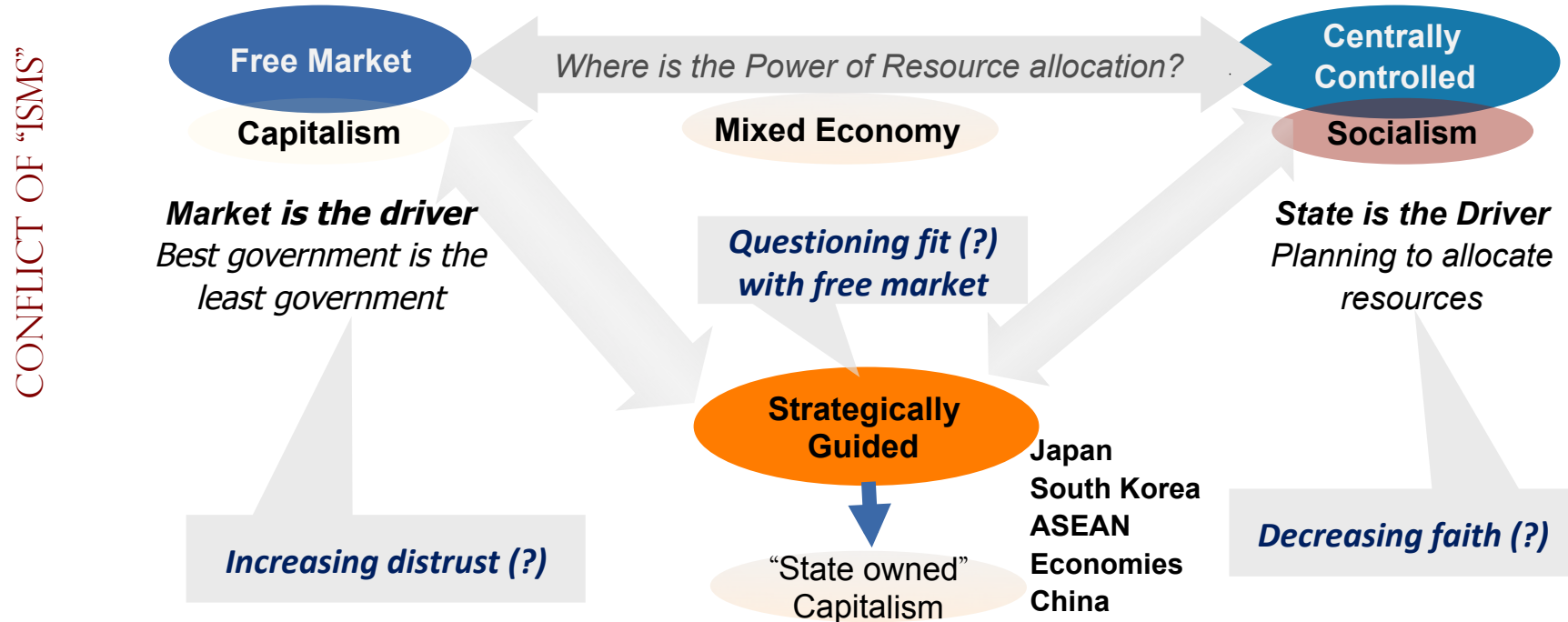


DIS-EQUILIBRIUM ? IN 3ES

Future of Resource Allocation Mechanisms: Need for Strategic Guidance



ECONOMIC PHILOSOPHIES AT WORK



At Macro-level our planet is indeed in the middle of multiple tensions along several dimensions(?)



Macro-level : Multi tensions



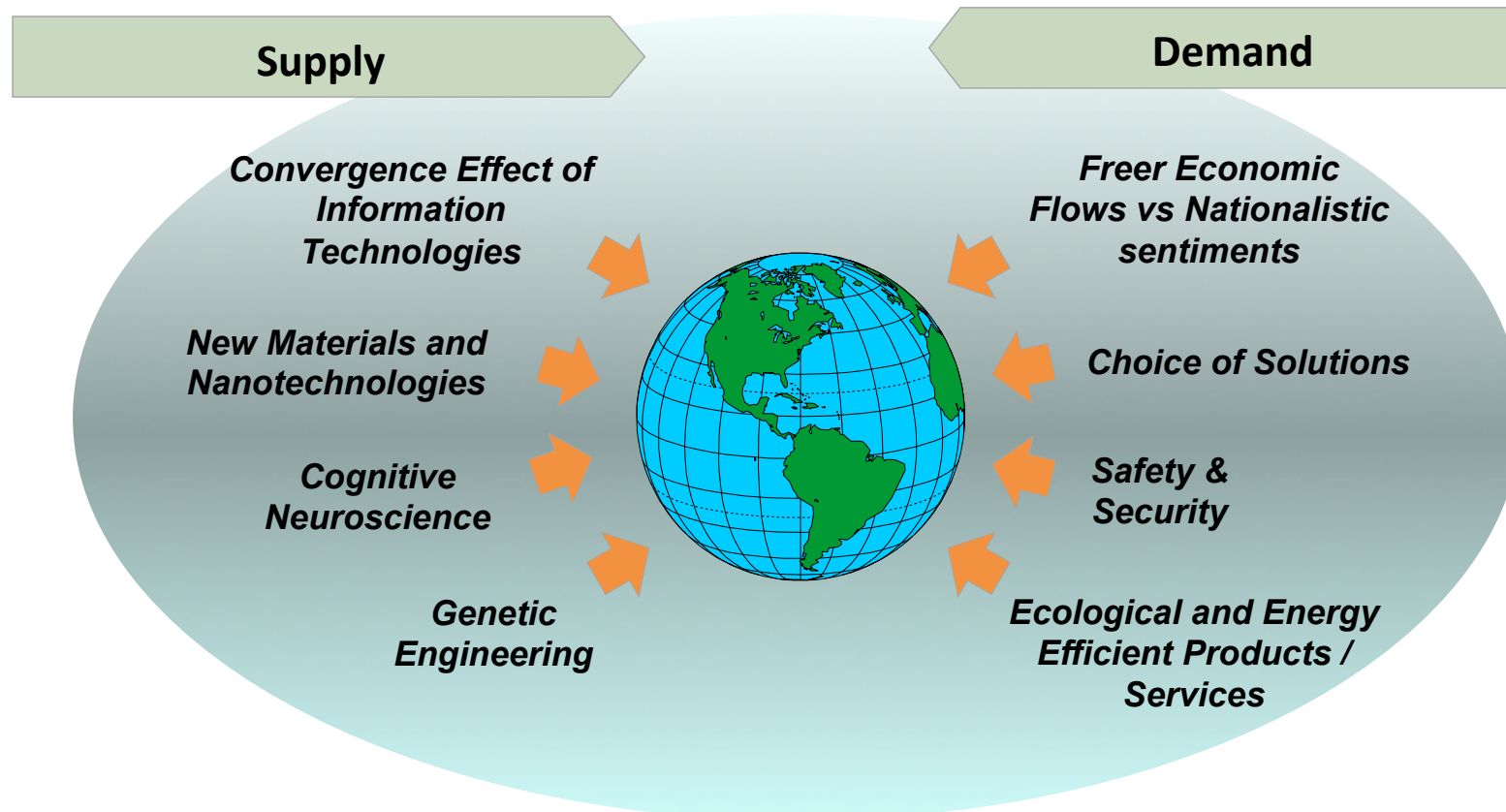
Significant Changes ahead



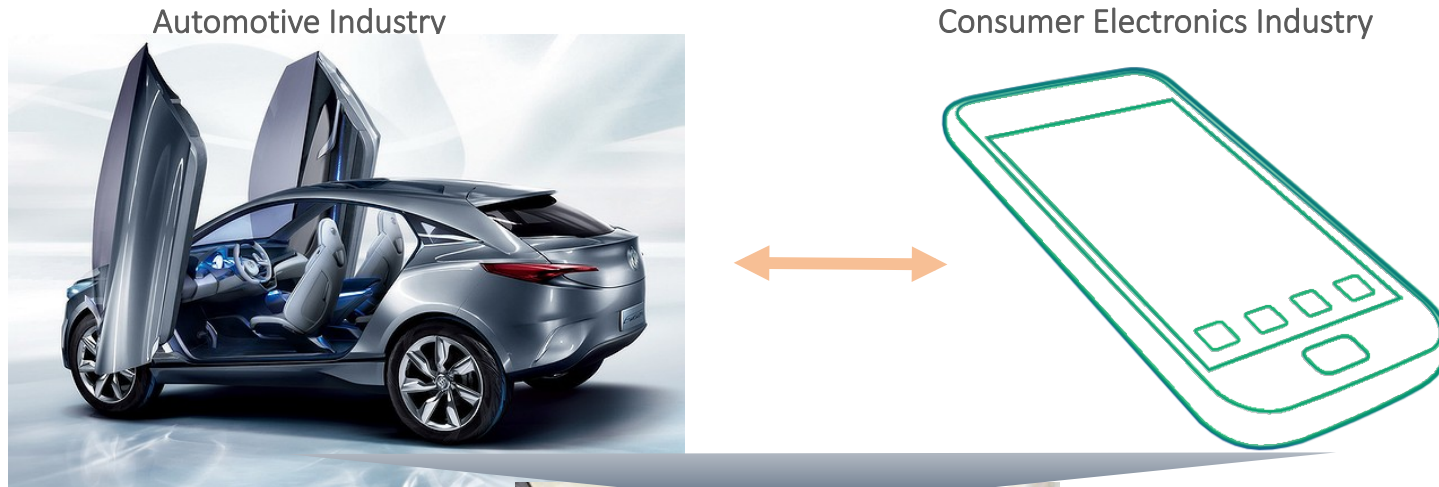
1 Our Planet in Perspective



The Emerging Economic Environment — *The Big Picture*



Now of course Auto and Electronics Industries are merging



www.shutterstock.com · 369110243

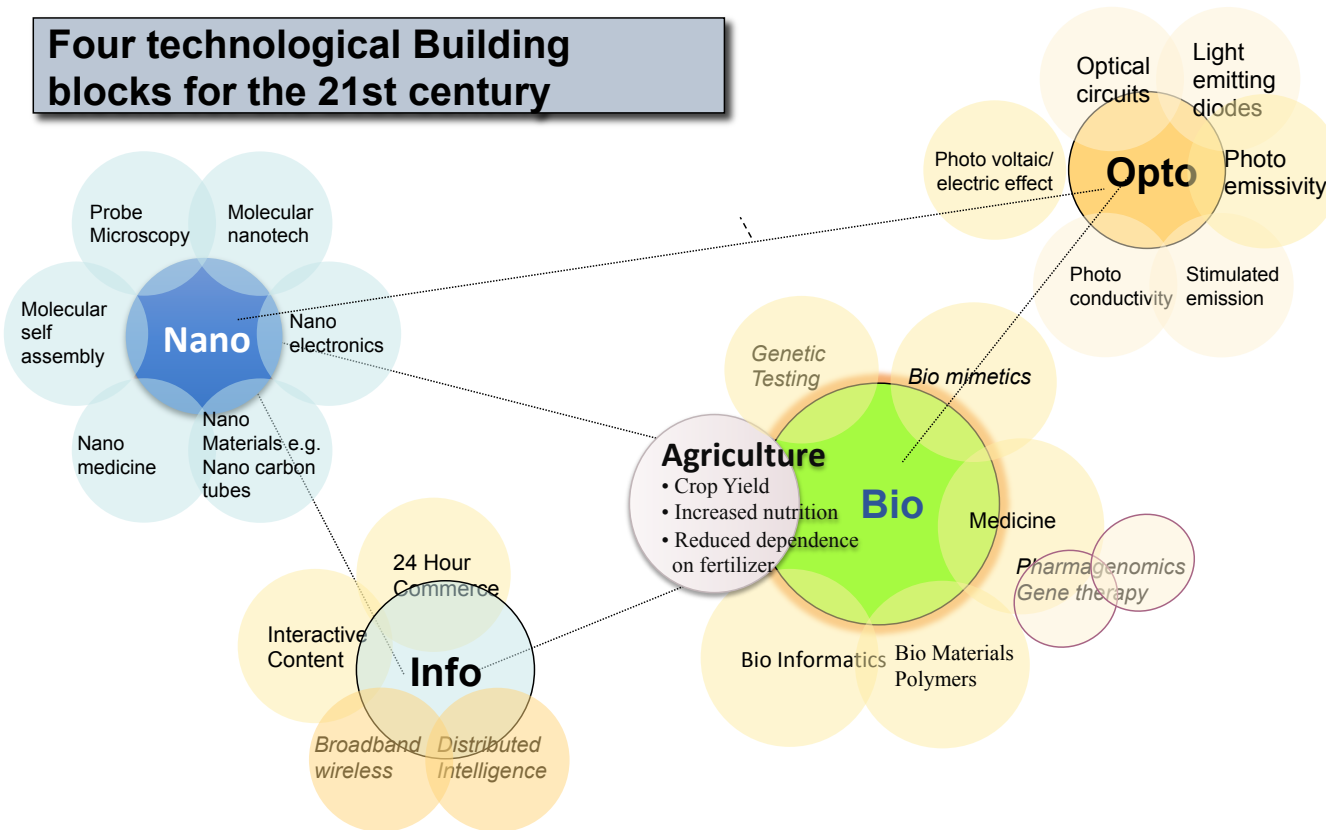
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Four fundamental technologies will influence how new Global solutions will develop



CONVERGENCE OF TECHNOLOGIES/AI....

Four technological Building blocks for the 21st century

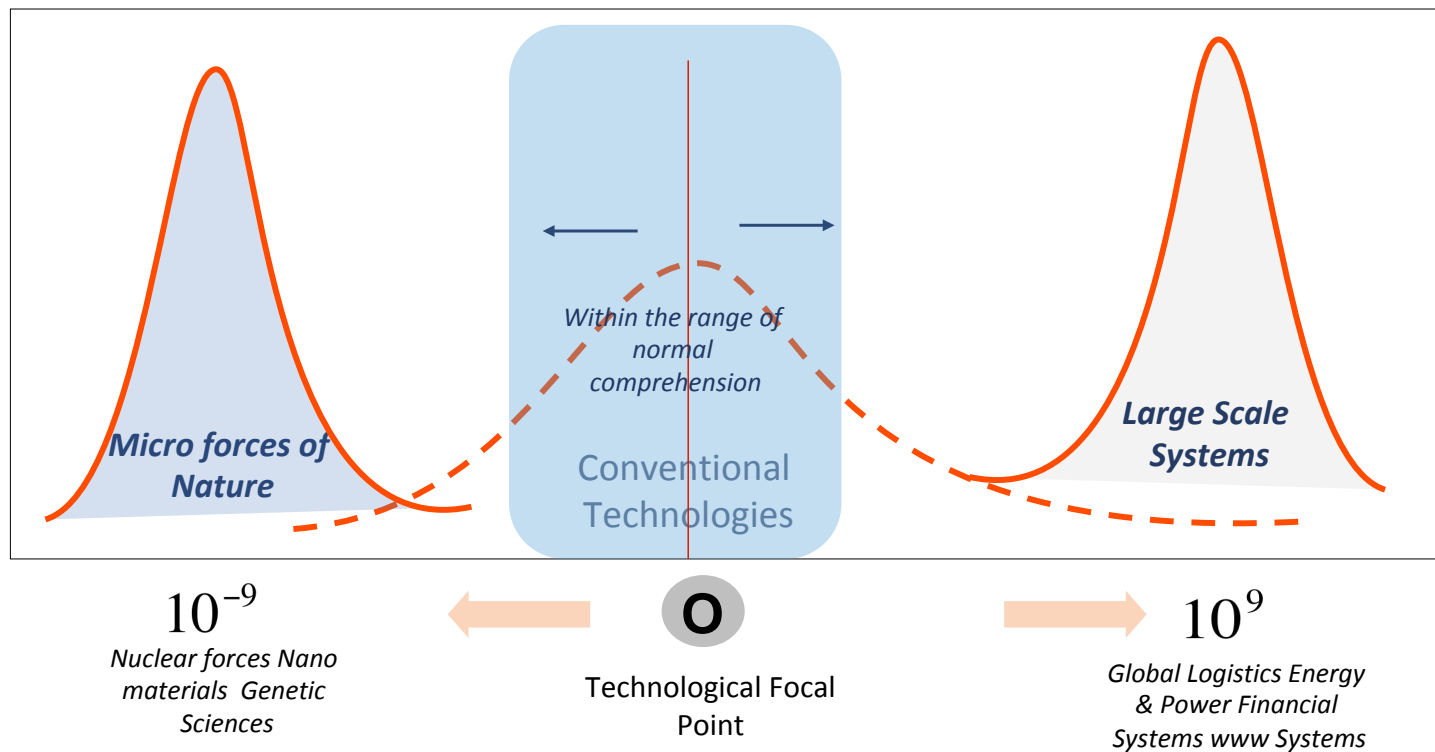


Shape of things to come... from normal human comprehension to nano to tera level systems



Influence of Technologies on Society

CONVERGENCE OF TECHNOLOGIES/AI....



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New Business models are emerging rapidly



Largest **retailer** without retail stores



U B E R

Largest **Taxi Company** without **CARS**



airbnb

The Power of AI @ Work

Largest in **hospitality** without real estate



Largest in **social media** without content



Largest retailer and developer of **SMEs**

Same is true in Renewable Energy Development; China as an example



Bioenergy

China overtook the United States as the **largest producer** of **bioelectricity** during 2017.



Solar photo-voltaic

China is leading the growth of Solar PV--it **ranks first** since 2015 in both installed capacity and power generation.



Hydropower

China **remained the leader** in commissioning new hydropower capacity--nearly 40% of new installations in 2017, and was followed by Brazil, India.



Wind Power

China maintained its **leading position** as a wind energy powerhouse, installing 19.7 GW, while the European Union added 15.6 GW of capacity. The U.S. installed a little over 7 GW of capacity.

Developing reverse logistics process could open up new Industries



Creating An Industry (Reverse Logistics)

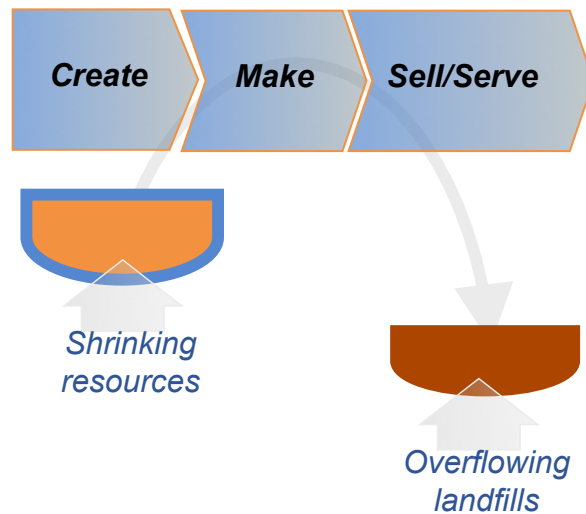
The Challenge of Creation of a New Industry:

1. Distributed to concentrated
2. Rules of engagement
3. Stewardship

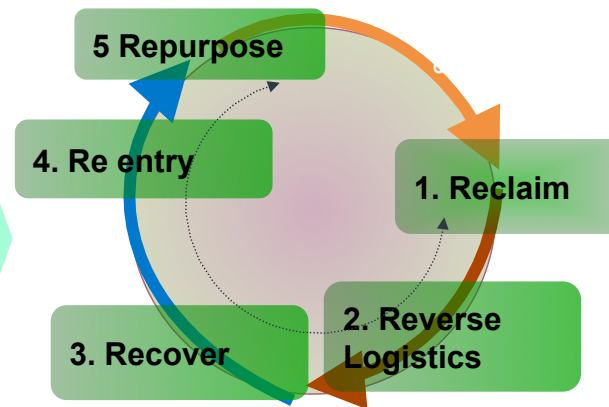
Towards Circular Economics= *Play of 5Rs*



Old paradigm: Linear Business Model



Possibly Paradigm: Circular Business Model



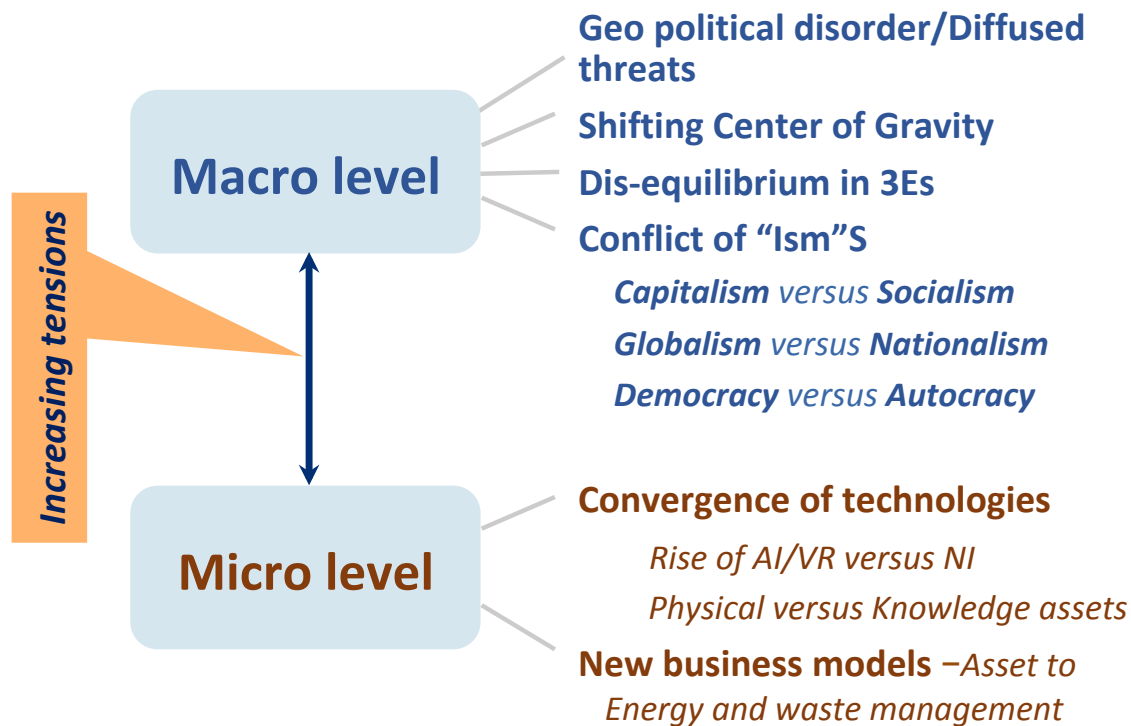
NEW BUSINESS MODELS....

Our Planet in the middle of multi level tensions along several dimensions(?)

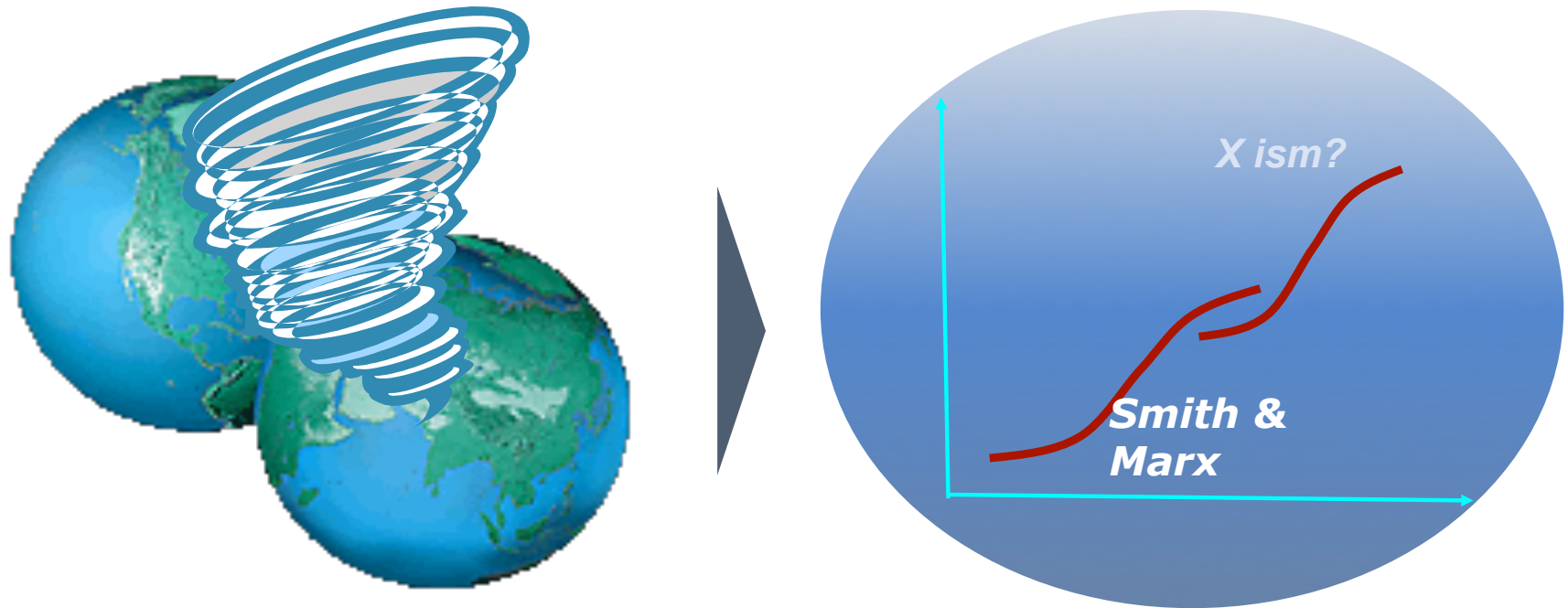


Multi-level : Multi dimensional tensions

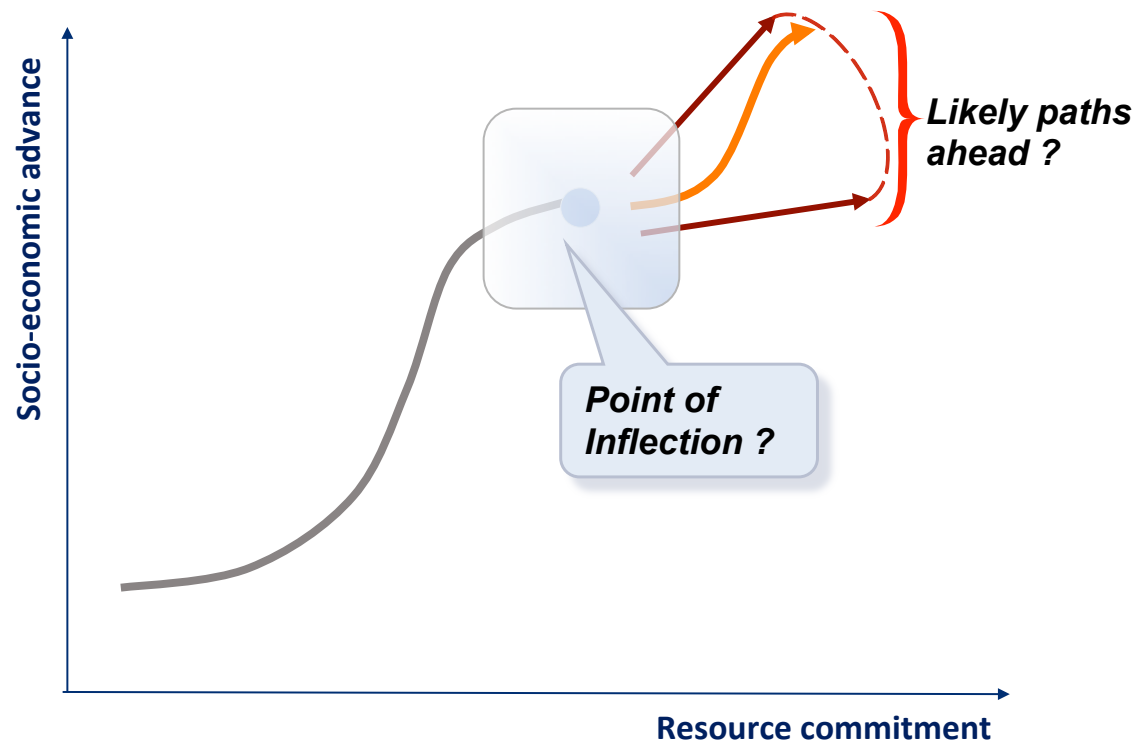
Mega Tornado in the making?



Turbulent times: In search of more Efficient Resource Allocation Mechanisms



The basic thesis: Need a New Paradigm of Engagement?



Today three high level points....



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Our Planet in Perspective
In the 21st Century?

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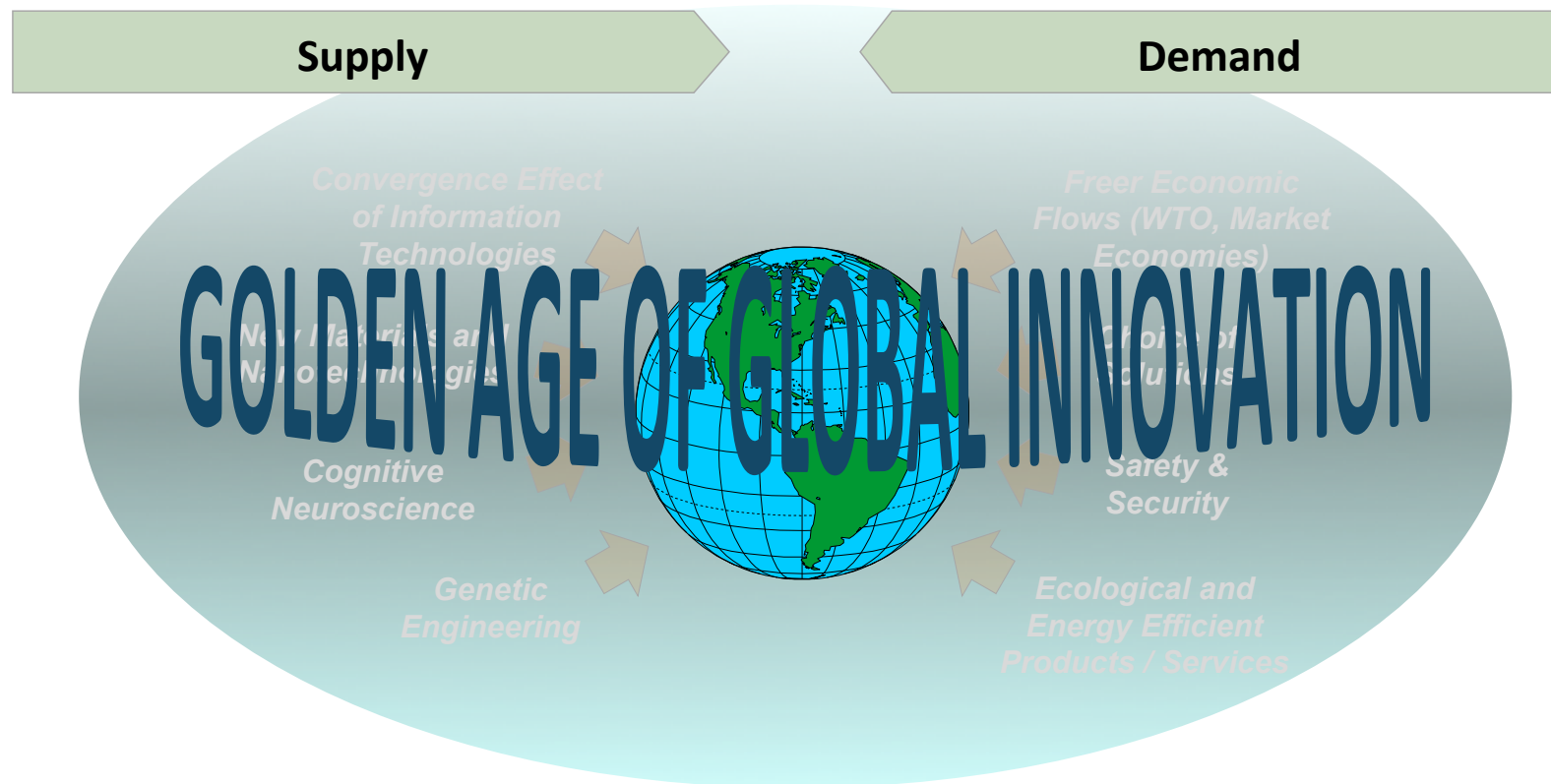
Next Phase *Imperatives*
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Towards Innovation Economy:
Dos & Don'ts?

Global order at point of inflection:
Not more and better of the same -
Need fundamentally a new approach

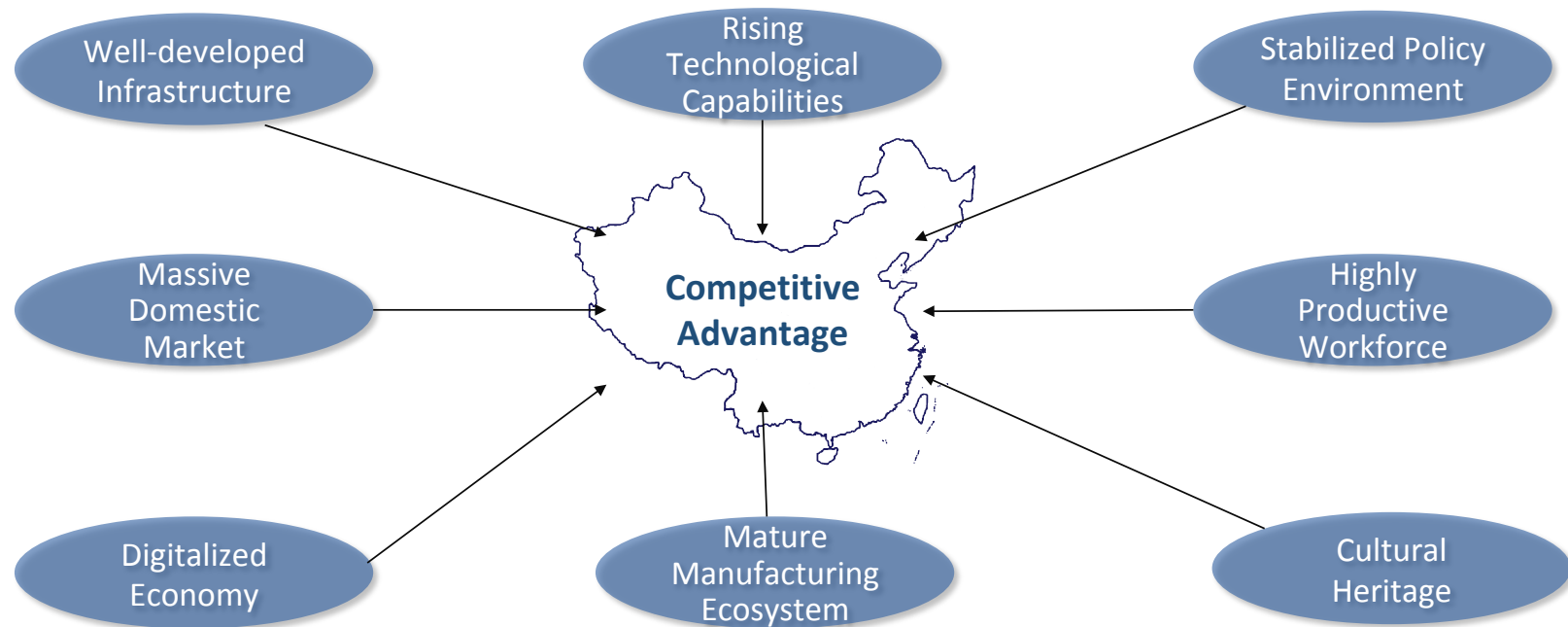
The Emerging Economic Environment — The Big Picture



China's success in the Innovation Economy will be determined by how several critical factors are synchronized



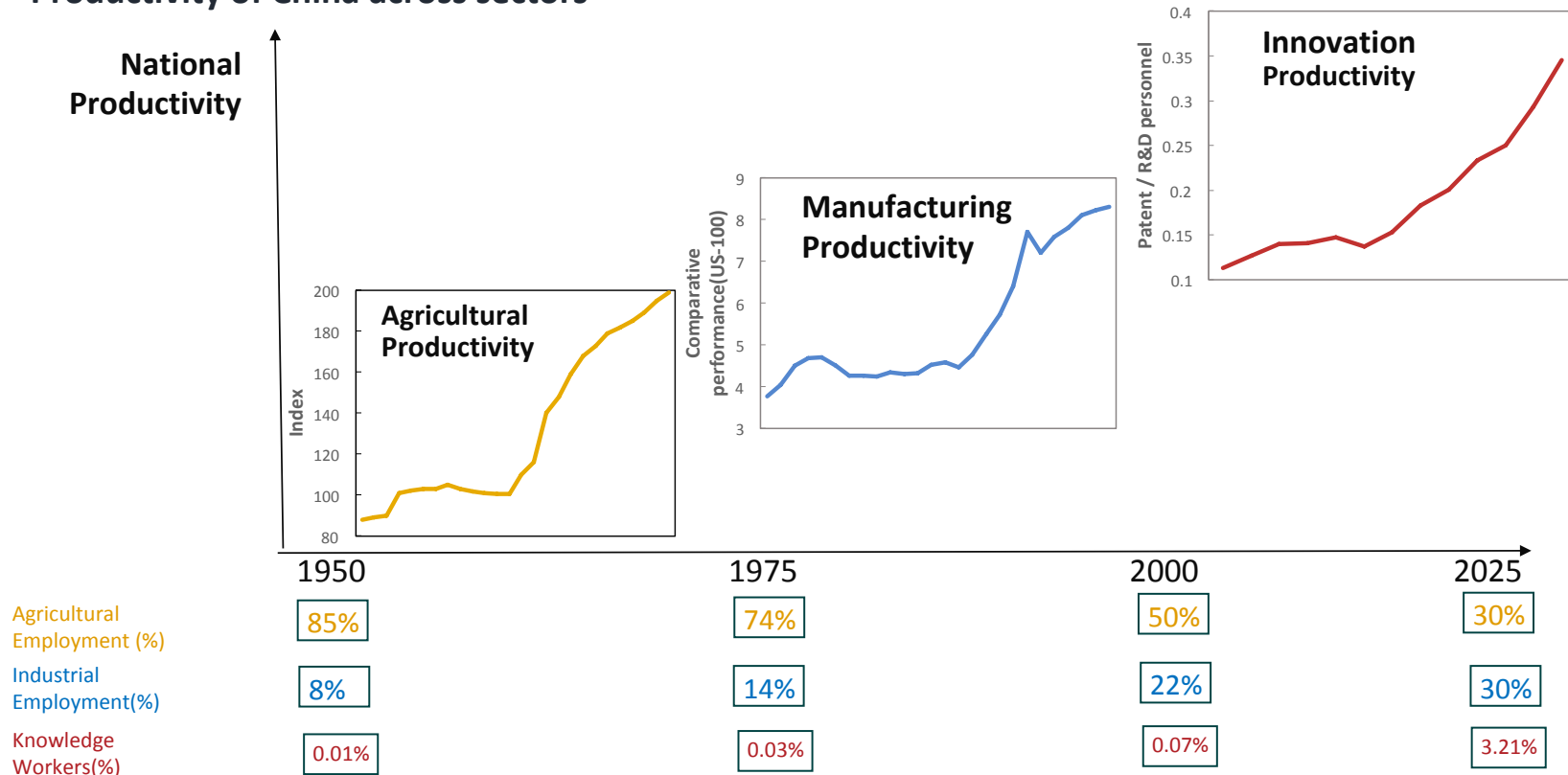
Competitive Advantage of China



Productivity of China's human resources through different eras of development



Productivity of China across sectors



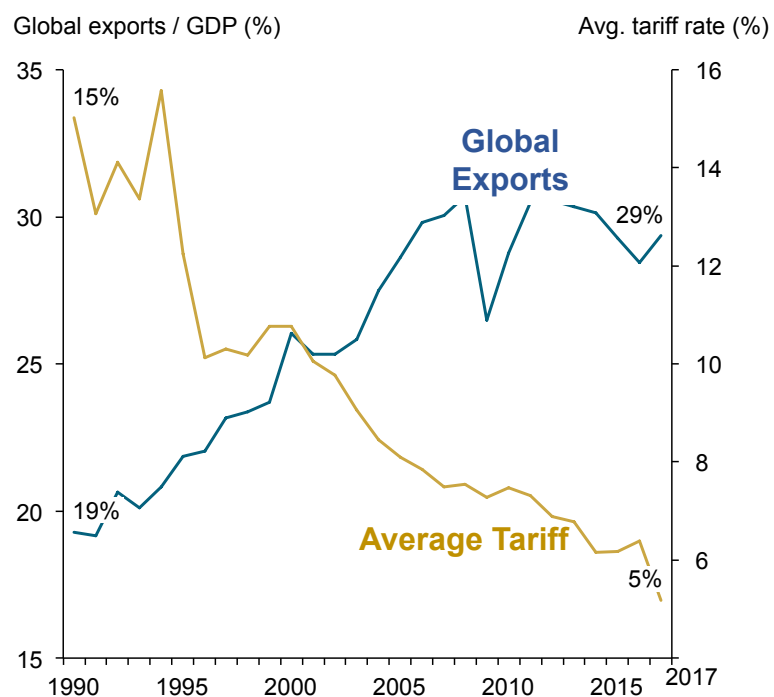
Source: China statistical Yearbook; China Agricultural Statistical Year Book/ World Bank/
Harry.Xu "Comparative labor productivity performance in Chinese manufacturing, 1952-1997: An ICOP PPP
Approach"

© Partha S Ghosh

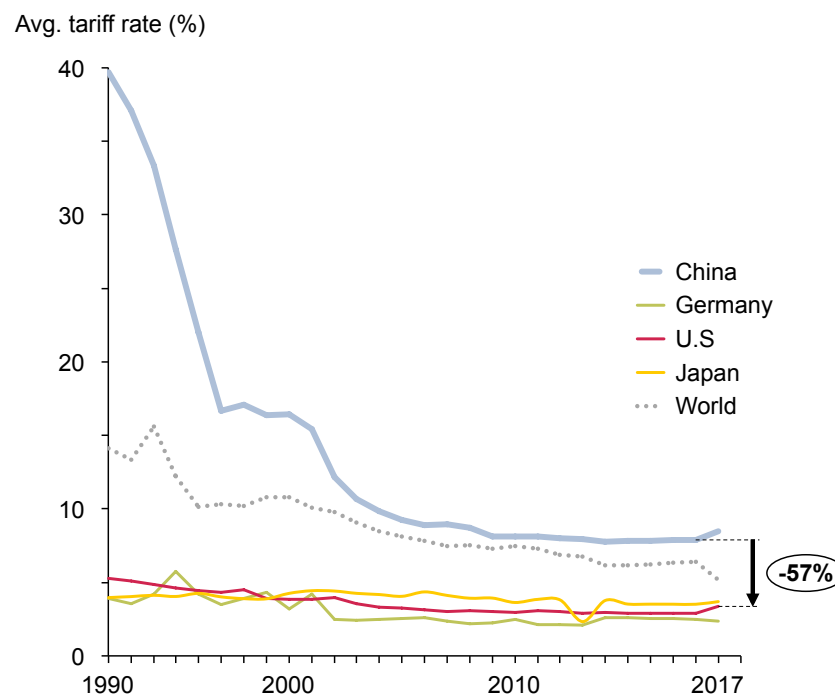
In the last thirty years as tariff has diminished, share of exports in Global GDP has increased



GLOBAL TARIFF AND EXPORTS TREND



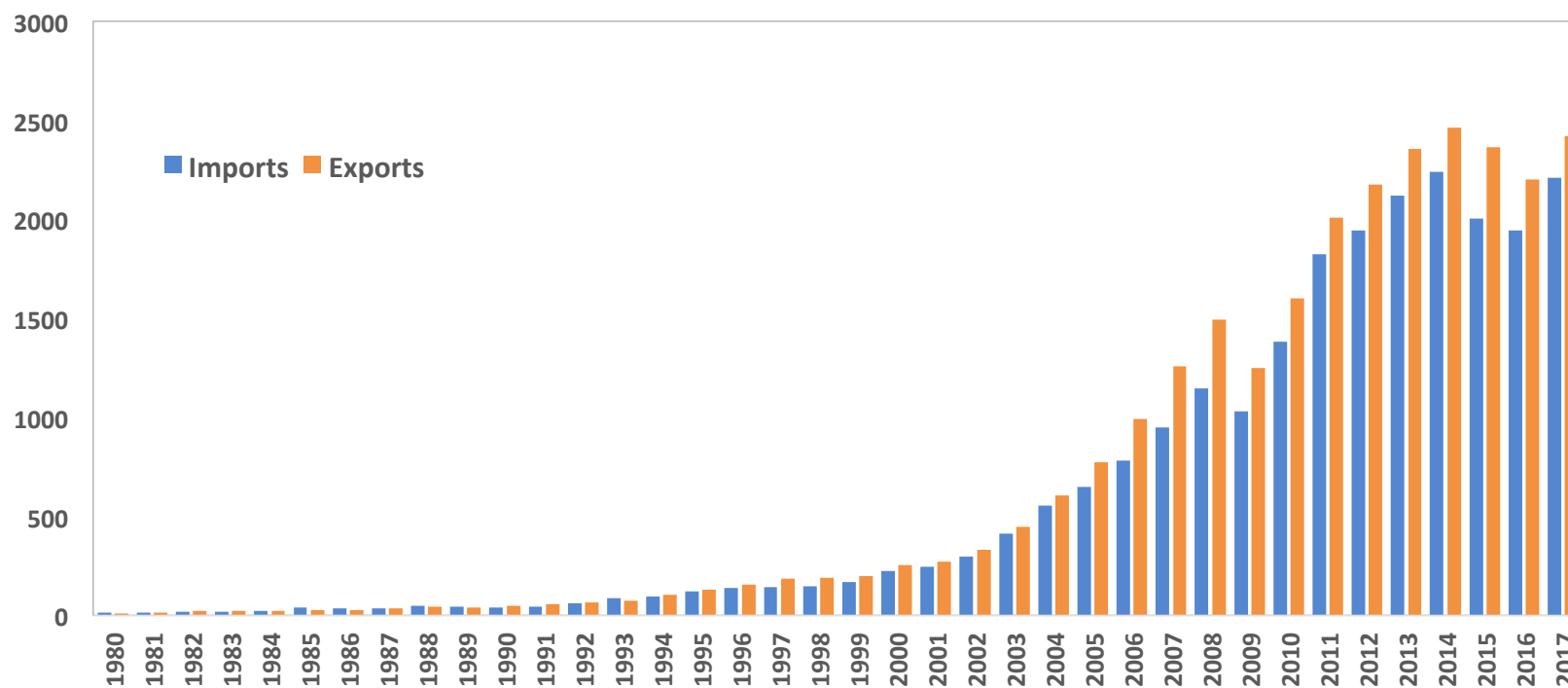
AVERAGE TARIFF RATE TREND BY COUNTRY



China now clearly a major trading nation



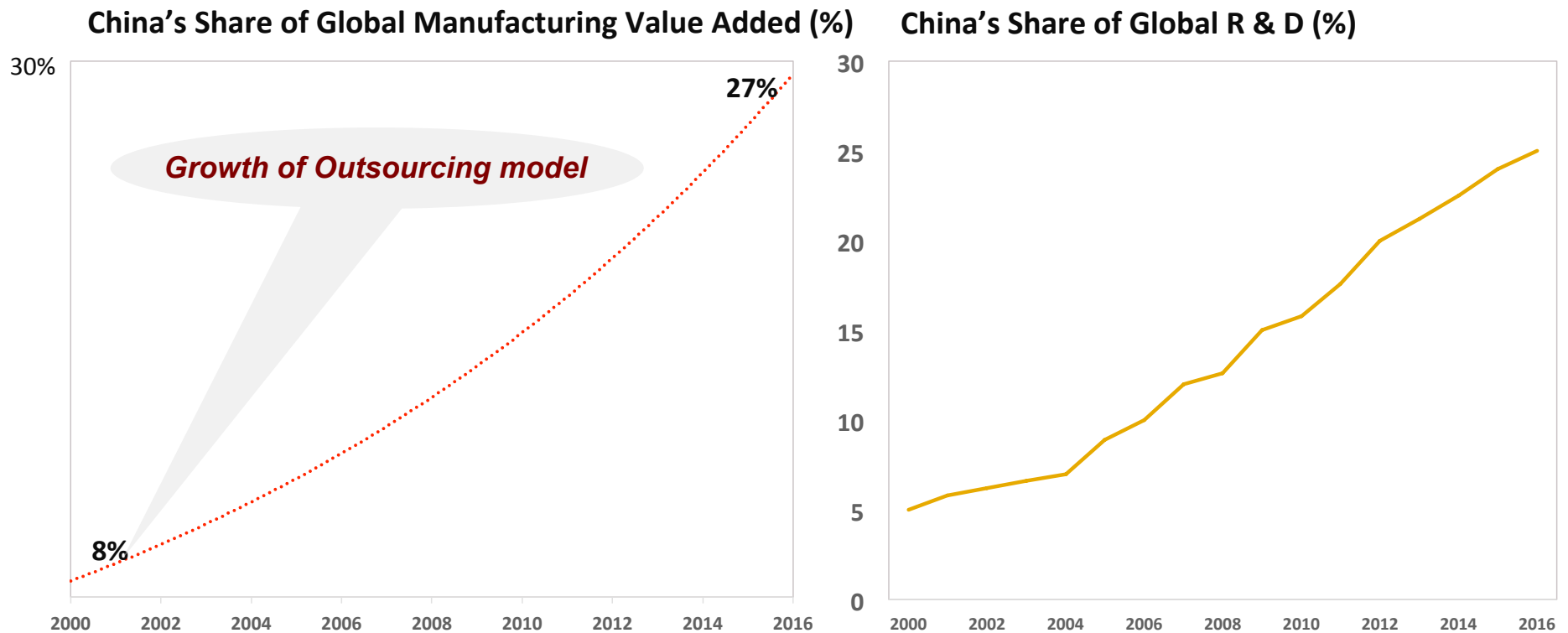
Imports & Exports of China(current US\$) 1980-2017



Data Source: World Bank

© Partha S Ghosh

China's share of global manufacturing and R&D commitment has increased significantly



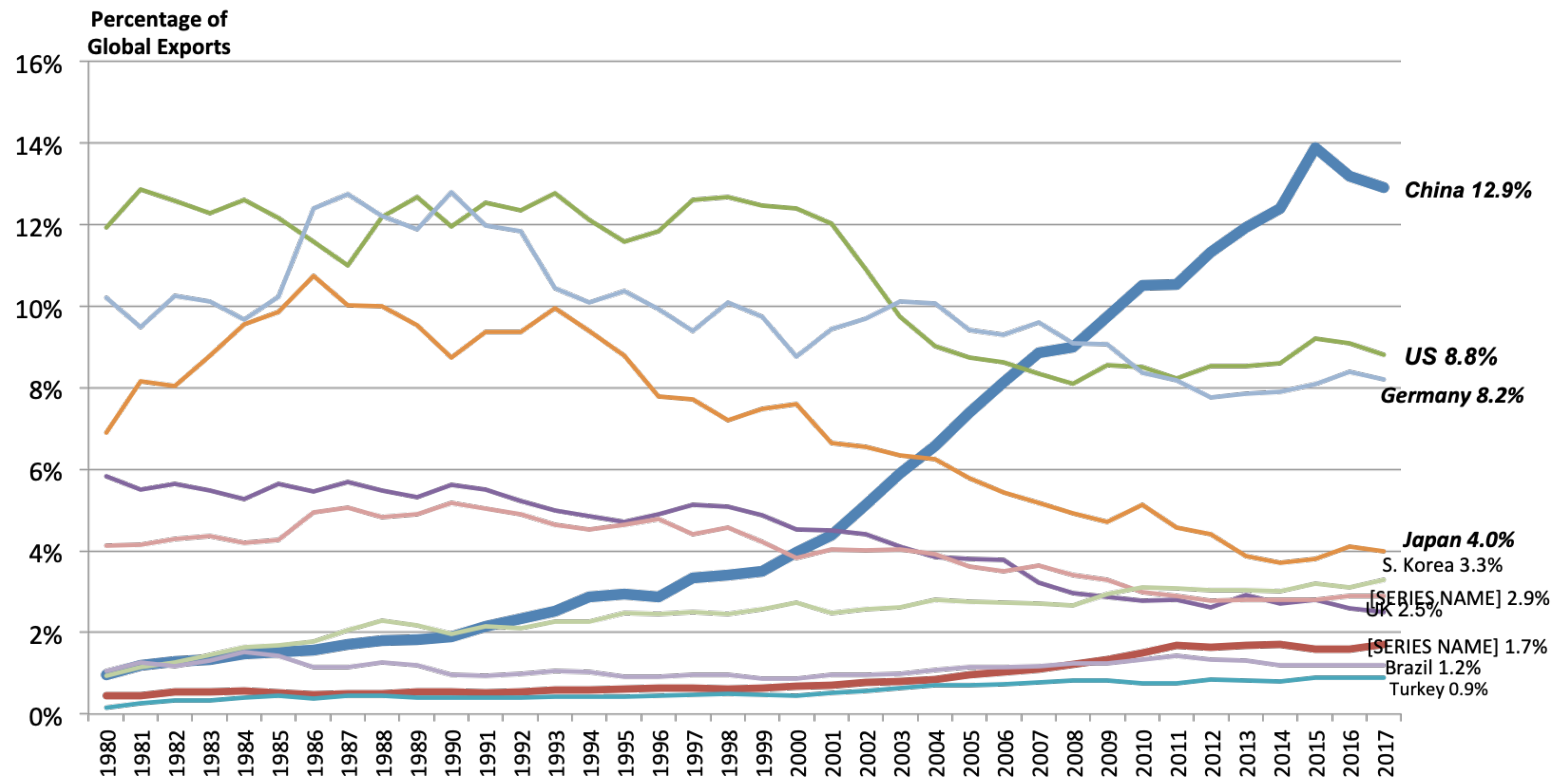
Source: OECD stats database/United Nations Industrial Development Organization

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China's manufacturing exports as a percentage of World manufacturing exports has increased by 10 times



Share of Merchandise Exports of Selected G20 Countries(1980-2017)



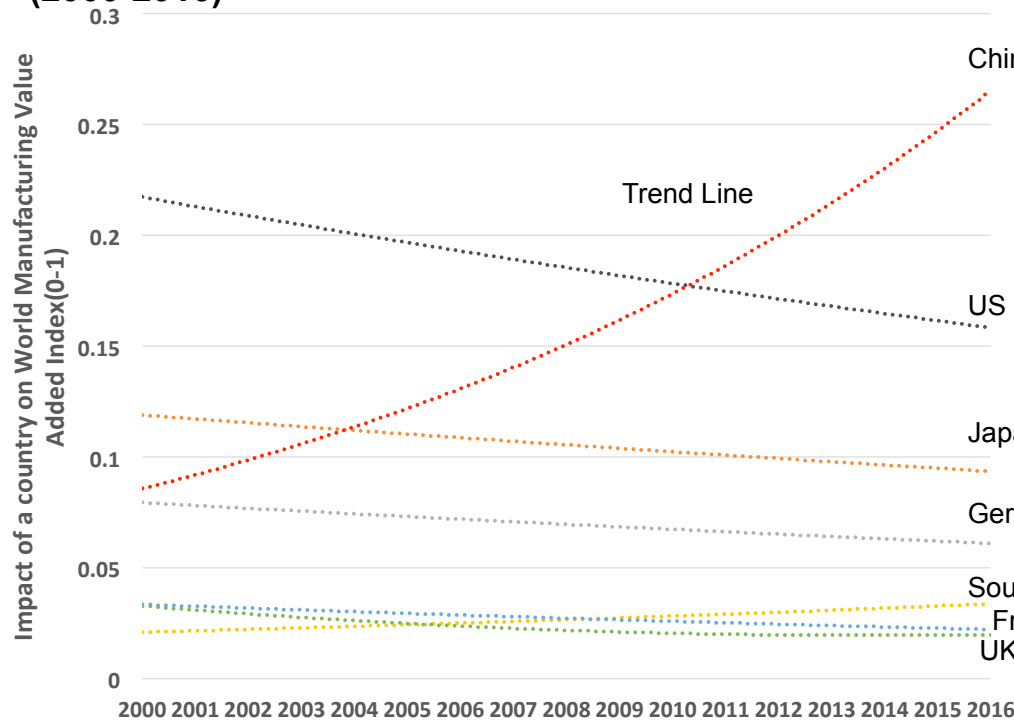
Data Source: International Trade Center Statistics

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China's share on global manufacturing has increased significantly



Sagre of a country on World Manufacturing Value Added (2000-2016)



Manufacturing Value Added Output

Average Annual Growth Rate (2001-2017)

2017 Global Share

12.8%

27%

1.4%

16%

1.9%

10%

1.8%

6%

5.4%

3%

0.9%

2%

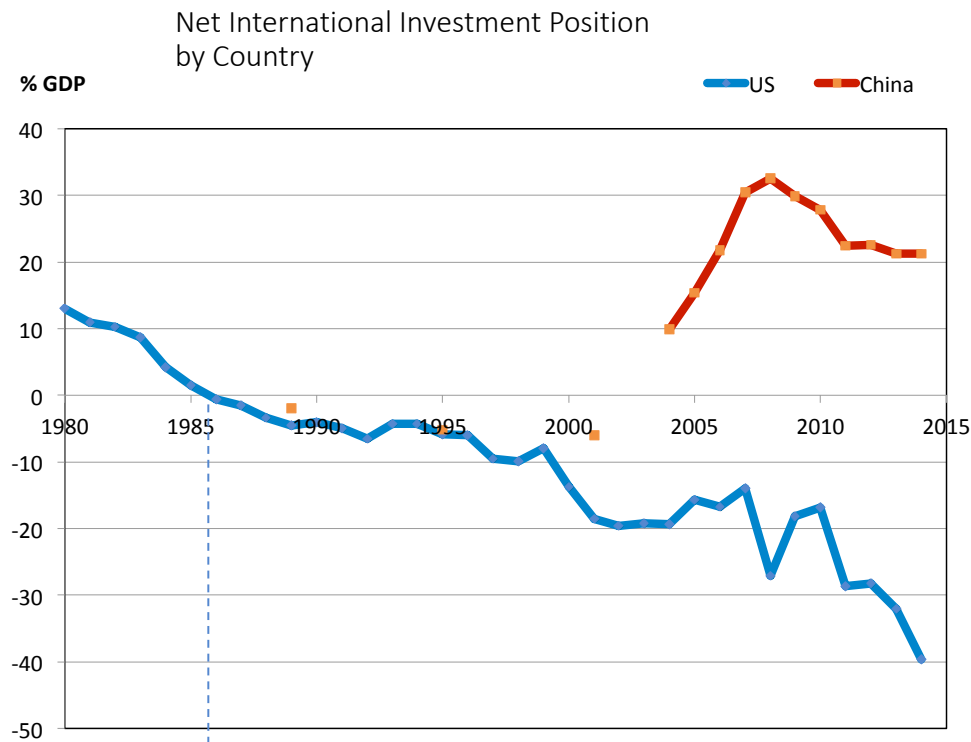
0.1%

2%

Data Source: BCG Analysis "China's Next Leap in Manufacturing" / United Nations Industrial Development Organization

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China's 3 decades of economic growth has allowed it to accumulate large trade surpluses, increasing its economic influence



*China's increasing economic influence
thru Financing international debt,
developing foreign assets to acquire
natural resources, internally investing in
infrastructure and technology, etc)*

1999 US-China Free trade agreement under Clinton
Administration
Source: IMF Dataset

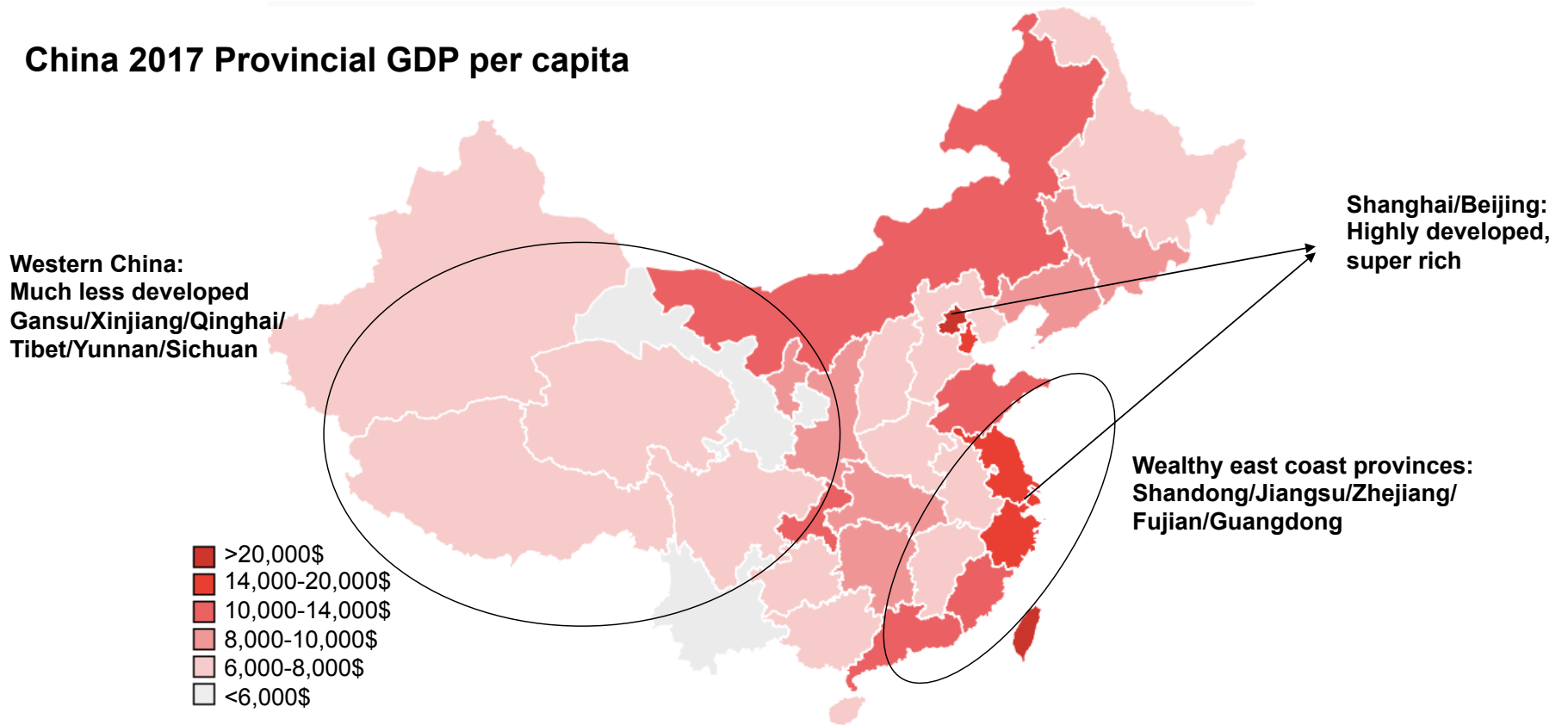
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China experienced rapid economic growth but extremely unequal



China 2017 Provincial GDP per capita

INCLUSIVE DEVELOPMENT



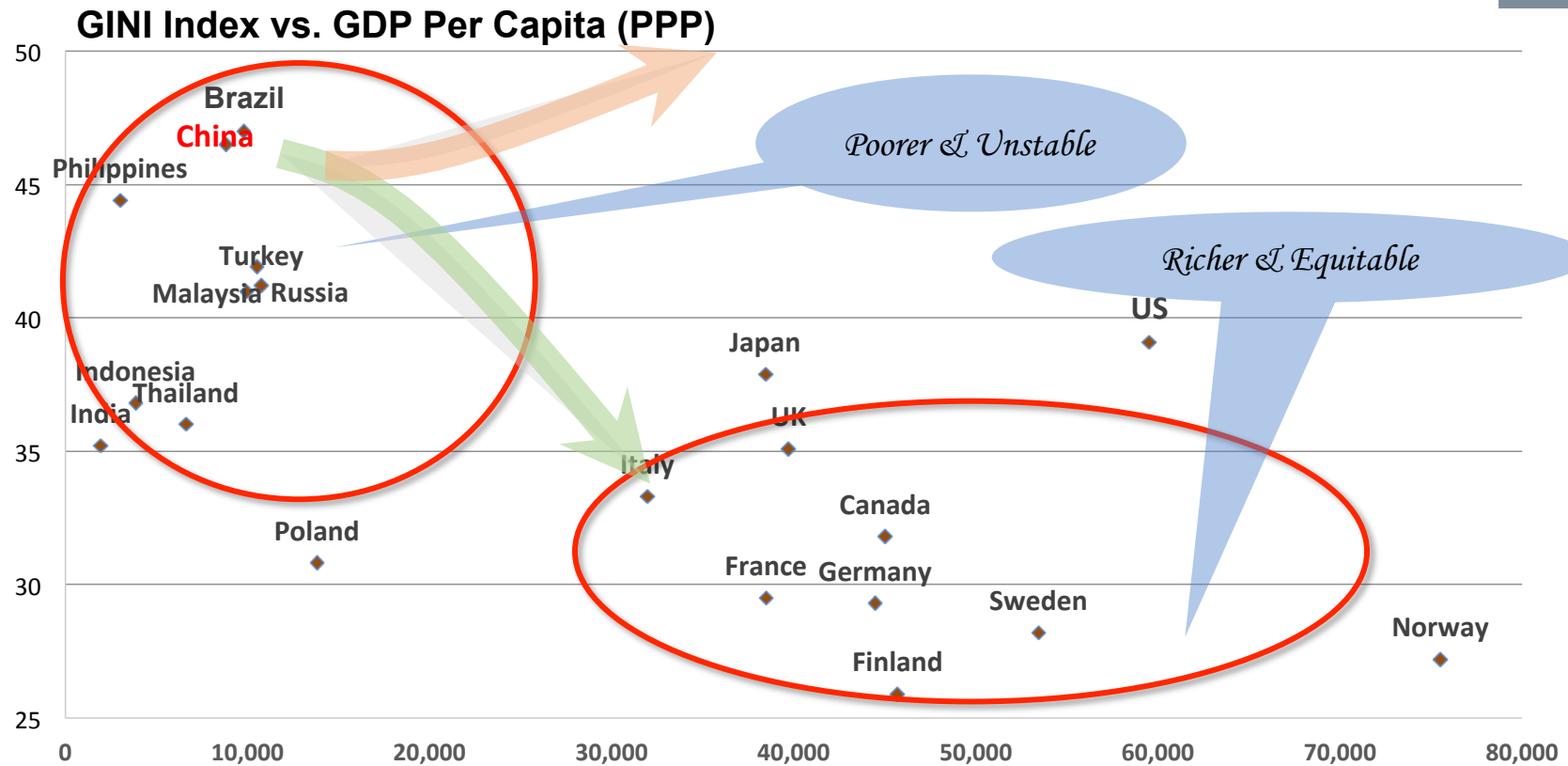
Data Source: China National Bureau of Statistics

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Growth not at the cost of inequality ?



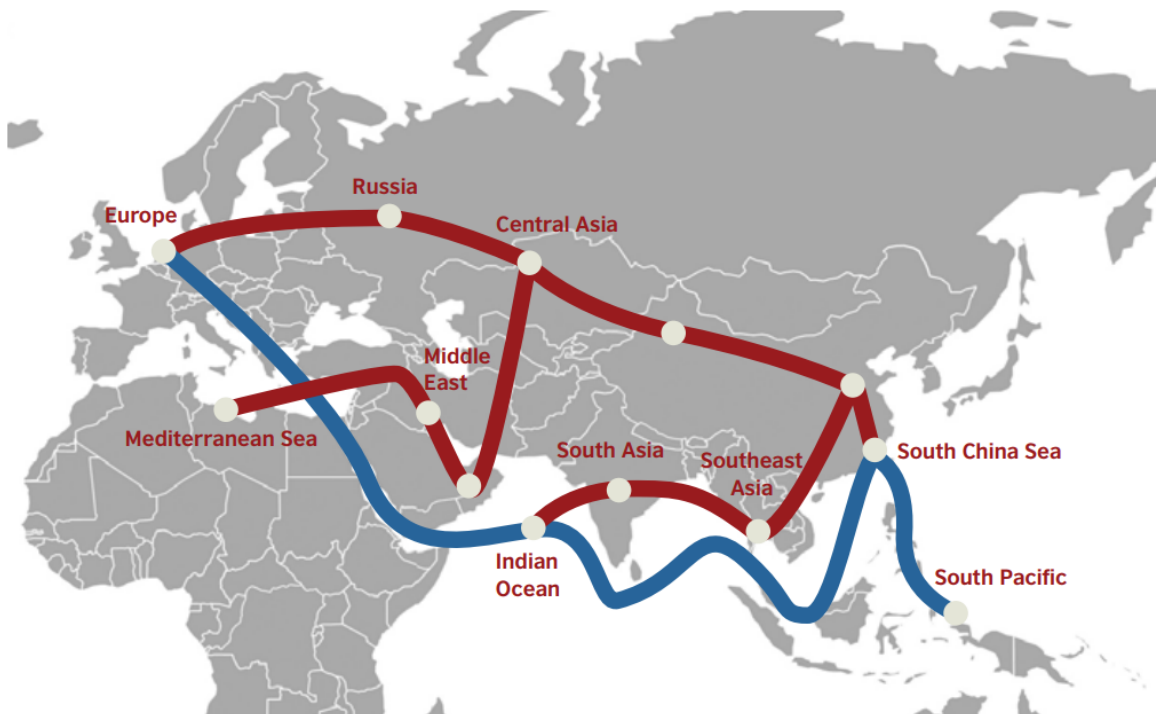
INCLUSIVE DEVELOPMENT



SOURCE: World Bank/OECD/US Central Intelligence Agency

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One Belt One Road (OBOR) clearly a bold step in the right direction has drawn lot of attention:- *timing?*



The blue route is the "21st Century Maritime Silk Road", and the red routes are the "Silk Road Economic Belt"

The OBOR blueprint encompasses over 60 countries, which account for 60% of the world's population and a collective GDP equivalent to 33% of the world's wealth.

Explicit Objectives:

- Prosperity for underdeveloped Western China
- Increased connectivity and economic development along routes through exchange of goods, services, information, and people
- Greater integration between China and neighbors
- Energy security through diversification of resources

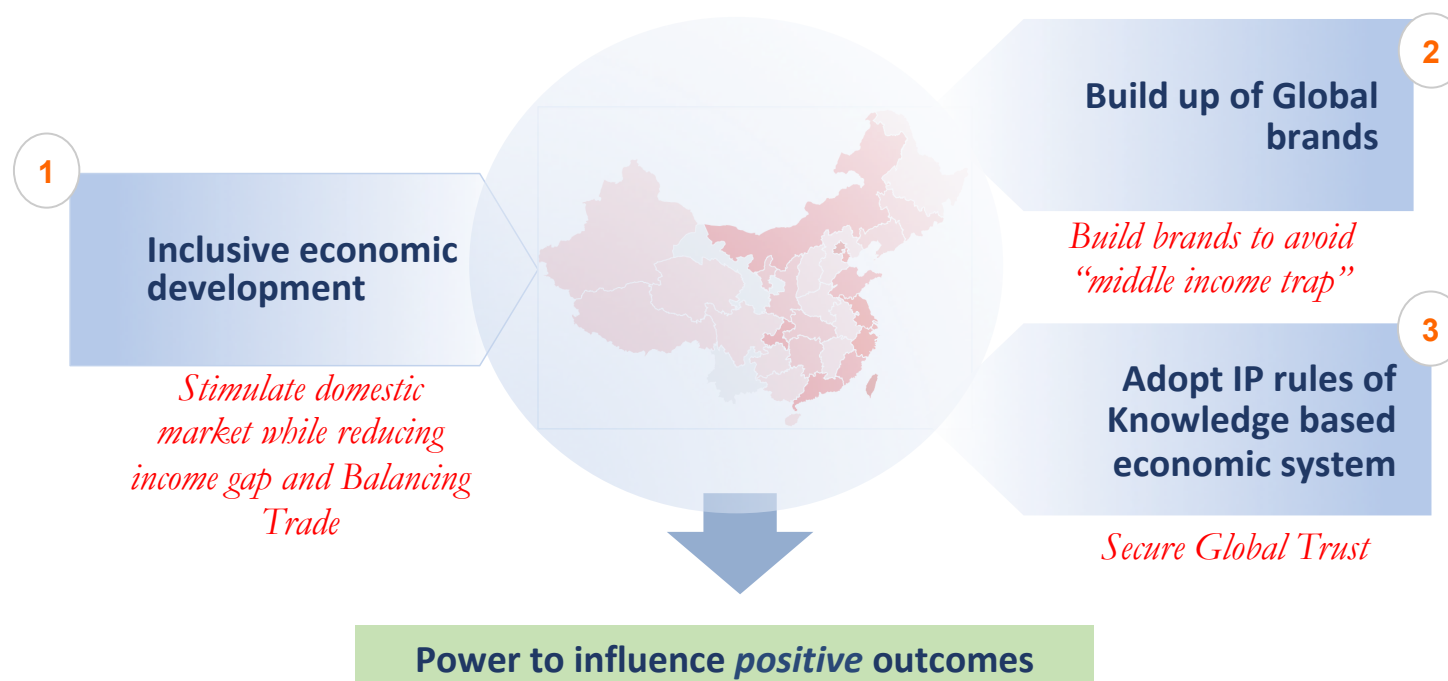
Implicit Objectives:

- Outlet for domestic overcapacity and overseas investment
- New markets for Chinese products and services

Three pronged strategic initiatives to trigger China's *next phase of socio-economic development*



Three Strategic Initiatives for Next Phase(?)

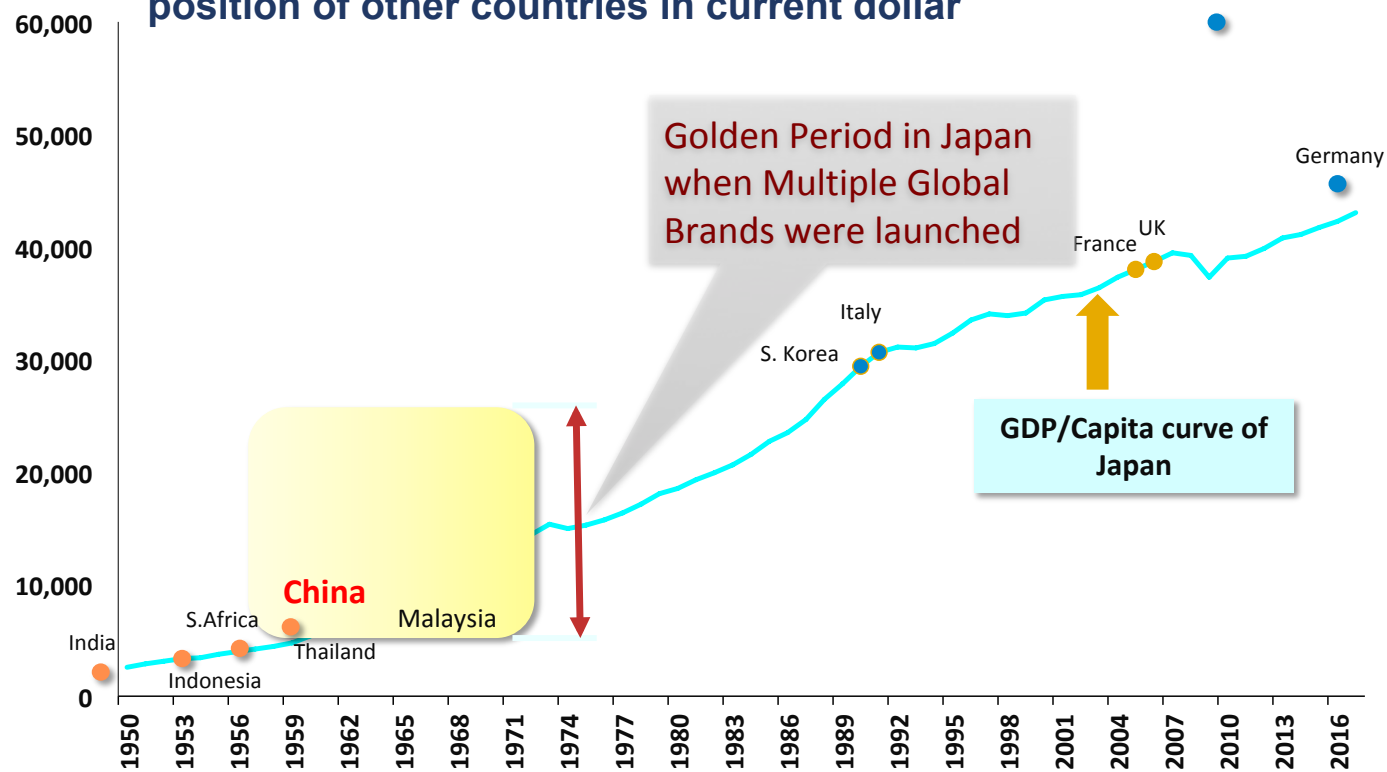


China is now at a point in its development trajectory that triggered the golden period of Japan's development curve



Annual GDP per Capita of Japan (in 2017\$) and relative position of other countries in current dollar

FOCUS ON VALUE/BRAND



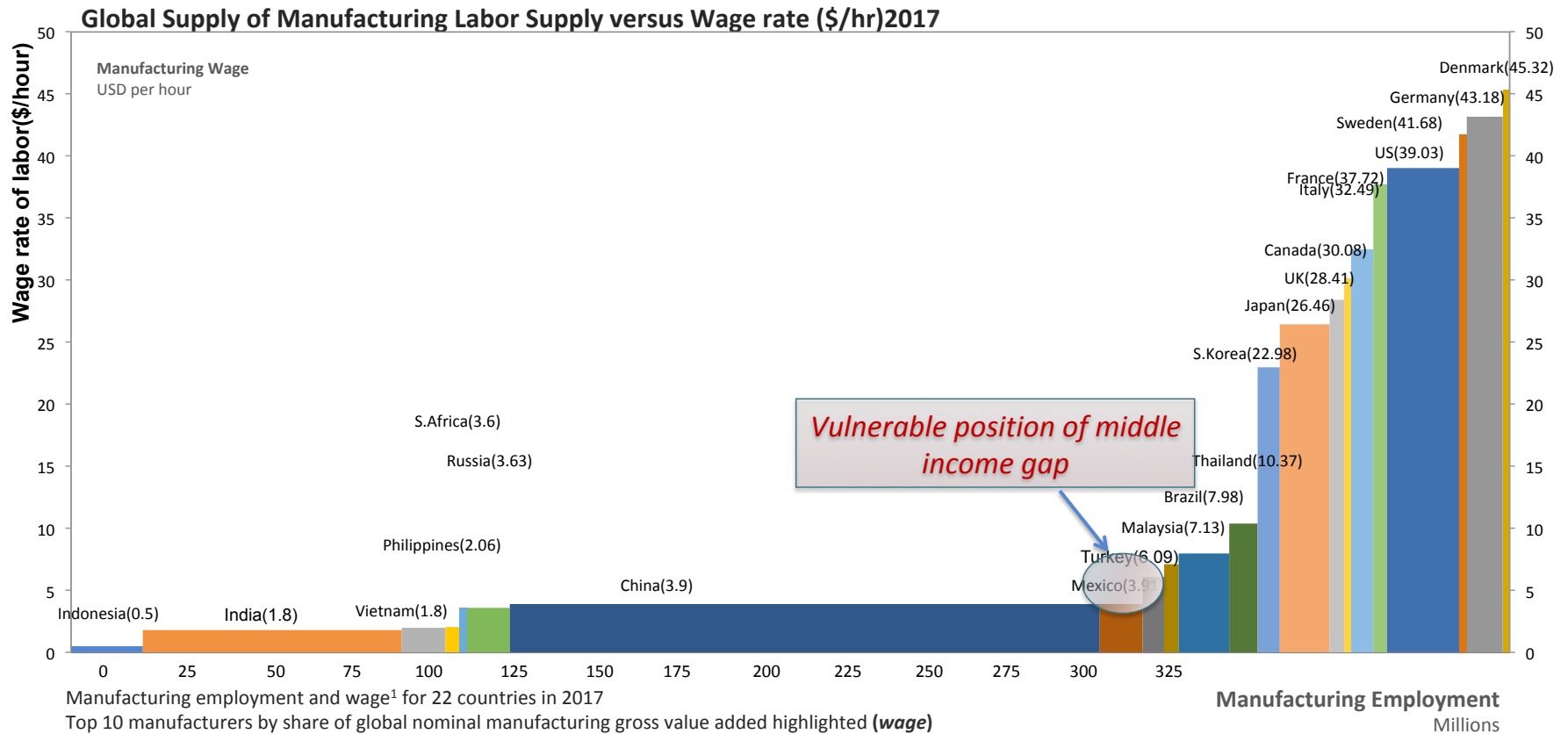
Source: Total Economy Database/World Bank

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As wage rate rises China will need a new “global engagement” formula



FOCUS ON VALUE/BRAND



SOURCE: International Labor Organization, ILOSTAT, China Statistical Yearbook, U.S. Bureau of Statistics; Ministry of Labor, Employment of India, Statistics Canada, Ministry of Labor & Employment Government of India

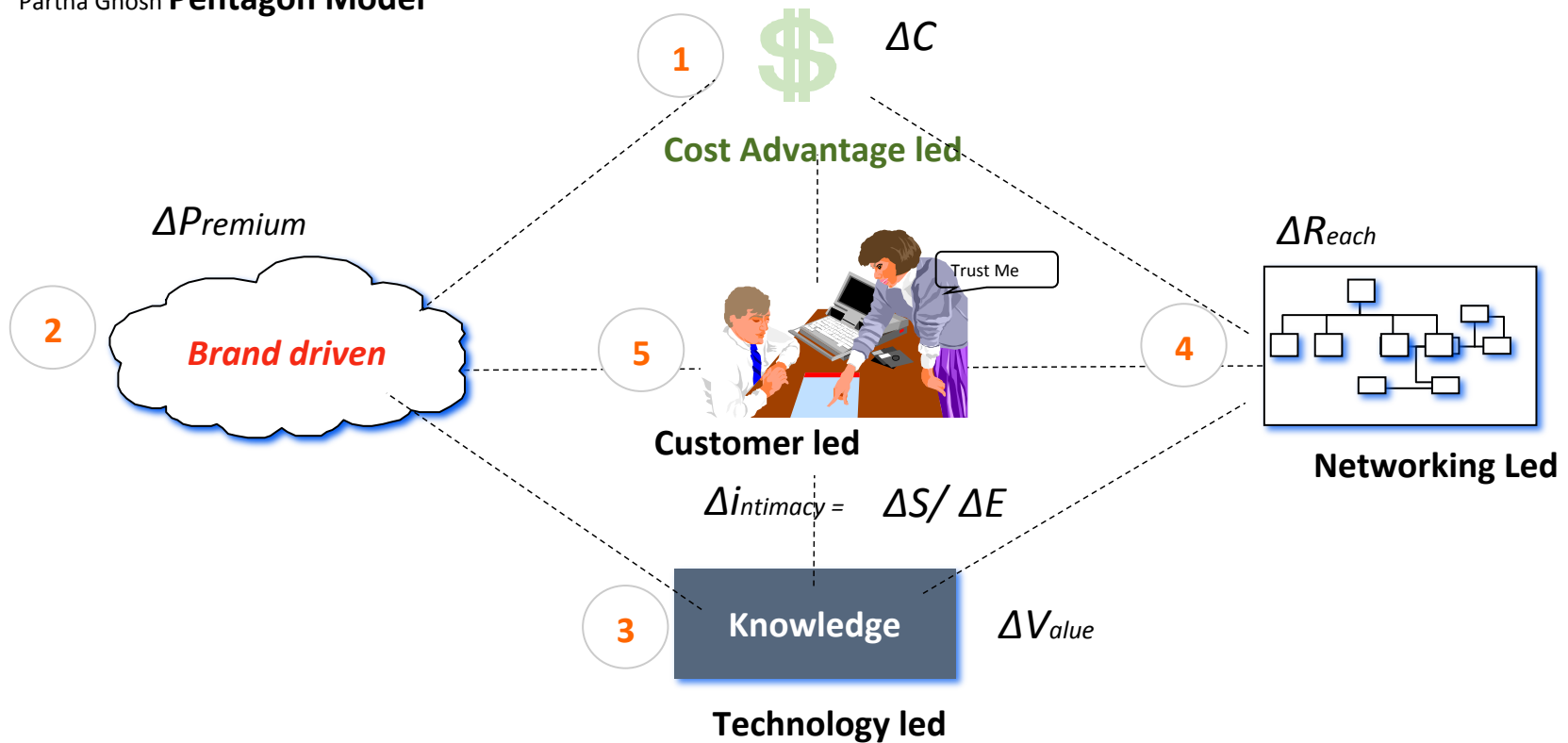
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Strategic Differentiation driven by the combination of different factors



Partha Ghosh **Pentagon Model**

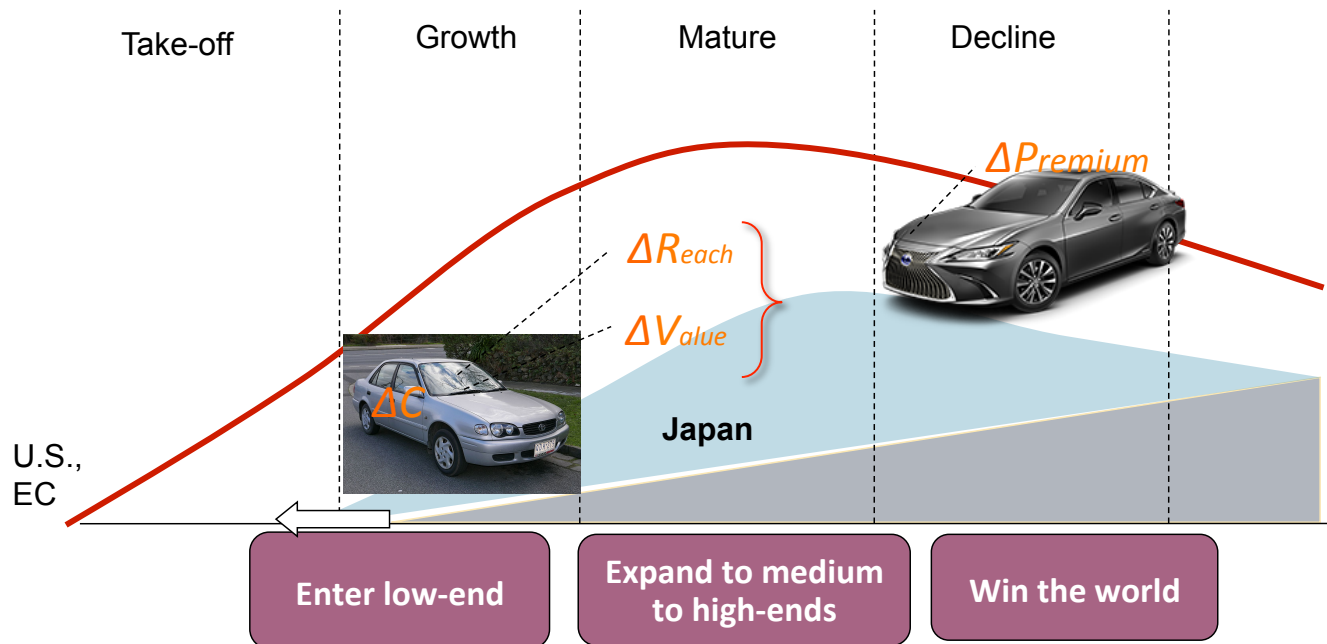
FOCUS ON VALUE/BRAND



Japanese Industrial Strategies

Success formula?

FOCUS ON VALUE/BRAND



Global Strategy of Chinese companies will need to be driven by the combination of different factors



FOCUS ON VALUE/BRAND

$$\text{Dynamics of Global Strategy} = f \left\{ \begin{array}{l} \Delta C \\ \Delta P_{\text{Premium}} \\ \Delta R_{\text{Reach}} \\ \Delta I_{\text{Intimacy}} \\ \Delta V_{\text{Value}} \end{array} \right\}$$

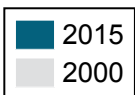
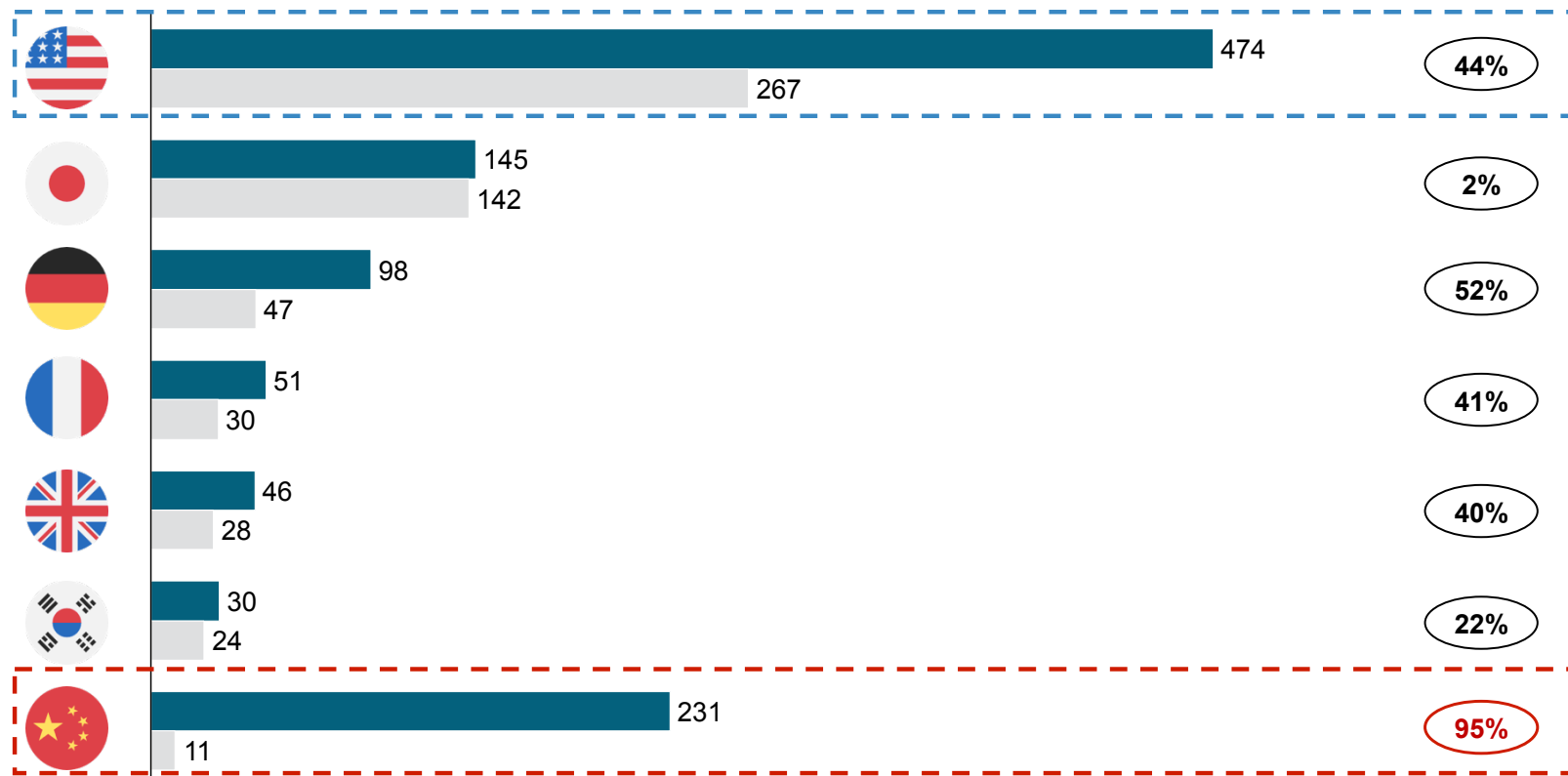
*How to mobilize the Δ s/
differentials to be values/
respected partner of the world*

The total Chinese R&D spending has doubled over the past years, trailing only the U.S

R&D SPENDING PATTERN BY COUNTRY (\$ BILLION)
2000 vs. 2015



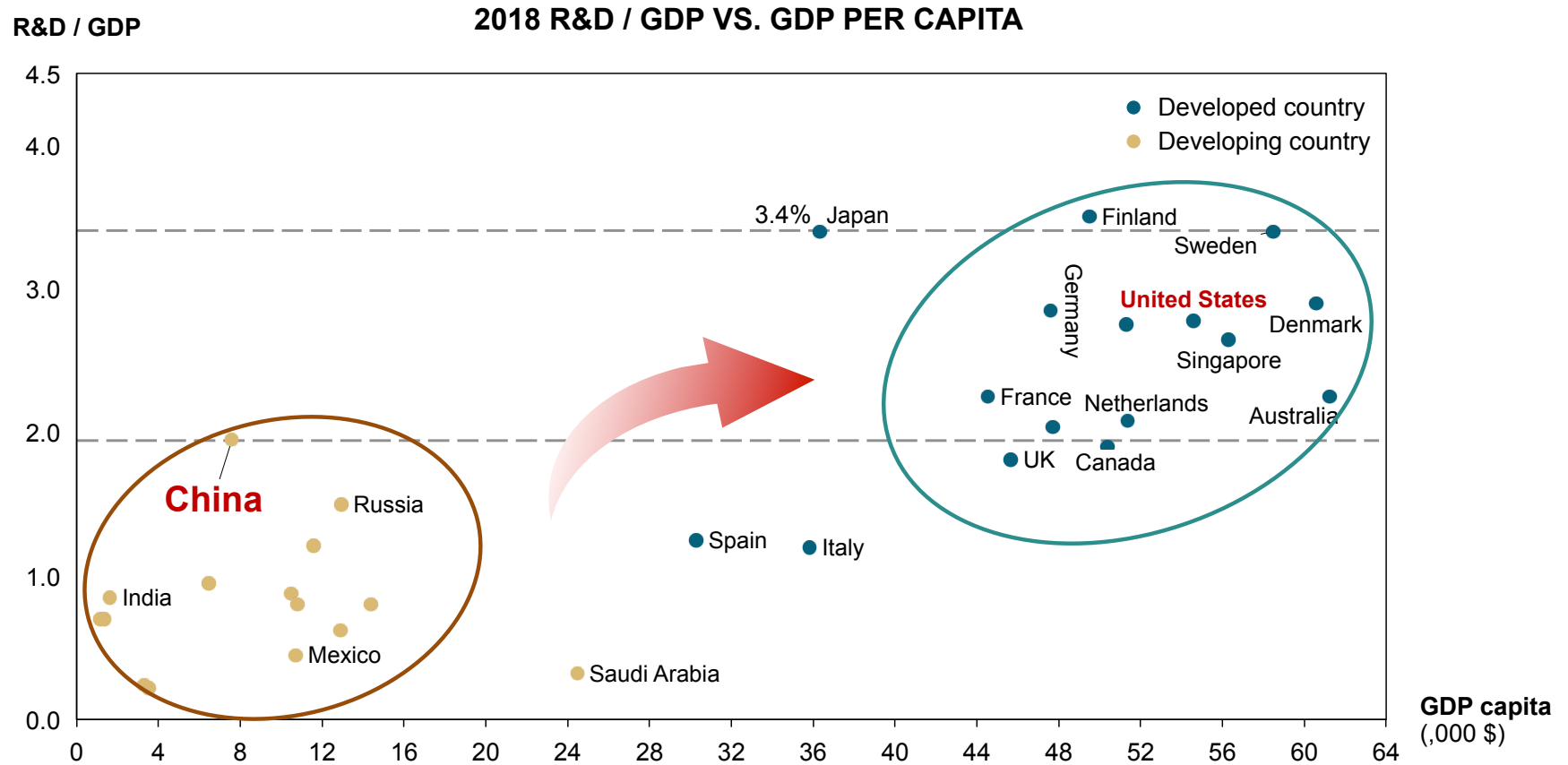
CAGR



Unit \$ Billion

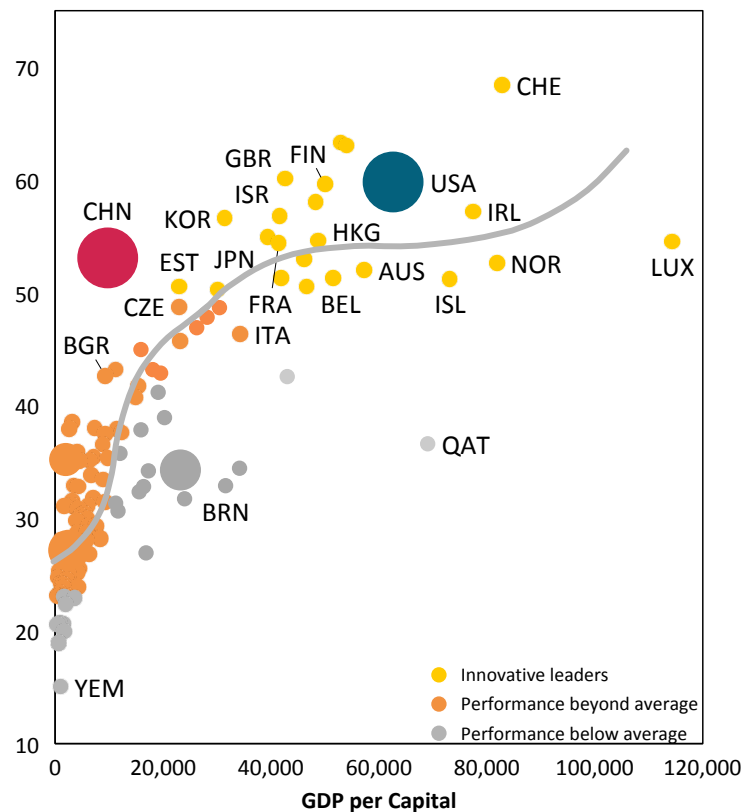
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China's commitment to R&D is impressive

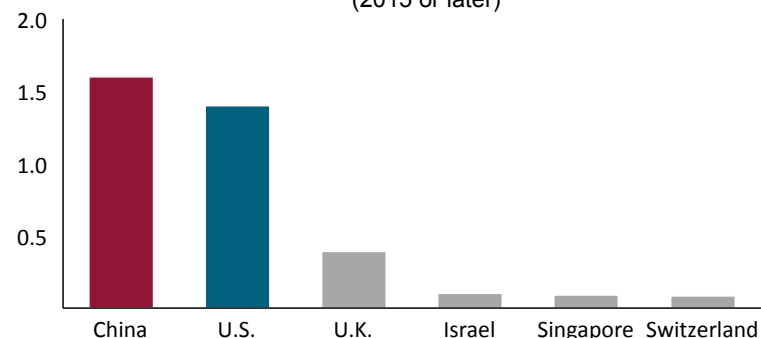


China's performance in Innovation is at par with developed nations

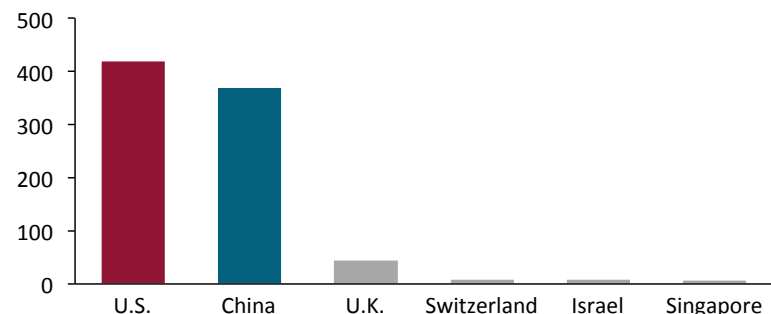
THE INNOVATION (GII) SCORE AND GDP PER CAPITAL*



NUMBERS OF RESEARCHERS, MILLIONS
(2015 or later)



R&D EXPENDITURE, PPP\$ MILLIONS
(2016 or later)

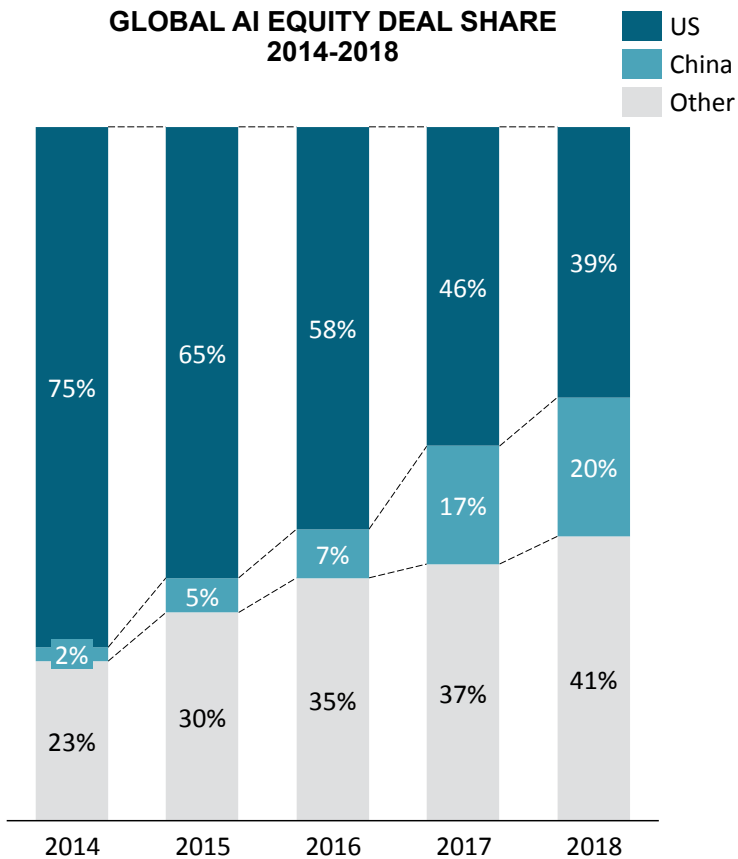


*The overall GII score is the simple average of the Input and Output Sub-Index scores. 1. The Innovation Input Sub-Index is comprised of five input pillars that capture elements of the national economy that enable innovative activities: (1) Institutions, (2) Human capital and research, (3) Infrastructure, (4) Market sophistication, and (5) Business sophistication. 2. The Innovation Output Sub-Index provides information about outputs that are the results of innovative activities within the economy. There are two output pillars: (6) Knowledge and technology outputs and (7) Creative outputs

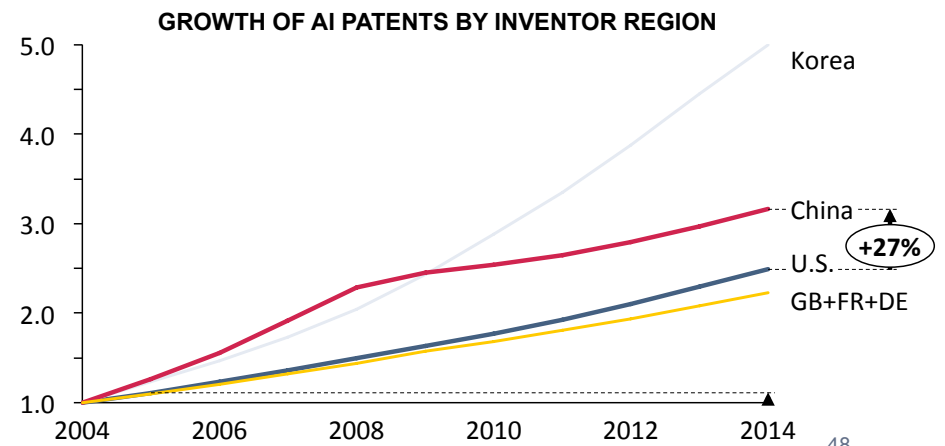
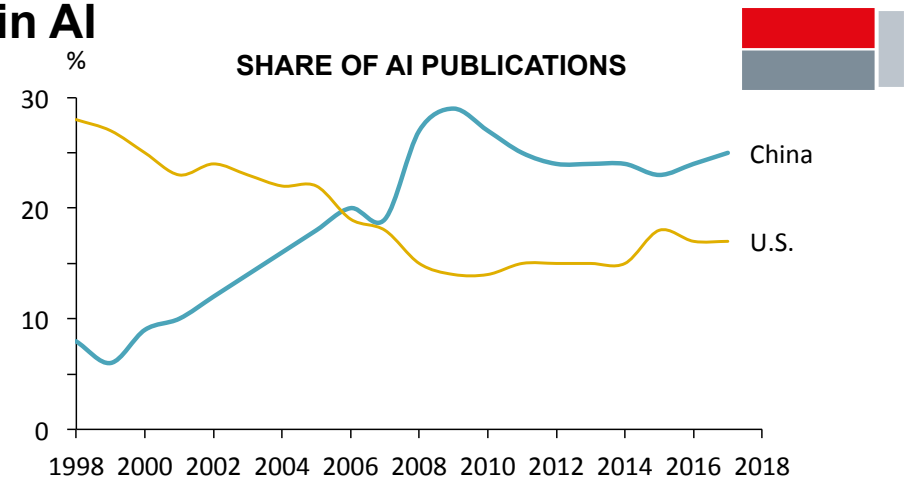
, Key findings global innovations index

© Partha S Ghosh

For example China is clearly leading in AI



, CB Insight, 2018 AI Annual Index

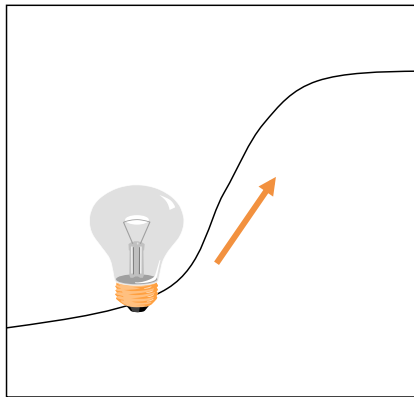


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Global bets during times of change?



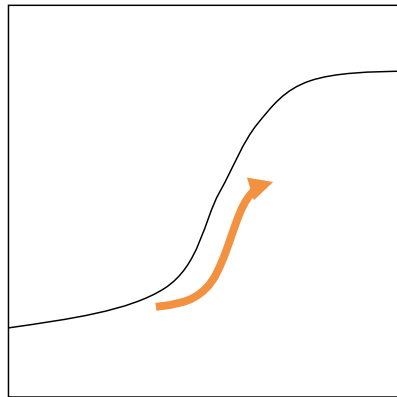
Towards Ideation/"Imagination" Economy?: *Three different strategies*



Shape the future

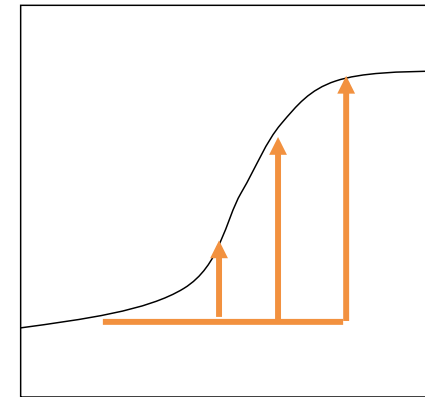
Play a leadership role in establishing how the industry operates, for example:

- *set standards*
- *create demand*



Adapt to the future

Win through speed, agility, and flexibility in recognizing and capturing opportunities in existing markets



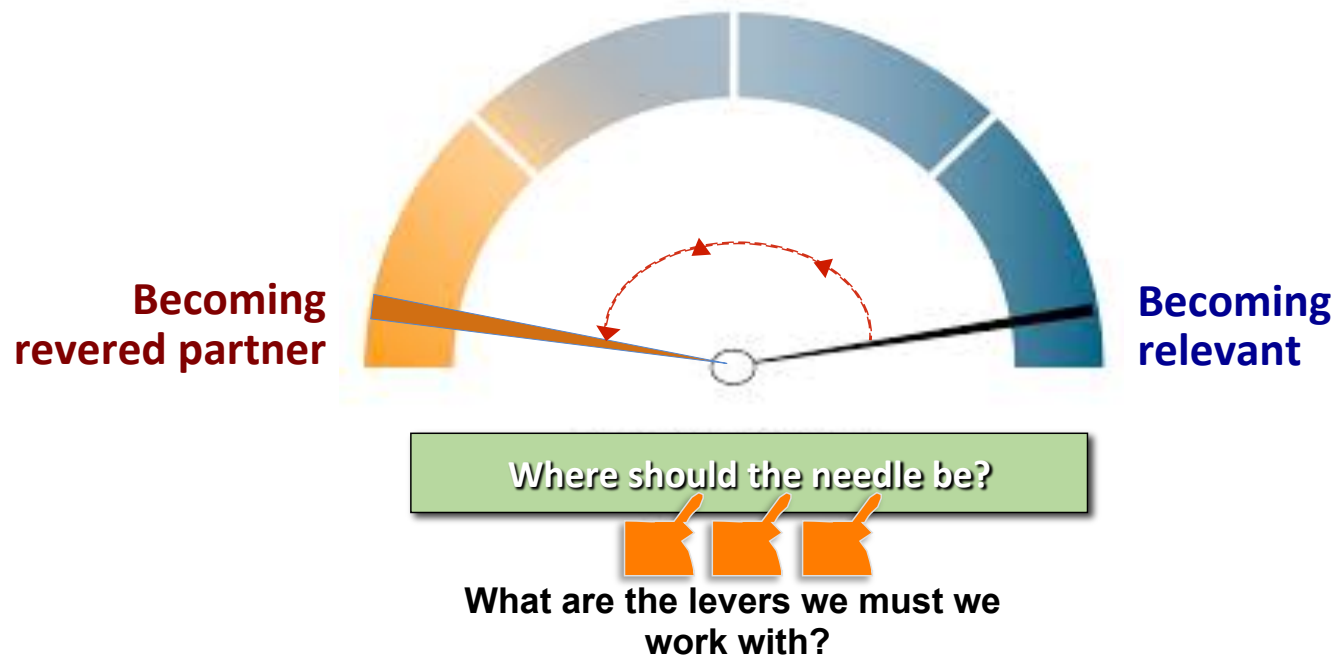
Reserve the Right

Invest sufficiently to stay in the game but avoid premature commitments

China will need to work with a new set of Leadership metrics (?) in developing a "*New Engagement formula*"



"Measures & Metrics of Progress"



Today three high level points....



1

Our Planet in Perspective
In the 21st Century?

Global order at point of inflection:
Not more and better of the same -
Need fundamentally a new approach

2

Next Phase *Imperatives*
Of China's socio-economic
advance?

**Socio-economic advance with a
broader perspective:** *Not low cost
supplier* – but “value based” partner

3

Towards Innovation Economy:
Dos & Don'ts?

The New Innovation Economy will operate differently, implying a Fundamental Shift



Principles of Next Phase(?)

Industrial Economy/Build up of basics

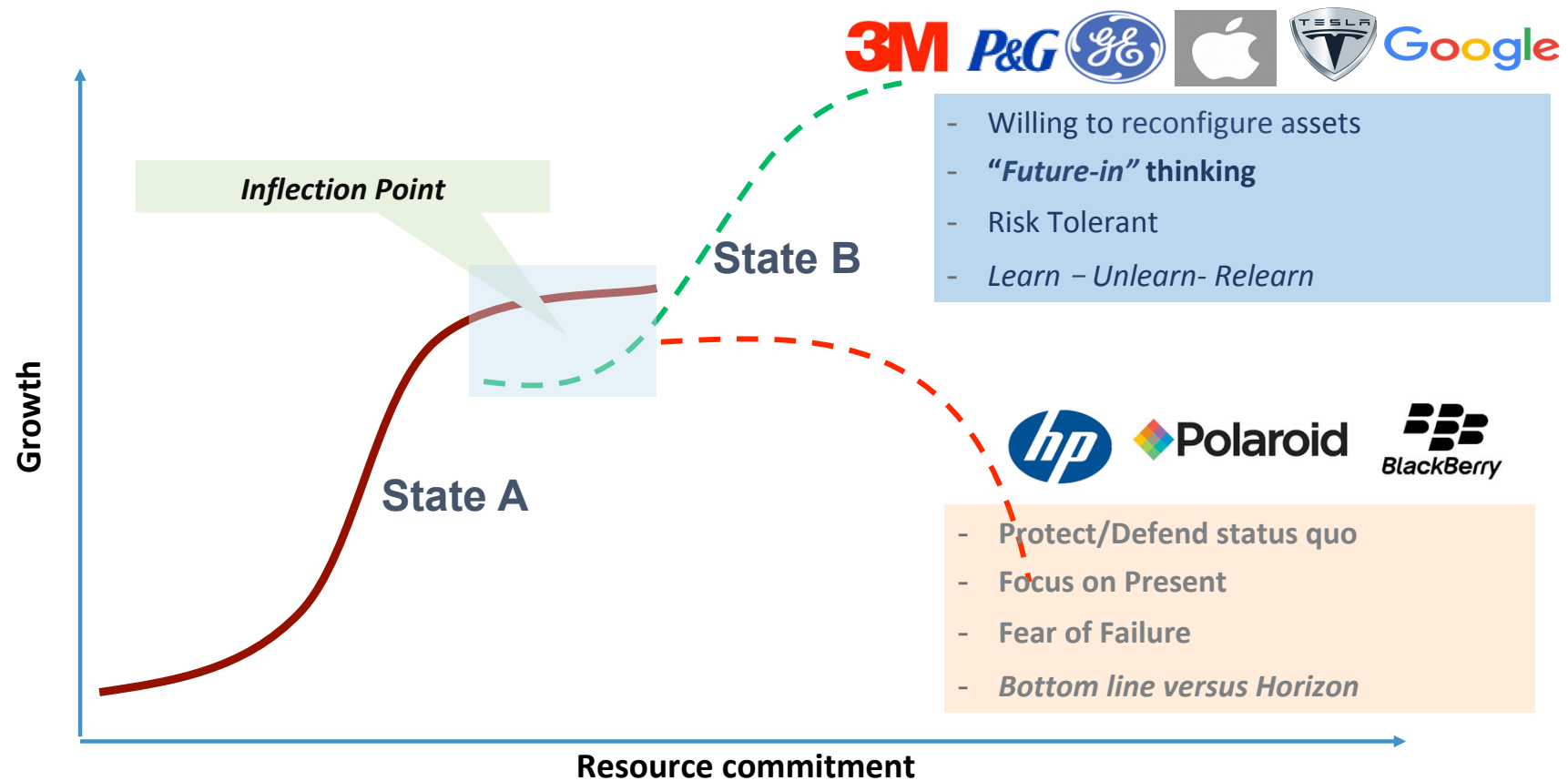
- Globalization led by “*outsourcing*” model
- Economies of Scale
- Export led growth
- Leverage of low cost skills
- Investment in physical infrastructure
- Fast follower/Adjust to Western rules
- Imported IP



Knowledge Economy/Equal Partner

- Globalization based on thought leadership
- Economies of skill & scope
- Enlightenment led progress
- Value driven
- Investment in “*global wisdom infrastructure*”
- Strategic Partnerships/Shape Global rules
- Collaborative IP development

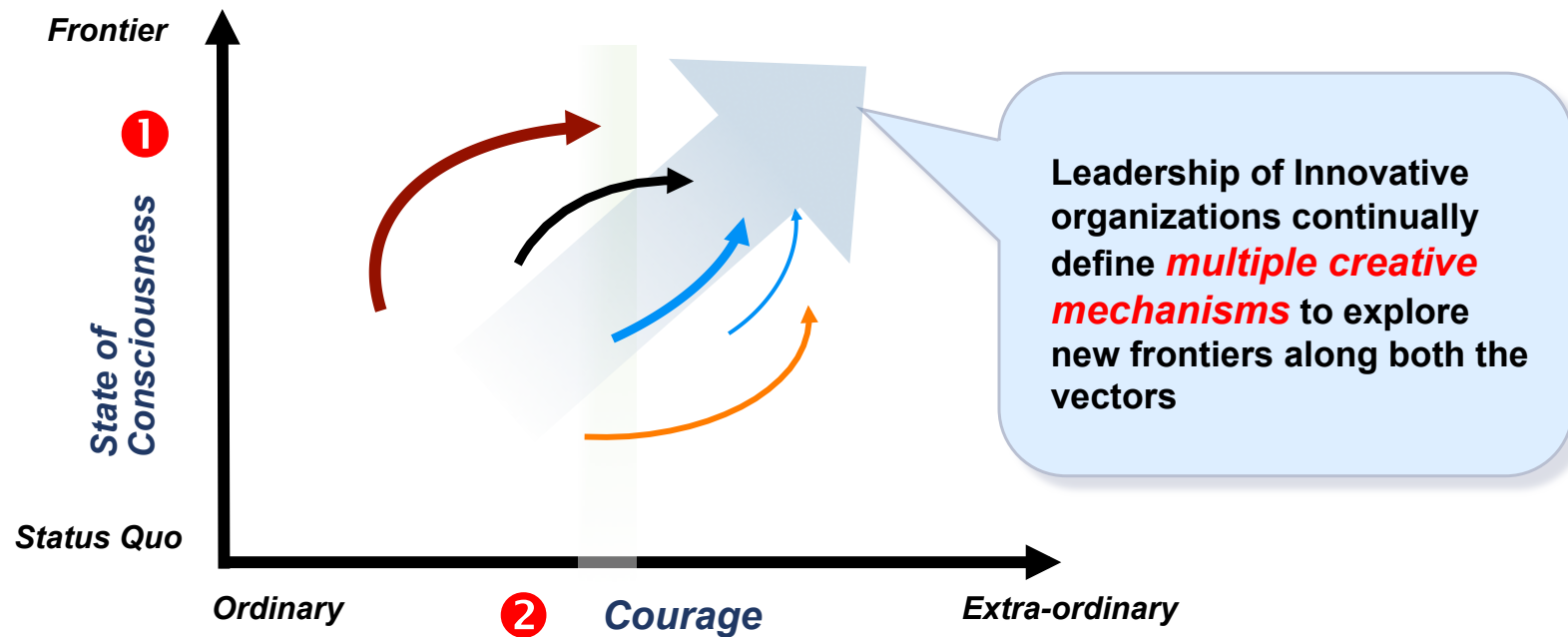
What really drives Innovation?: The discussion builds on several examples of successes and failures..



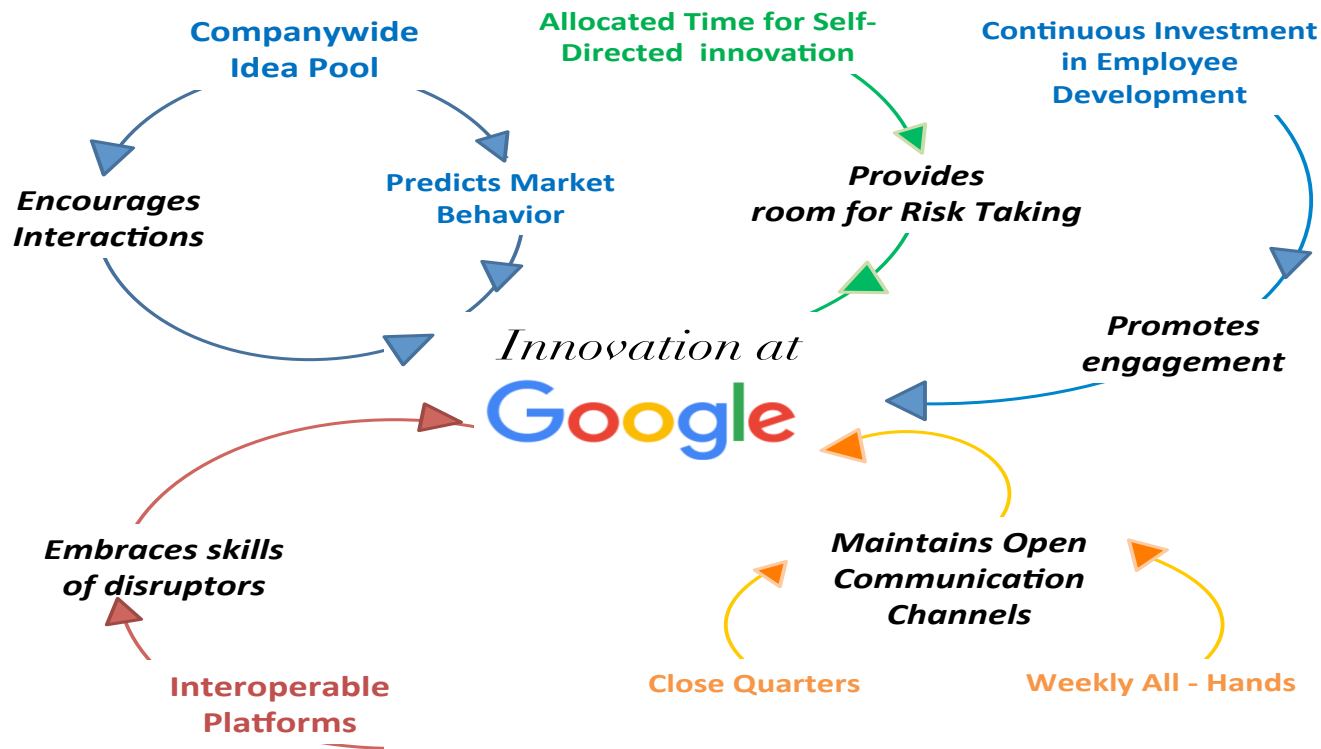
Innovation: Essential Requirements



The Two Critical Vectors



For example at Google multiple initiatives are at work to stimulate Innovation



Similarly Innovation Engine at 3M is driven by multiple initiatives



3M Innovative Culture

Capital sparks
Possibilities

Monetary Support for Internal New Ventures, across and outside business groups

Annual Genesis Grants to support disruptive innovations
Embracing skills of disruptive innovators & risk ...

Interactions
Multiply
Knowledge Impact

Internal Knowledge Sharing and Networking Forums

800+ technical forum events globally and 30+ active special –interest chapters
Encouraging interactions...

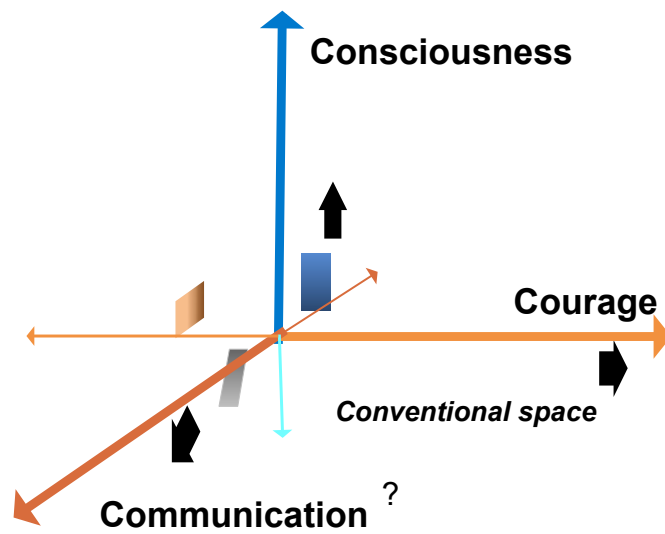
Recognition
Underpins Norms

Dual career ladders open growth potential to all

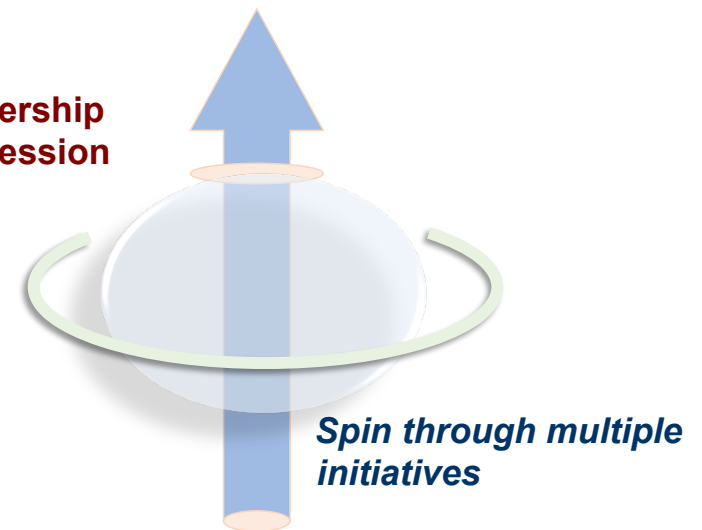
Innovation celebrated and honored by the Carlton Society
Promoting engagement...

Then the Third vector

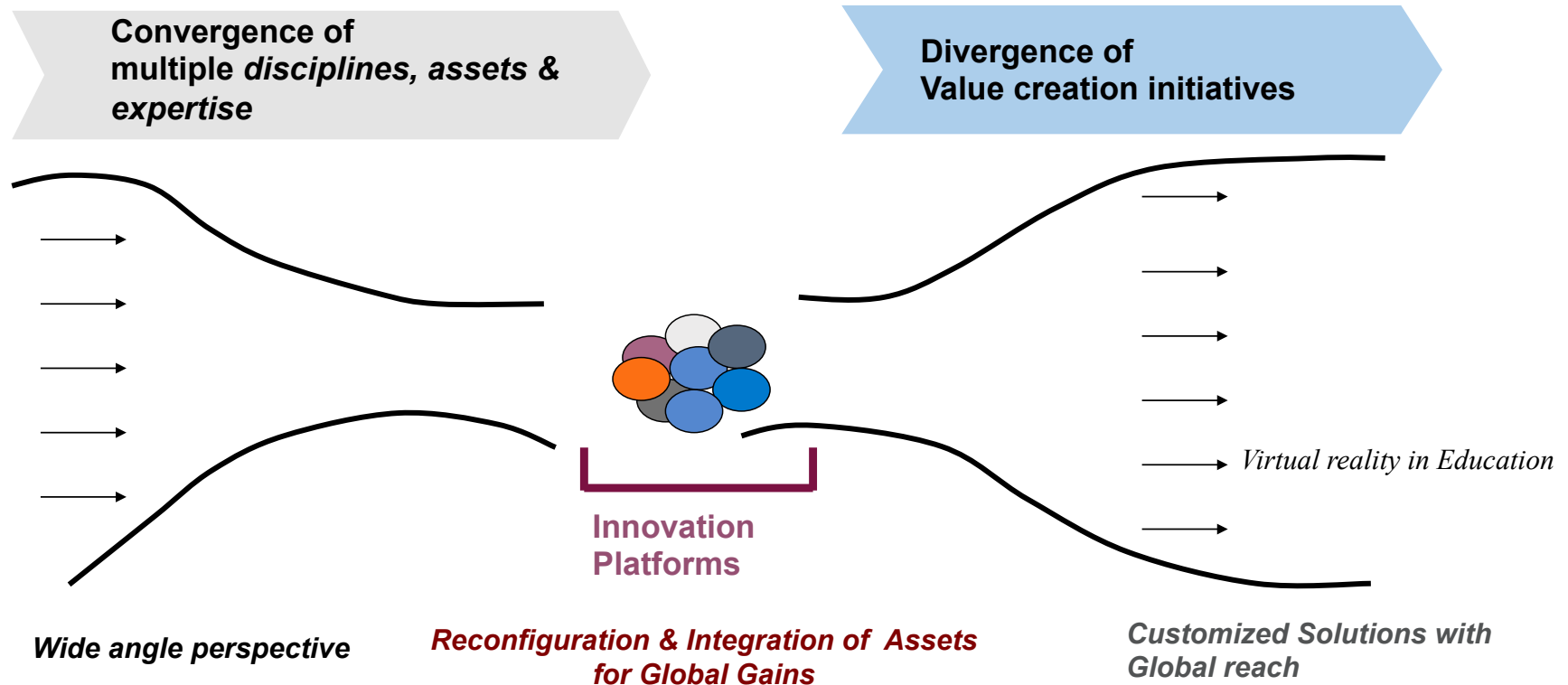
Expanding Strategic Space



Leadership
Expression



In the process innovative organizations manage flow of imagination....



.... Through Interoperability & Uncommon connections

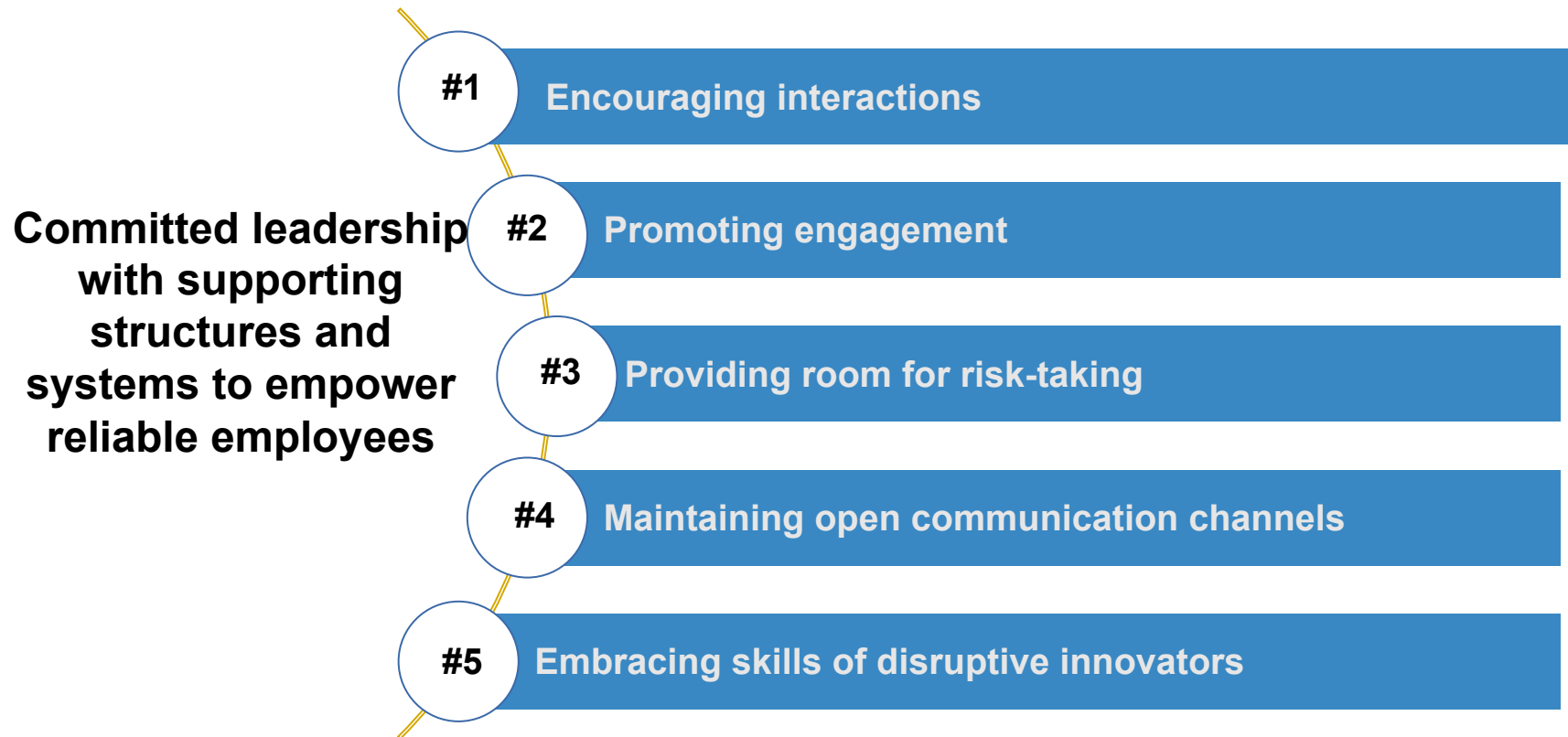


& Uncommon
Connections.....



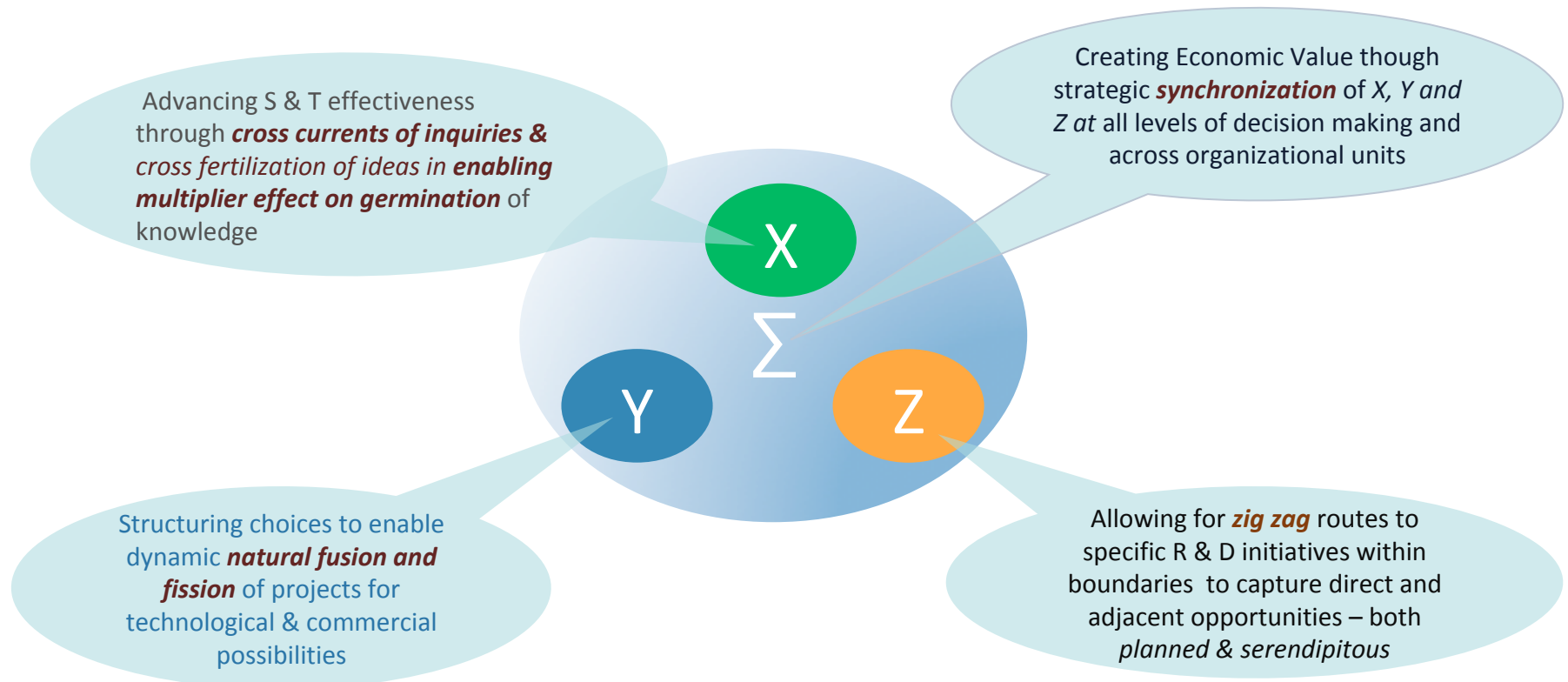
Interoperability

Key Success Factors for an Innovative Culture



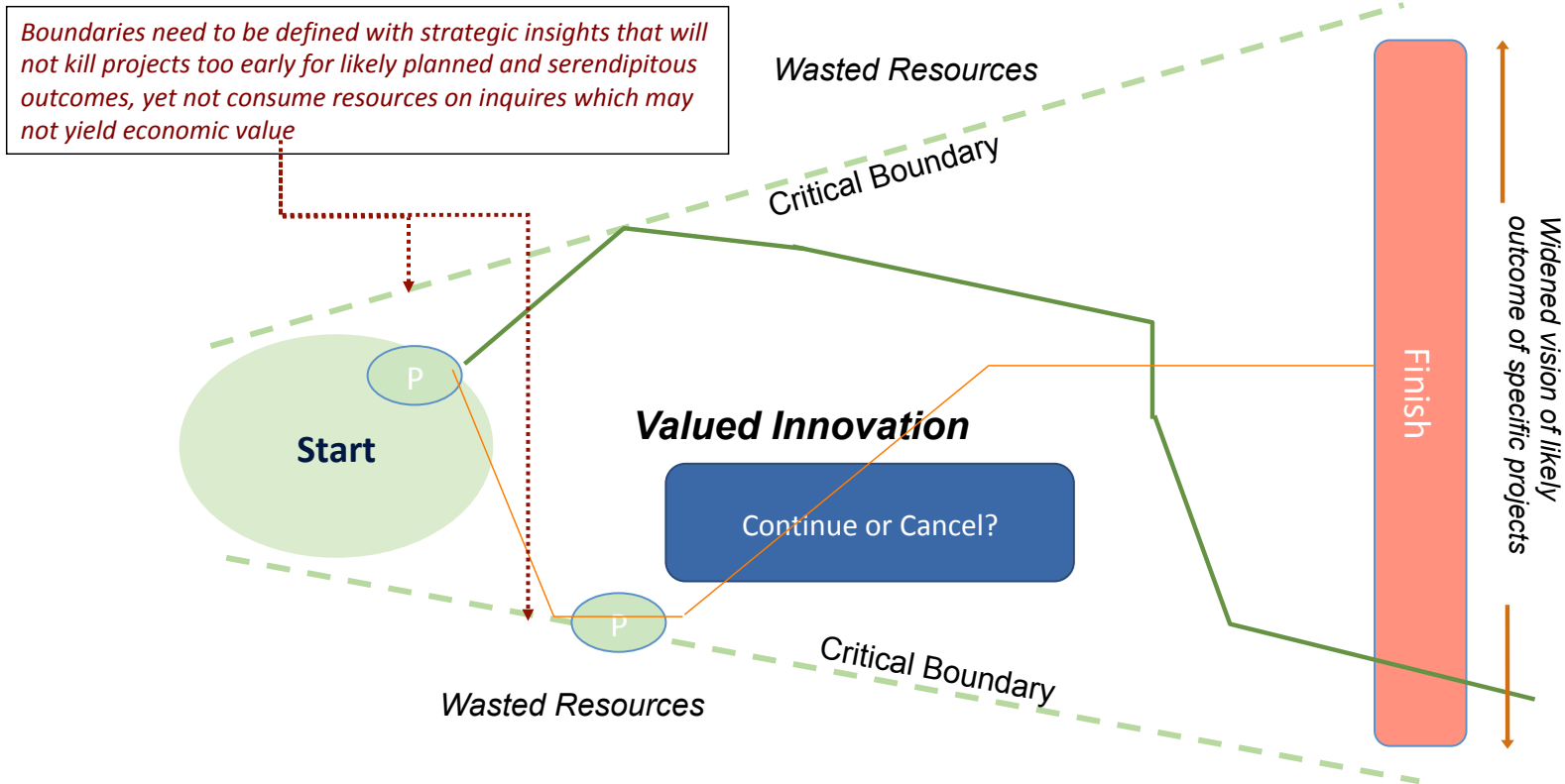
Innovation Process Framework

XYZ & Σ model (Partha Ghosh model)





Z: Zig- Zag Path of research within certain boundaries to capture planned or serendipitous outcomes



TED Style Events Help Improve Associational Thinking



Idea sharing platform

Drives connections to ideas

Provides networking opportunities

**= CREATIVITY
&
INNOVATION**



**a space
for ideas**

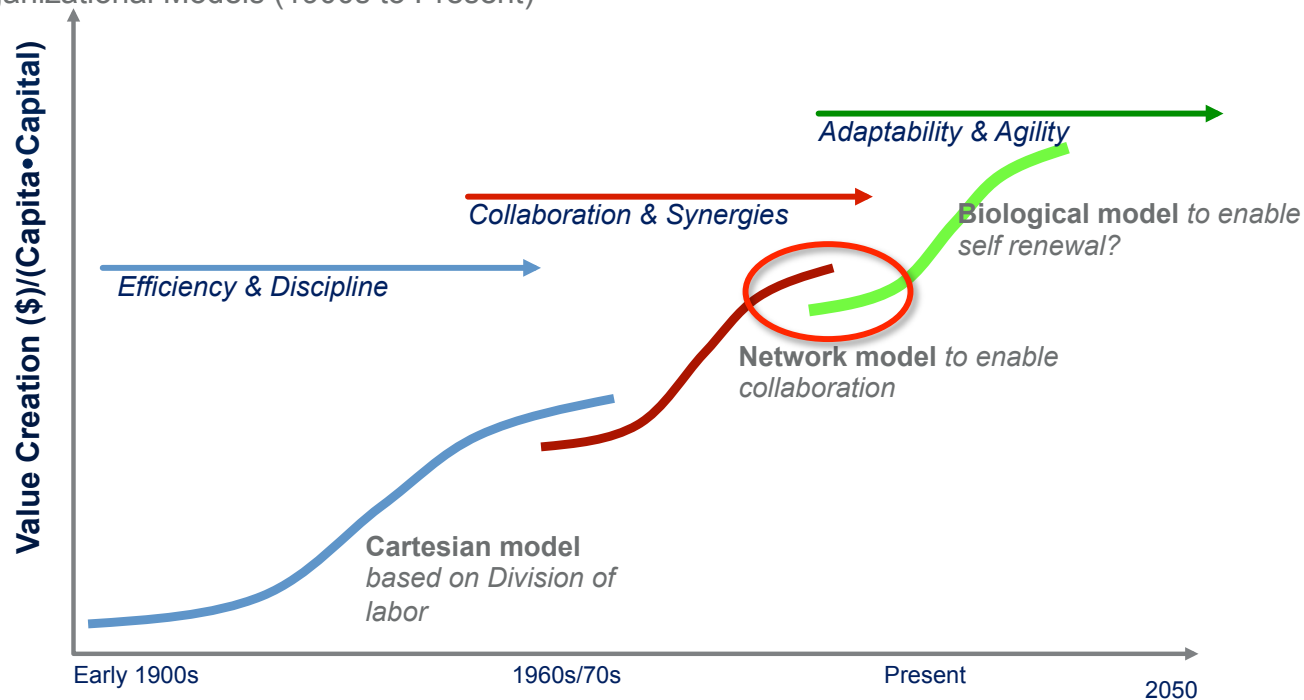
Source: Johnson & Johnson

In summary, we are indeed at the cusp of renewing the Art & Science of how businesses will work in the future



ORGANIZATIONAL EFFECTIVENESS

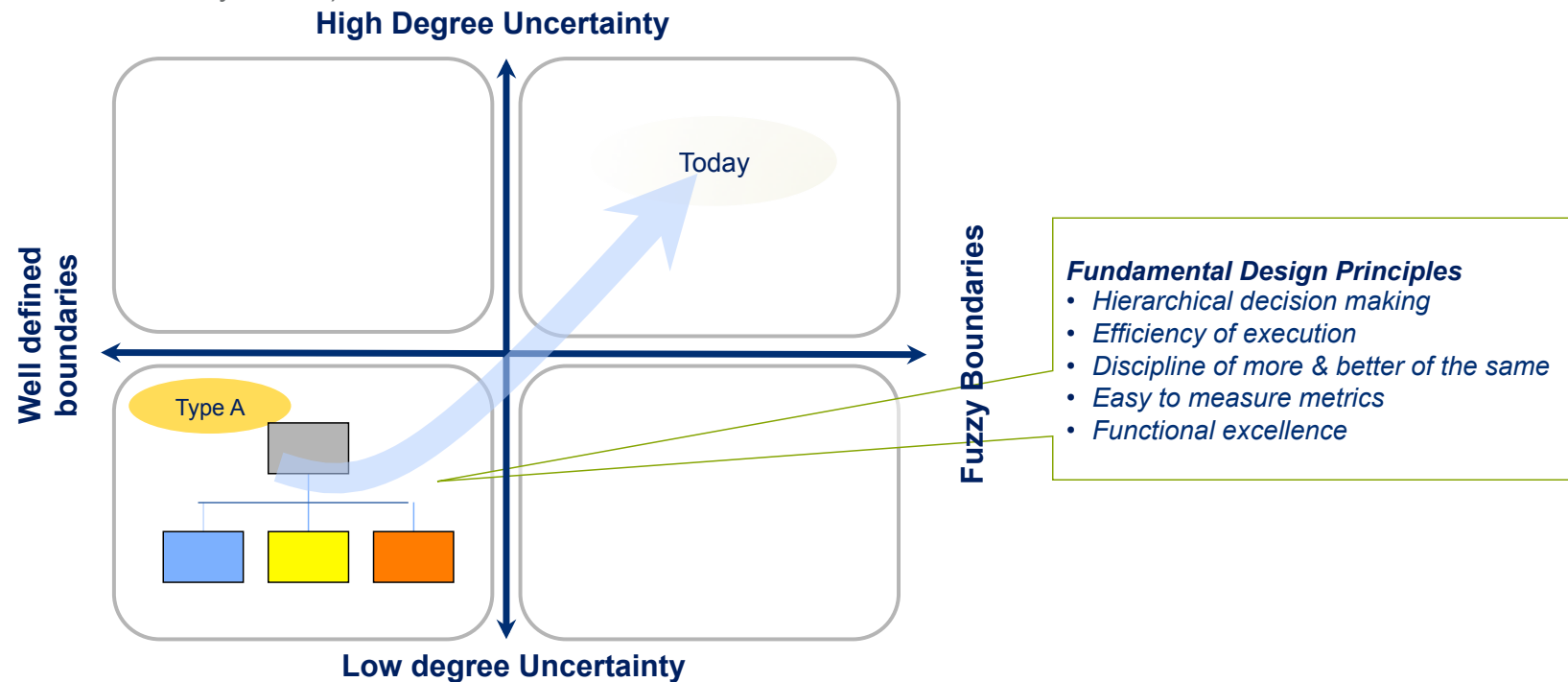
Waves of Organizational Models (1900s to Present)



So the challenge is how to develop organizational principles for the emerging environment



THE EMERGING ENVIRONMENT (Global socio-economic dynamics)



Largely because of our brains have been hard-wired to make certain kinds of errors...*efforts to change do not work(?)*



Biases

Implicit cognition

Cognitive shortcuts

Susceptibilities

Unconscious inference

Automated responses

Irrationalities

Sensory Misperceptions

Blind spots

Systemic cognitive errors

Psychological traps

ETHICAL FADING

Mind bugs

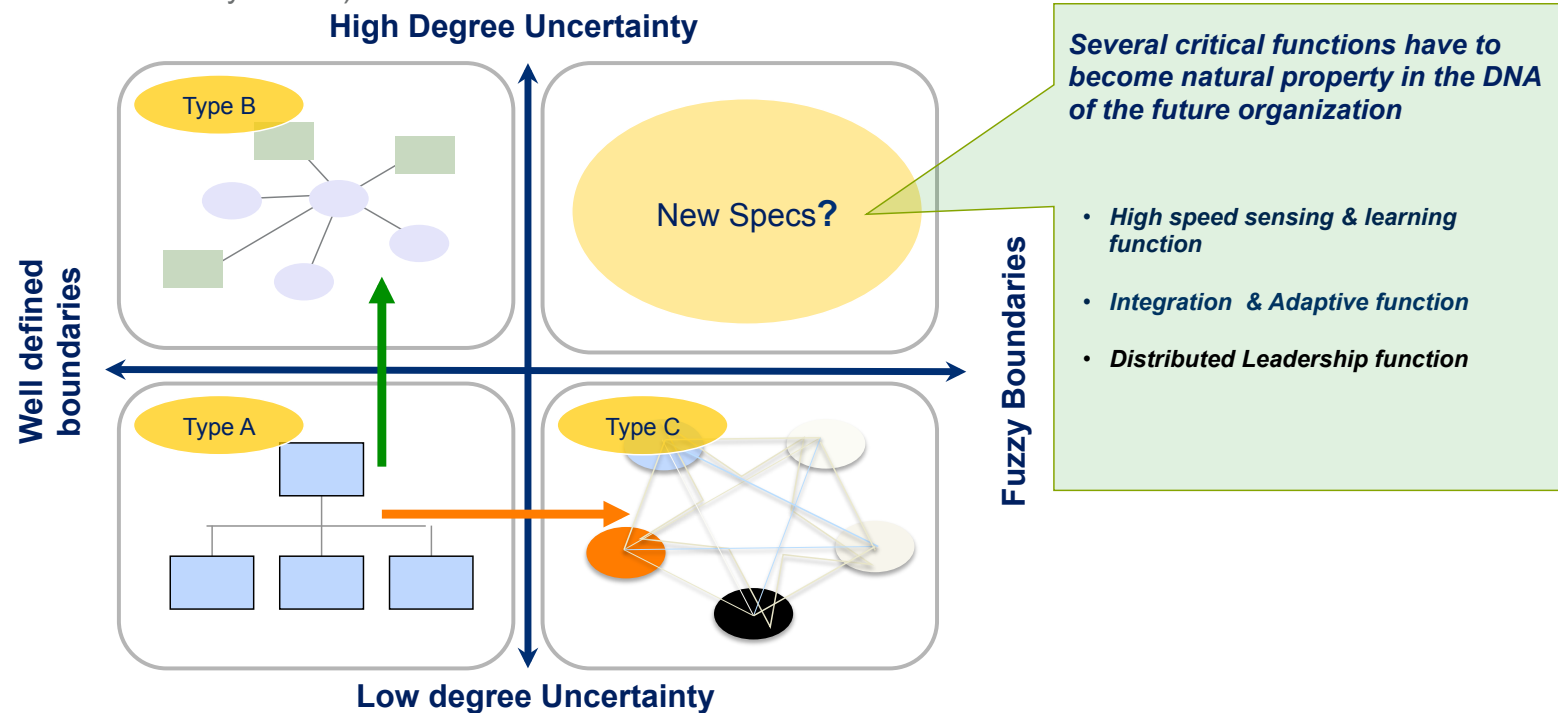
Unconscious thinking

Prejudices

Accordingly the emerging environment will require new approach in the design of future organizations



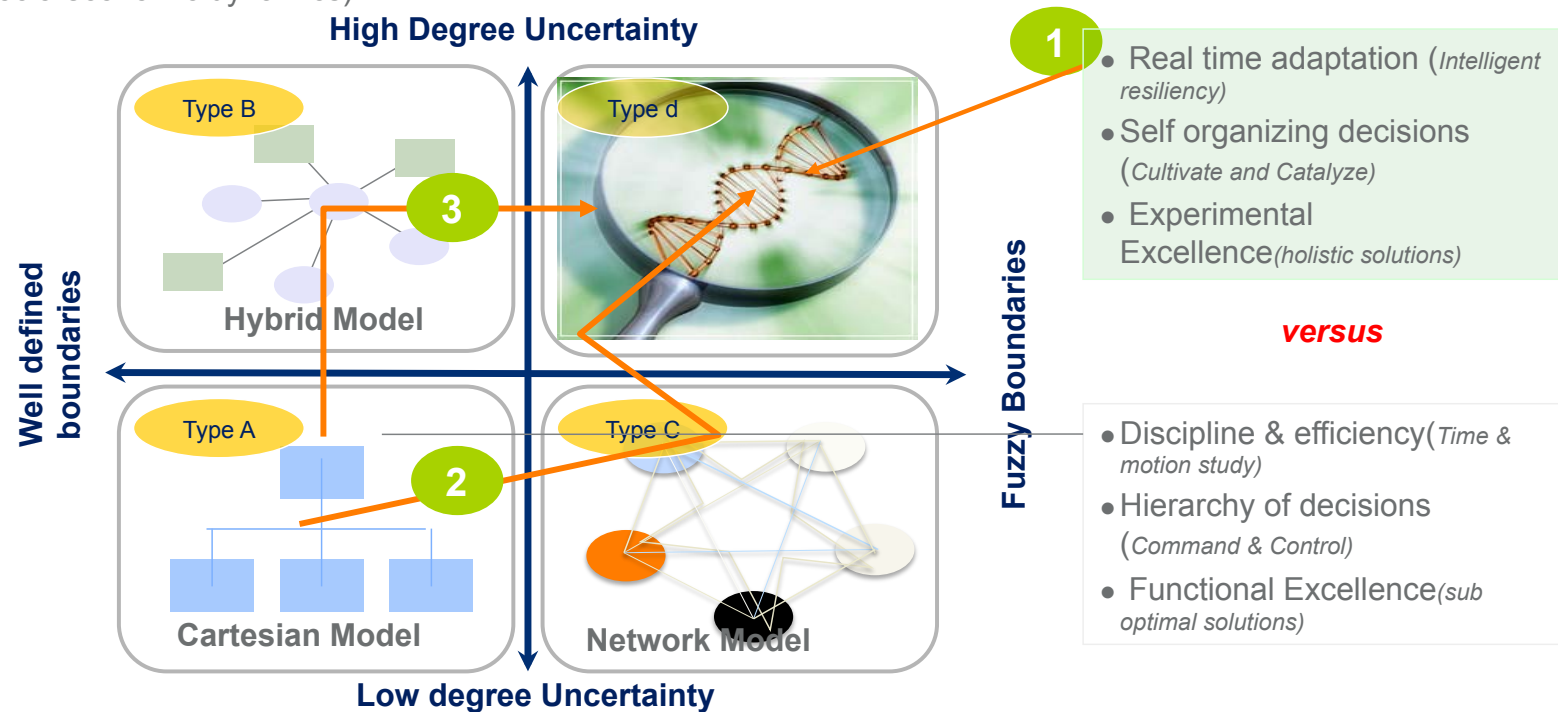
THE EMERGING ENVIRONMENT (Global socio-economic dynamics)



Adopting a “Biological model” will require careful planning in adopting the fundamentally new construct which is “*Intellect*” centric



THE EMERGING ENVIRONMENT (Global socio-economic dynamics)



Today three high level points....



1

Our Planet in Perspective
In the 21st Century?

Global order at point of inflection:
Not more and better of the same - Need
fundamentally a new approach

2

Next Phase *Imperatives*
Of China's socio-economic
advance?

**Socio-economic advance with a
broader perspective:** *Not low cost
supplier* – but “value based” partner

3

Towards Innovation Economy:
Dos & Don'ts?

**New Organizational mechanisms
that will foster “conditions” that
enable frontier thoughts:** *Not
mechanist* but “biological” model

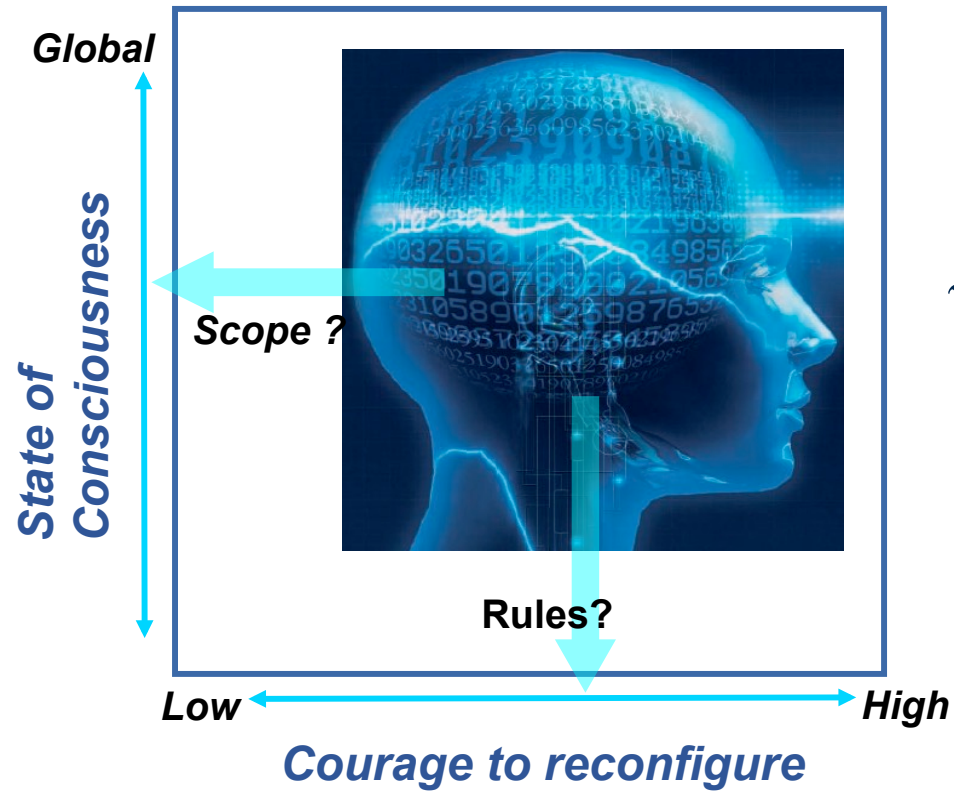
At the end it is the discipline that enables dynamic equilibrium between *the spirit of enquiry & structured logic* to make effective bets in areas yet to develop



- *Learn from yesterday, live for today, hope for tomorrow. The important thing is to not stop questioning*
- *Innovation is not the product of logical thought, although the result is tied to logical structure.*

Albert Einstein

Two Significant Requirements for Ideation Economy



*Future belongs to those
who believe in the beauty
of their dreams"*

- Eleanor Roosevelt



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Partha S Ghosh a true global citizen, is known worldwide as an innovator of Business and Economic models. Currently he enjoys advisory relationships with multiple organizations in more than half a dozen nations. He helps boards of companies to be strategically more effective and corporate governance more trustworthy. In the last forty years as a professional consultant to leaderships of prestigious organizations worldwide, he has been involved in a broad spectrum of strategic and policy issues in technology based industries. across three dozen nations. He has also done extensive work for heads of nations in assessing a country's competitive advantage in various industries and in defining strategic pathways for accelerated socio-economic development.

Dr. Ghosh is respected by leaderships of Corporates and Governments as *an innovative problem solver and as an inspirational speaker/mentor*. As an active writer and inspiring public speaker, Dr. Ghosh has delivered more than hundred key note addresses in significant leadership forums around the world on issues related to Strategic Technology and Innovation management, Leadership & Ethics, Corporate governance and Economic development

His clients view him as a *"creative problem solver"* and a *"visionary leader."* In addition, for more than a decade he has been teaching Globalization & Economics at **Tufts Gordon Institute**, Innovation & Strategic Technologies at the **Fletcher School**, and Leadership at **MIT** (2005 ~2010). Earlier Mr. Ghosh as a Partner at **McKinsey & Company** and then as the founder/Managing director of Strategy/Policy advisory firm **Partha S Ghosh & Associates**, he worked with corporate leaderships in Asia (Japan, South Korea, Taiwan China, SEA, India) Middle East, Africa, Europe and the Americas. Recipient of several medals, *recently he received the prestigious Distinguished Alumnus Award from Indian Institute of Technology (IIT) and Honorary D.Sc from Adamas University for his outstanding professional accomplishments across industries worldwide.*

Partha Ghosh believes that in the next 25 years the world economy will undergo profound changes which civilization has never experienced before. Industries and governments will need to reinvent the basic tenants of capitalism implying fundamental transformation of industry and economic models. He passionately advocates that through forward looking strategic and organization models, MNCs could uniquely lead the Global Renaissance. Working with leaders of MNCs the basic question that he wishes to address is: - could leaderships of MNCs rekindle the spirit of exploration and bottom up excitement to draw people towards a higher-level purpose in *creating new knowledge intensive business models and industries in the 21st century? He thinks if the will is there, a transformed eco friendly and energy efficient world, which is more equitable, is indeed within the realm of possibility.*

He has two advanced Engineering and Management degrees from Massachusetts Institute of Technology. He did his undergraduate work at Indian Institute of Technology. An avid public servant, he is one of the founding members of The Boston Pledge, and is involved with multiple philanthropic initiatives around the world. Given his wide range of interests from education reforms, philosophy, international relationships, science & engineering, business & economics, country management, public service, and his experience across cultures and industries, people who know him well, describe him as *"modern day renaissance man"*.

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