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New World Patterns Drivers and Models of Innovation



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1. Copernican R&DI Revolution from West to East...

2. Lessons to draw from Shanzhai Innovations

New Patterns of Innovation... Are there other Drivers and/or Models?

3. Towards New Ways for Smart Differentiation...

Part 1

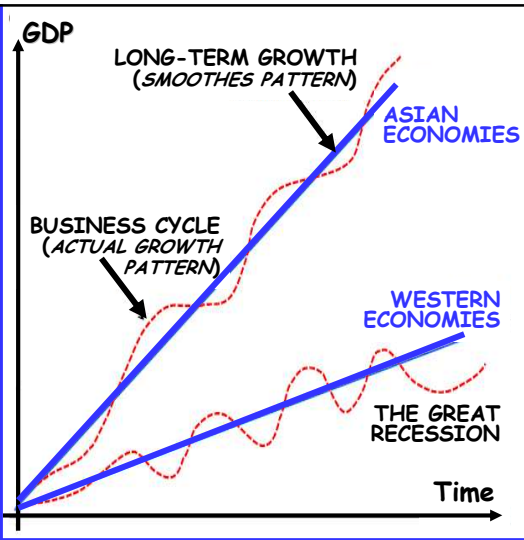
During the last decade, Asian countries have seen high sustained rates of growth and subdued business fluctuations.

West, that boomed in the 90s due to years of investment in the assimilation of IT by both government & industry, finally paid off in accelerated productivity growth.

The message is that modern economy can't grow over time simply by stimulating demand.

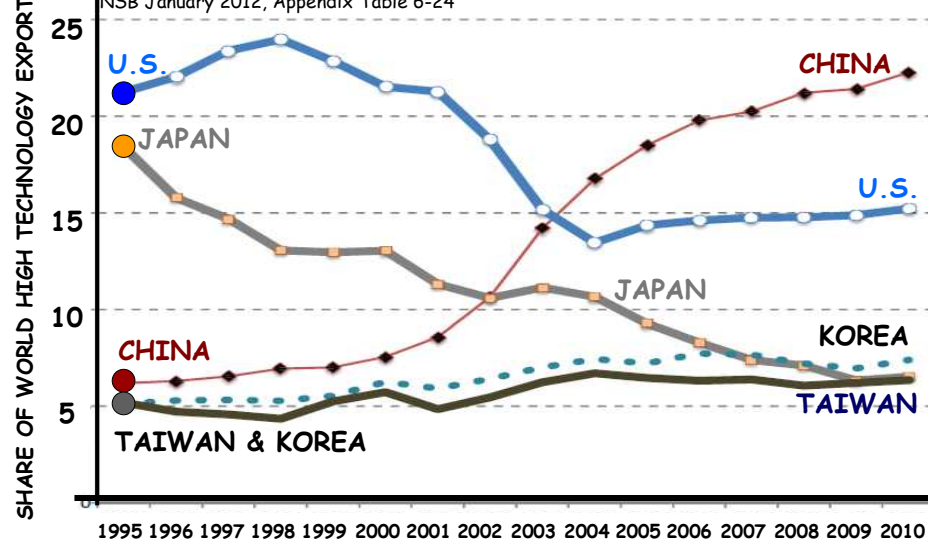
The process of globalisation began rather innocently in the 70s and 80s, with industrialised countries outsourcing low paying manufacturing and service jobs to poorer but aggressive Asian economies.

Economies now realise huge needs for structural reforms in education, investment in technology, more efficient industry structures and government-industry partnerships.



WORLD EXPORT SHARES OF HIGH-TECH GOODS

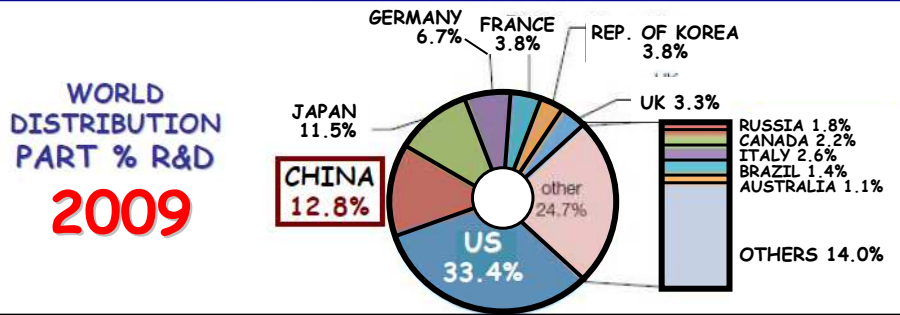
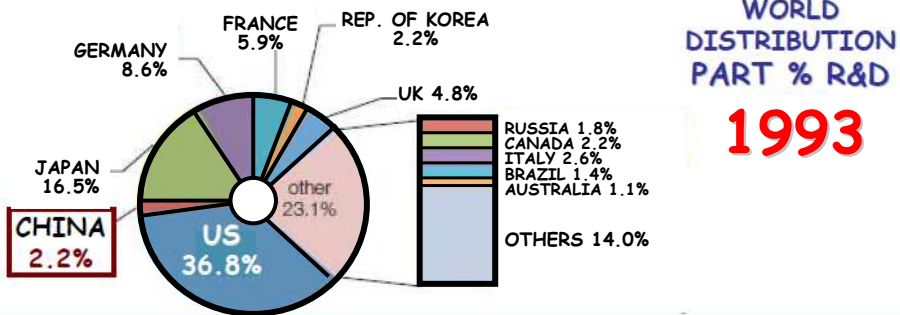
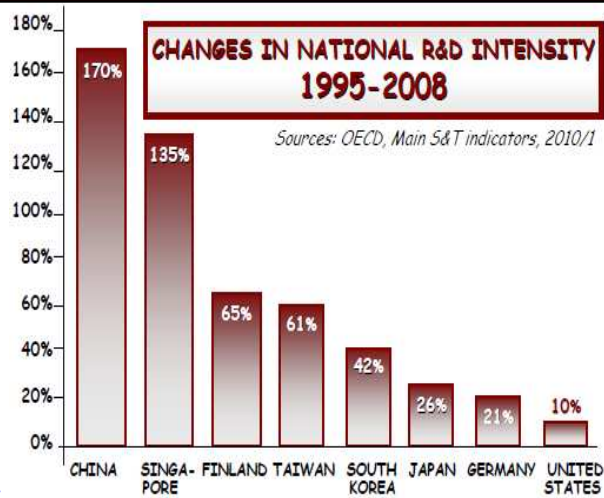
Source: U.S. National Science Foundation, U.S. National Center for Science and Engineering Statistics, *Science and Engineering Indicators 2012*, NSB January 2012, Appendix Table 6-24



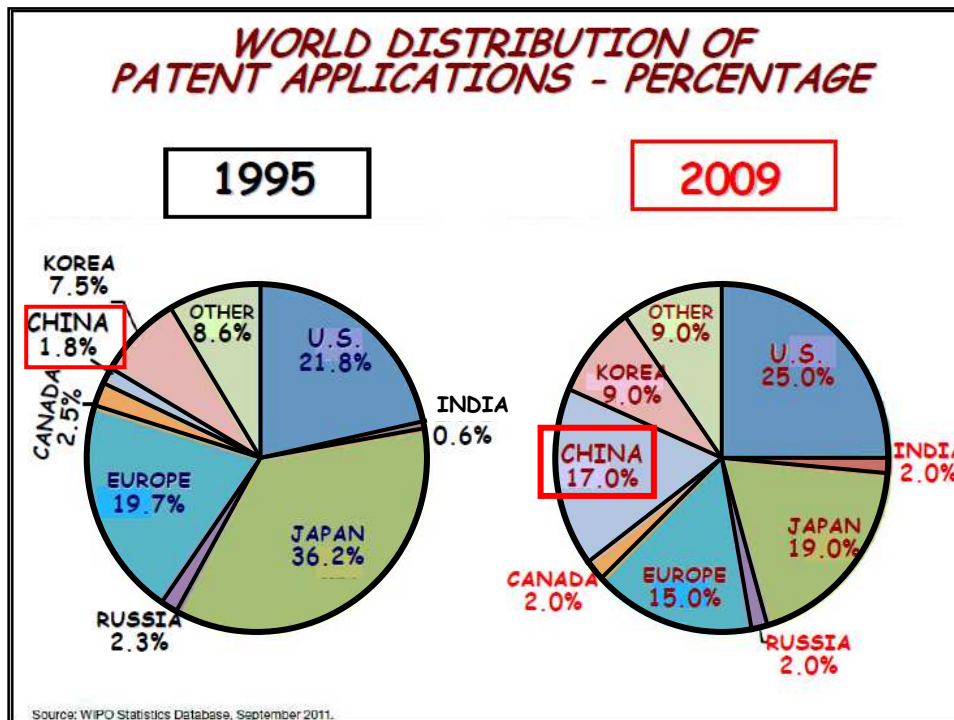
China has increased its R&D intensity by 170% over the past 15 years.

Robert-Jan Smits, DG Research & Innovation /European Commission characterised Europe's new **Innovation Union** strategy as the "first time that EU has implemented a counter-cyclical investment policy in support of Research and Innovation during an economic downturn."

The U.S. economic growth policy infrastructure also needed to embrace the critical role of technology in response to several decades of Research that is the major long-term driver of productivity and income growth.



WORLD DISTRIBUTION OF PATENT APPLICATIONS - PERCENTAGE

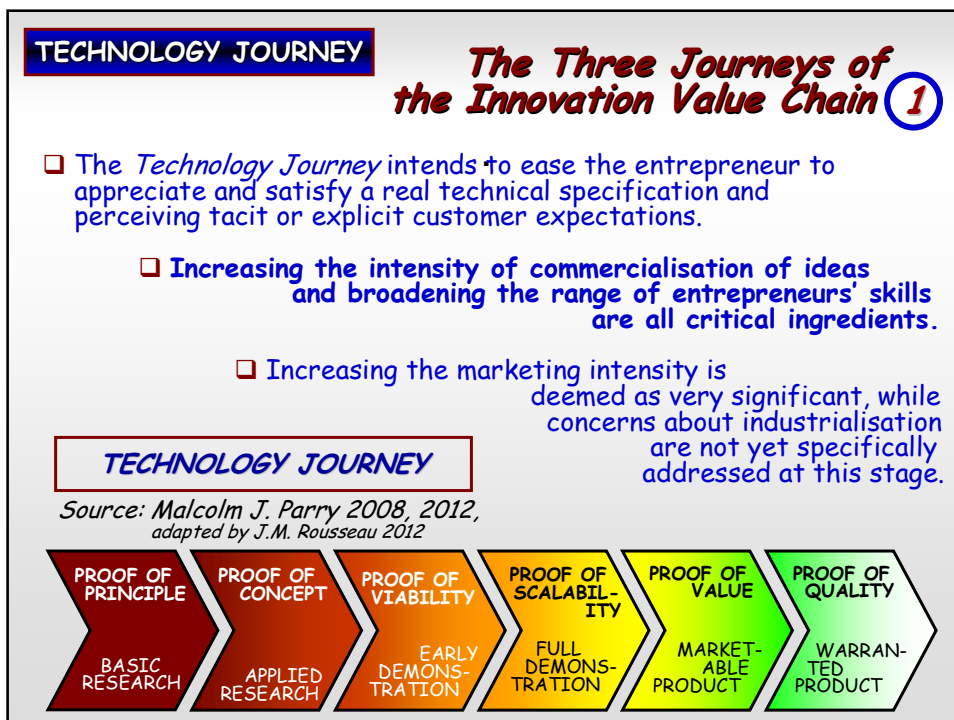
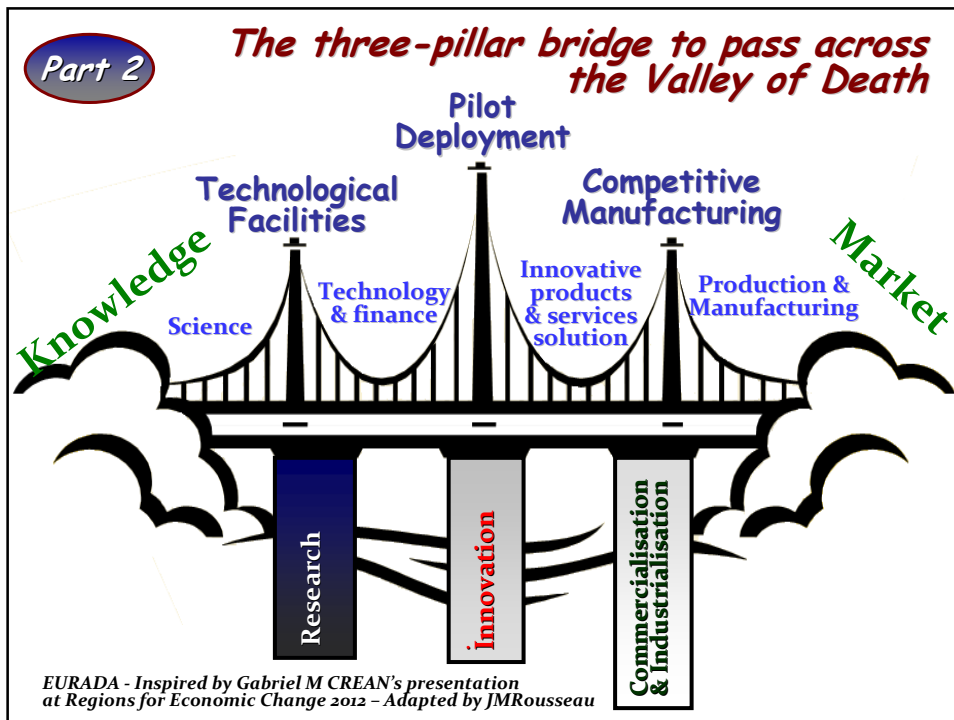


China's Phenomenal Growth Engine and its Innovation Strategy

- Leading-edge innovation of sophisticated products is neither sufficient nor necessary for sustained economic growth.
- China's secret lies in its skill in a new way of innovation, making at the moment things in new and better ways, rather than inventing better things.
- With a new speedy strategy, Chinese firms run as fast as they can stay in the same spot right at the global technology frontier, but also actually advancing it.



- Apple engineers design the *iPhone* in America.
- Within three weeks, Chinese engineers know how to make it in China: *faster, cheaper, better!*

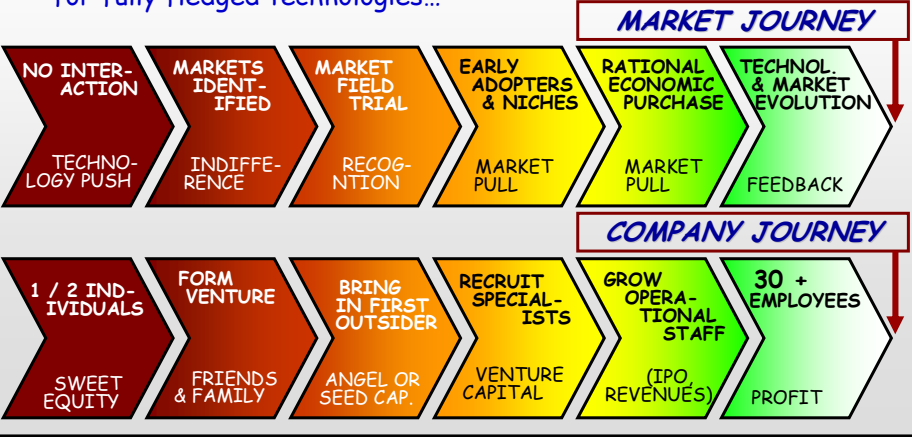


MARKET JOURNEY
COMPANY JOURNEY
TECHNOLOGY JOURNEY

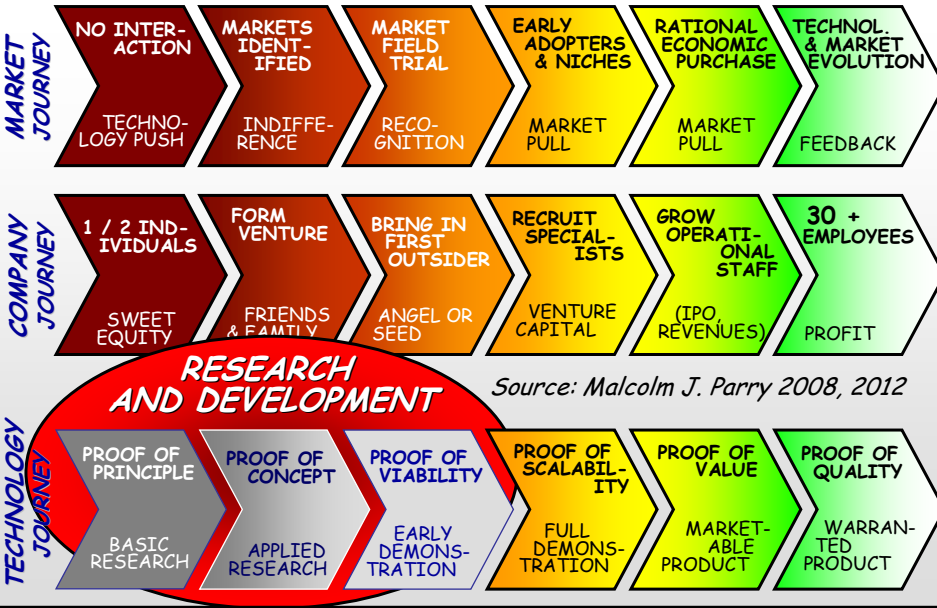
The Three Journeys of the Innovation Value Chain

Source: Malcolm J. Parry 2008, 2012,

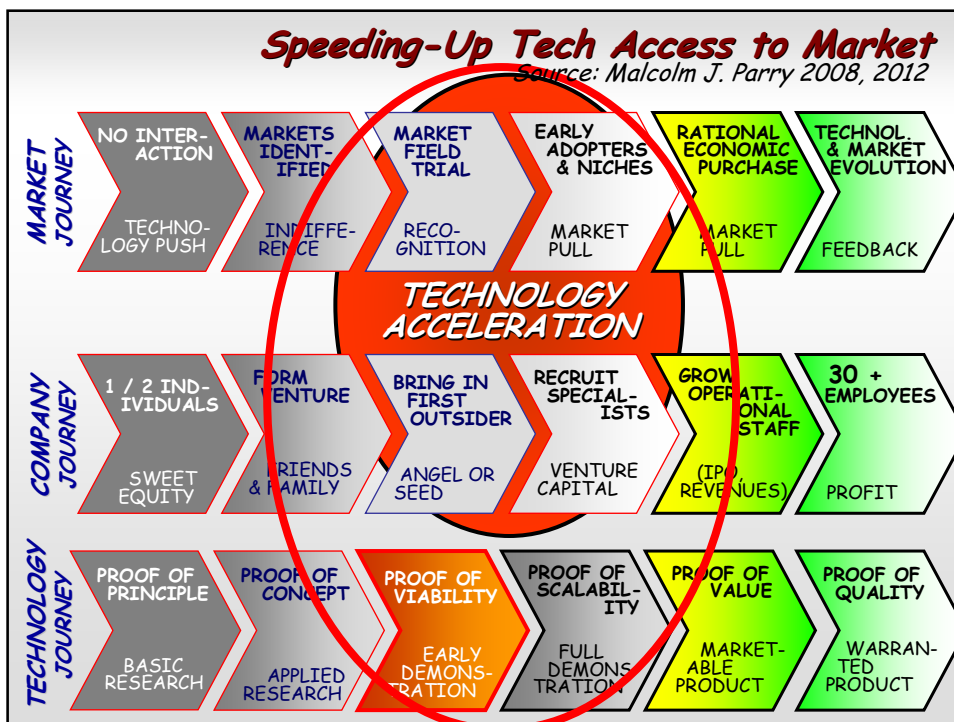
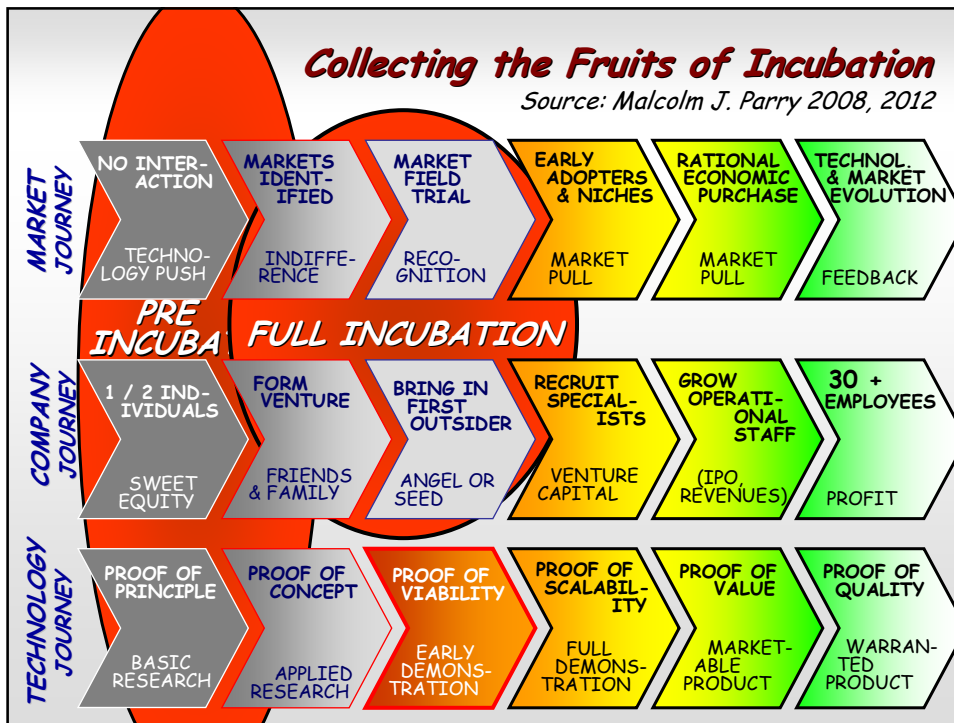
- ❑ *Company Journey* starts in an exploratory phase of ideas' promotion;
- ❑ Eventually, the complete adoption of a full *Market Journey's* phase will be the objective within a real competitive intelligence process for fully fledged technologies...

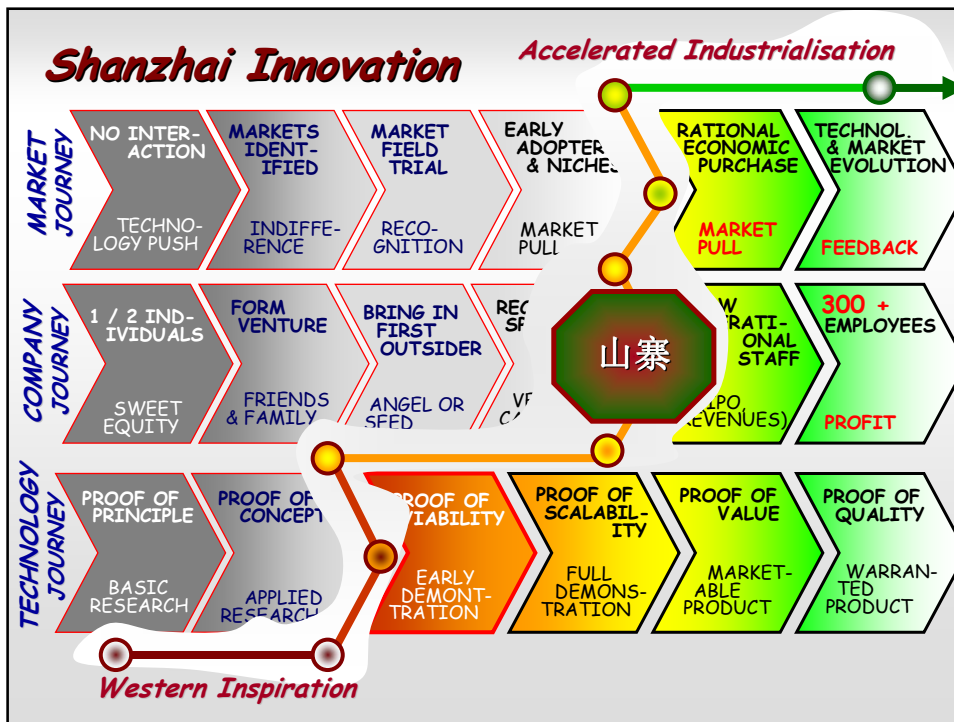
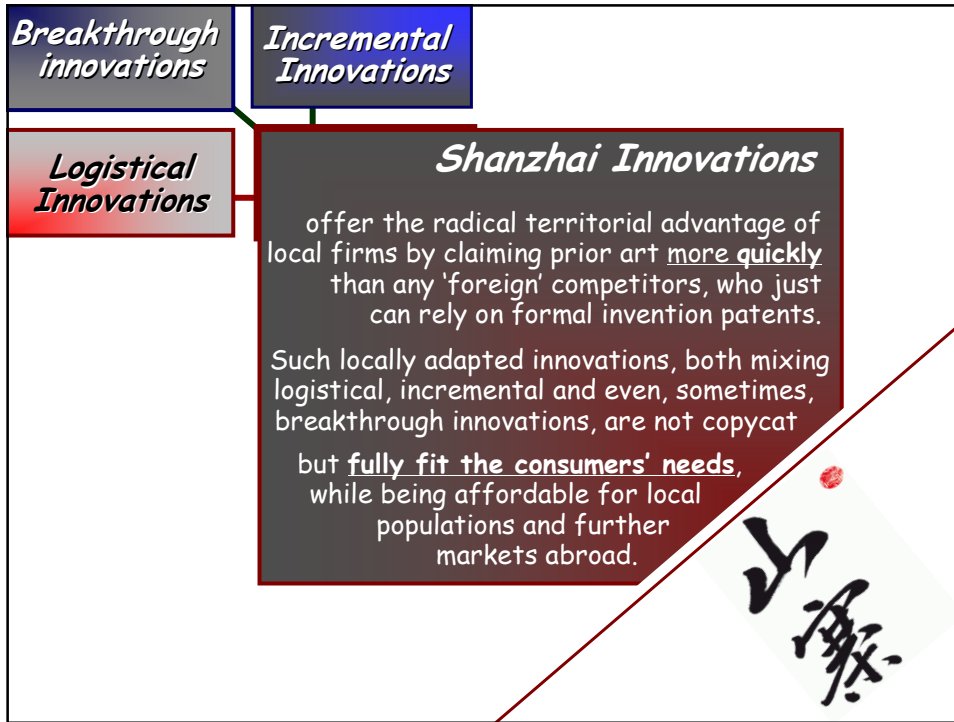


Benefiting From R&D or S&T services + Technology Transfer pre-activities



Source: Malcolm J. Parry 2008, 2012





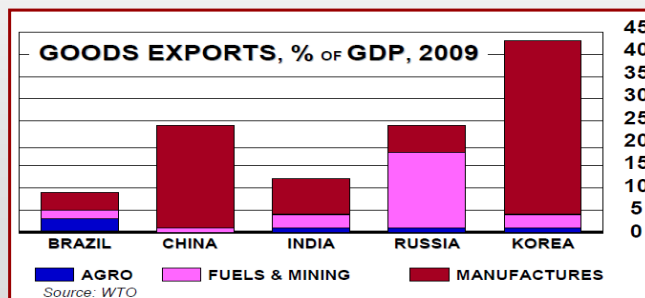
Part 3

Heeding some lessons to be successful

- **Chinese players have Will and Capital**
to compete in most major industries & are quickly acquiring high-tech on the basis of innovation leadership.
- **In contrast, Western approaches should be considered as follows:**
 - **Accelerating the speed of technology development**
The pace of imitation is quickening, while companies should consider establishing R&D organisations and exploring other ways to speed up technological advancement & innovation;
 - **Avoiding tradeoffs between quality and productivity when entering premium markets**
When a company wants to succeed in high-end markets, it must prove that it has high standards for product quality, and that those standards do not come at the expense of productivity.

How South Korea successfully managed to compete with China?

- **China's manufacturers have a competitive advantage over Korea's**
in terms of the cost of materials and labour, the size of home market, and the amount and types of government support they receive.
- **South Korean companies, however, are ahead of their Chinese rivals**
in terms of productivity per unit of capital, technological sophistication, product quality, brand power, while stepping up their pace of innovation to meet consumers' ever-changing needs and preferences.
- **Korean companies also started competing on cost**



They can pursue an aggressive relocation plan & shift some of their bases from China - offshore-manufacturing - (90% in 2000 dropped to 70% in 2010) to lower-cost countries, such as India, Vietnam and Indonesia.

Assessing World Competition

The Comfort Zone

Industries that rely on *implicit knowledge* and have a *fast-clock innovation cycle*: most difficult to enter;

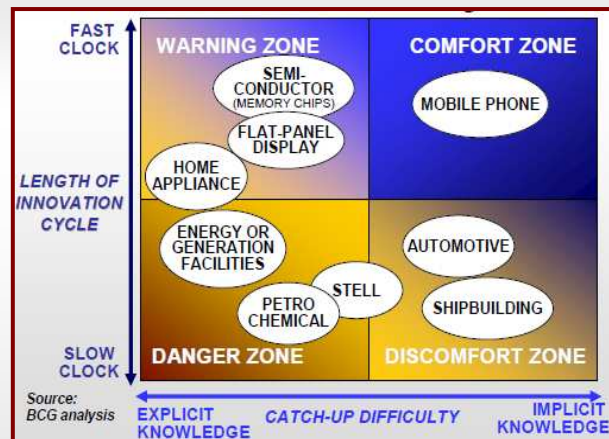
The Discomfort Zone

Industries that depend on *implicit knowledge* & have a *slow-clock innovation cycle*: at risk, as

introducing a disruptive technology that speeds up the pace of change.

The Danger Zone - Industries that rely on *explicit knowledge* and have a *slim advantage over Chinese competitors*: quite vulnerable when Chinese competitors process most of know-how.

The Warning Zone - Industries that depend on *explicit knowledge* and have a *fast-clock innovation cycle*: still affordable, although difficult for rivals to overtake owing to continuous tech-innovation.



When Production Can Help Re-Innovate

- ❑ The idea of "divisibility" of R&D and manufacturing as well as "*distance*" between R&D and manufacturing has prevailed in the last 25 years in the Western countries...
- ❑ while Innovation needs a two-way feedback, iteratively from R&D to production, but also from production to R&D, as the act of production creates knowledge about the process and the product design.
 - ❑ In fact, Systems of Innovation are often seen to be for their own sake.
 - ❑ The previous low-skilled and low-paid worker thus reincarnates into an engineer, who re-innovates through the re-appropriation of intellectual capital, for climbing up the Innovation value chain.

'Valley of Death' versus 'Blooming Picks of Innovation'

- Compounding the commercialisation problems at the basic-Research level is the so-called "**Valley of Death**" financing gap faced within the regions by innovative new companies seeking the money they need to carry new products and services from the design phase to the marketplace.



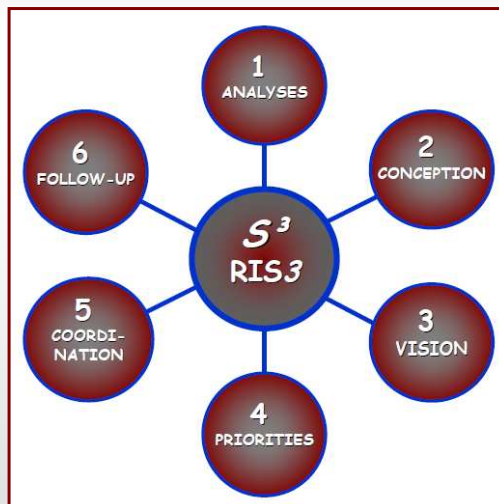
- Moreover, when turning its focus away from manufacturing,



firms risk losing the opportunities to profit from "**Picks of Innovation**" which are more often blooming on **assembly lines & industry facilities**, than in **research centres & labs**.

Smart Specialisation Strategies: Justification and Implementation

- Smart Specialisation** is set to become a significant policy rationale in the upcoming Structural funding **2014 2020**.
- Its application in regions often leads partners to face a situation with scarce resources and limited budgets to be allocated according to global competition and inherited resources.



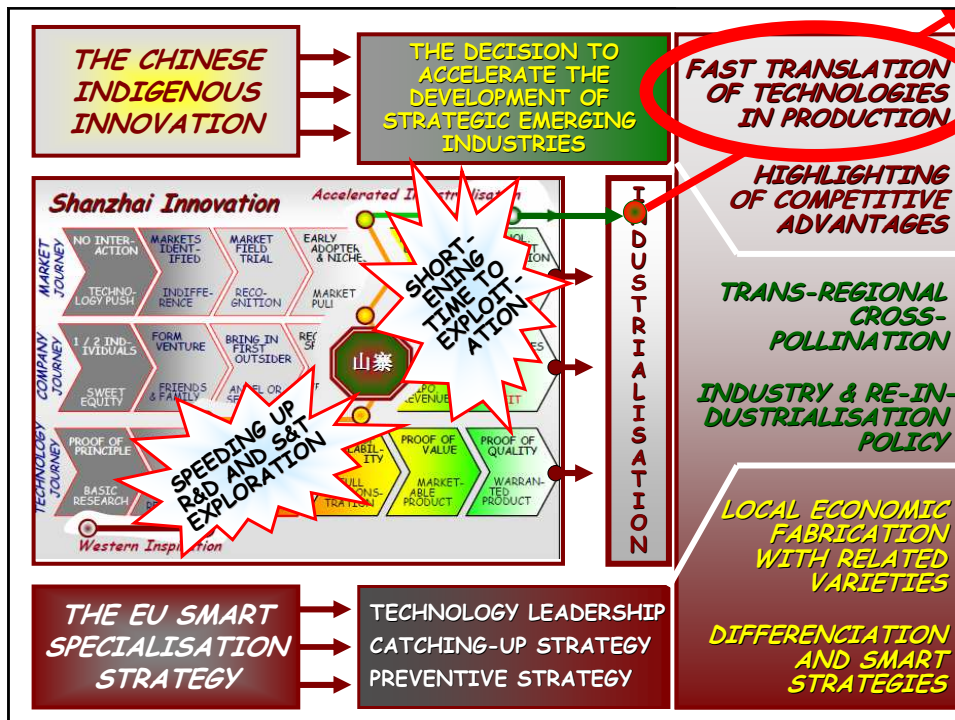
- Thus, regional governments need to design policies in such a way as to support the most promising areas of present and future competitive advantage in order to foster regional prosperity.

Smart Specialisation Strategy: Expectations and Impacts

- ❑ **Smart Specialisation** demands
a concentration of resources on certain sectors...
- ❑ **Smart Specialisation** is much more
than placing greater emphasis on innovation and
focusing on scarce human & financial resources in a few
globally competitive areas to boost economic growth and prosperity.
- ❑ While classic approaches to policy making have often been that
governance structures should complement economic structures,
the rationale of the **Smart Specialisation Strategy** is
that Policy makers should, actively and permanently,
assist in the adaptation of economic structures for
allowing regions to respond to global competition.

Smart Specialisation Strategy with Two Main Dimensions

- ❑ **Smart Specialisation** intertwines both dimensions:
 - **Governance** for enhancing social capital,
connecting the innovation landscape, and
shortening the distance between the local actors,
 - **Market** by paying a special attention to the consumers' expectations,
and accelerating the pace of the 'journey' between
the concept ('ideation') and the industrialisation.
- ❑ **Smart Specialisation** both relies in political & economic theories
in order to take advantage of both lines of reasoning.
 - ❑ **Smart Specialisation** demands a thorough assessment
of the **Regional Innovation System**, for understanding
 - the evolutionary nature of regional economies, and
 - also the design of appropriate policy-making.



Territorial Intelligence, Smart Specialisation, and Technologies' Translation in Production!!

- **Territorial intelligence** is needed to identify the high value-added activities within cohesive territories that offer the best chance of **strengthening their competitiveness**.
- **Smart Specialisation** can help these cohesive territories concentrate resources on a limited set of key priorities, and find out fields that **could make them differentiated...**
- There is a need for a re-orientation of activities towards areas that give the best chance of **competitive advantage**, provided these territories, with their enterprises and research labs, could keep a strong capacity to quickly **Translate Technologies in Production**.

Thank you for your attention!



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