

PACKAGING VALUE CHAIN

MODULE 4:

ECONOMIC EFFECTIVENESS OF

PACKAGING VALUE CHAIN

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As the packaging value chain is refined, it will provide great opportunities for packaging

Overview

- Packaging can enable needed **agility** as top economies reshuffle
- Packaging can be optimized to meet needs of **growing urbanization**
- Packaging will moderate in **effective resource management**
- Packaging will **facilitate data sharing**
- **Clusters** can be employed to extend economic effectiveness in the value chain

Packaging can enable agility as top economies reshuffle

- VUCA (volatile, uncertain, complex, ambiguous) society demands agility in packaging
- By focusing on each link's value, packaging can **uniquely** offer this agility
 - Packaging's various finished goods phases enable faster reaction time
 - Example – skin graft packaging & disaster mgmt
 - Packaging's role is **evolving** within the value chain
 - Linkages between preferred suppliers & CPG are evolving into **competitive** advantages in agility
 - Example - Siemens scouts & BASF
 - Research on increasing **responsiveness**, core technologies (inks, tertiary packaging, labeling and REACH) have focused innovation on finished goods flexibility

Packaging can enable agility as top economies reshuffle cont

- Global investments have changed focus from universal design to global packaging solutions
 - Chinese investors have enterprises in 200+ countries (in 2012; in 2005 <5)
 - Investors **guide** solutions
 - Packaging suppliers are globally **integrating** by solutions versus product
 - Example - BASF and competitors linked
 - Research focus can provide global solutions and switch from universal design to **global design**
 - Example - Japan's senior market and low income market in USA

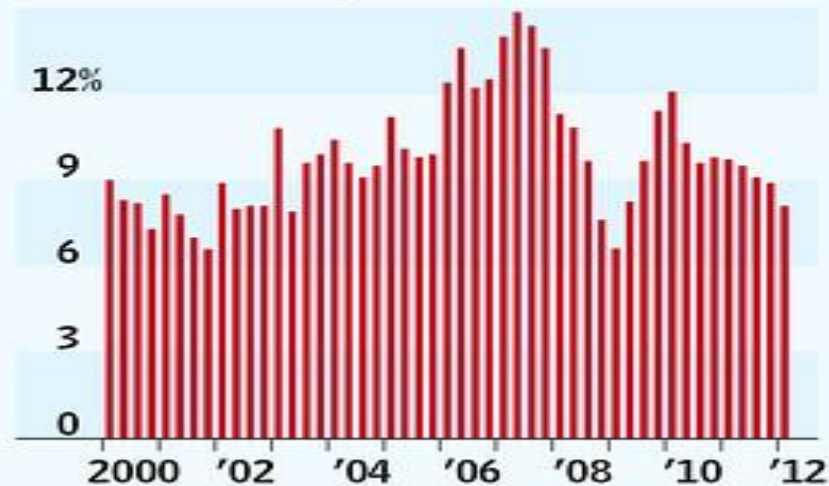


Packaging can enable agility as top economies reshuffle cont

- Packaging can be agile to meet needs of the 4 billion consumers at pyramid's base - a \$5 trillion global market.
 - Packaging can **enable** affordable choices for these consumers
 - China's model for **importing** pulp and RPET vs using indigenous resources
 - Enables China to **define** global packaging prices

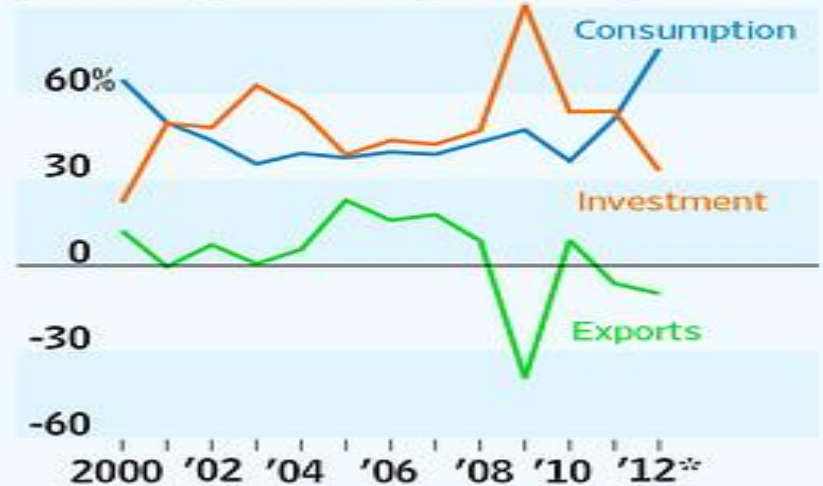
China's GDP Growth Slows

Year-on-year growth in quarterly gross domestic product



*First quarter Sources: CEIC, National Bureau of Statistics

Contribution to gross domestic product growth as percentage



The Wall Street Journal

Packaging can enable agility as top economies reshuffle cont



- Packaging needs to technically **leapfrog** to provide product protection and a market
 - Example - distribution in Colombia
- Packaging can **facilitate** manufacturing value added goods versus raw material exports
 - Example - Kenyan coffee
 - Reveals opportunity to use **historically** indigenous materials (e.g., jute)
- Research **potential** in facilitating leapfrogging in technology is high

Packaging can enable agility as top economies reshuffle cont

- Packaging can uniquely meet needs of growing **middle** class in BRIC and MENA countries
 - Packaging focuses on identifying **sustainable** indigenous packaging within these countries
 - Example – opportunity in olive oil (Brazil)
 - Brazil's new National Solid Waste Law (#12305/2010)



Packaging can enable agility as top economies reshuffle cont

- AZ has minimal polymer industry yet is flush with oil
- Masdar (UAE) concept can be applied to and linked with packaging
- Nigerian initiatives on waste
- Research on polymer science, basic material science and renewable technologies can fuel and focus research

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Packaging can be optimized for growing urbanization

- Urban market is growing
 - About 2 million people/month become **urban** dwellers in Asia.
 - Urban households have 3 times more disposable income than rural
 - Packaging can meet this market need through research on focused urban needs
 - Example – optimization of aseptic pkg



Packaging can be optimized for growing urbanization cont

- Packaging can **facilitate** the distribution via alternative channels (versus traditional models) to meet urban needs
 - A future value chain defined by consumer led value will optimize packaging based on global urban and rural consumers
 - Example - Medical contract packaging & Anderson's window walls & UHP
 - Optimal packaging technology focuses on post consumer **disposal** in urban areas (DSD)
- Consumer specific packaging is growing
 - Kids design Legos and package
 - Pepsi's **35** package graphics alternatives in 2007
- Packaging research on **predictive** restocking (beyond RFID) to make consumer and post consumer packaging seamless

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Packaging will moderate in effective resource management

- The future value chain links the post consumer value of packaging with **raw materials**
 - This moderates research to focus on raw material production - the largest energy use in packaging
 - Packaging processes are being **refined** to use less water and energy
 - 28% of US consumers are **LOHAS**
- Packaging's role is **unique** due to the short use of the packaging
- Packaging is also unique in that it is global since packages are made and disposed worldwide vs products being consumed or used as durable goods.
 - Packaging research leads the way for **regeneration** of manufactured goods.
 - Example - reusable packaging before reusable computers

Packaging will moderate in effective resource management cont

- Packaging's role in the value chain can link raw materials with post consumer environment
- Progress **mirrors** the future
 - Example –EU's **APEAL** industry initiatives provide image of potential in packaging
 - Example - KLM
 - Example - **Migros** exceeded Switzerland's PET recycling goal
- Future role in value chain is collaborative
- Global powerhouses (WWF, CERES, Forum for Future) **are engaged**
 - Ink's conversion from solvent to water pales by comparison to future initiatives – **2010 resolution** on Barcelona laid out plan for research need
 - **Mattel's** reduced impact of shipping
 - **Transparency** of J&J Healthy Planet 2010

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Packaging will facilitate data sharing

- Back to VUCA.
- Recent economic downturn required shift of packaging
 - Example – retailers
 - Revealed higher need for data sharing to respond
 - **Systems** being redeveloped
- Connecting raw materials suppliers to post consumer is next step in sharing data
 - Example - Successes in Japan



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Packaging will facilitate data sharing cont

- Value chains will be driven by **collaborative** information
 - Facilitate shared data and structures
 - Task based to aid in tacit learning
- **EN 643** ensures the quality of recovered paper and improves traceability
- Research on flexible technologies
 - Example - **contingency** packaging

Clusters address economic effectiveness of value chain

A Cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities (external economies)

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Clusters are motivated by economics

Motivated by the:

- 5 trends
- Shift from vertical integration to relying on outside suppliers, partners, and institutions
- Increasing knowledge and skill intensity of competition
- Globalization of markets and value chains
- Nations and regions compete to attract specific business

Clusters enable value chain economic effectiveness

Clusters Increase Productivity / Efficiency

- Efficient access to specialized inputs, services, employees, information, institutions, training programs, and other “public goods” (local outsourcing)
- **Manage knowledge** via coordination and transactions across firms
- Rapid diffusion of best practices and **tacit knowledge**
- Ongoing, visible performance comparisons and strong incentives to improve that align **shared value**

Clusters Stimulate and Enable Innovations

- Greater likelihood of perceiving **meaningful** innovation opportunities (e.g., unmet needs, sophisticated customers, combinations of services or technologies)
- Presence of multiple suppliers and institutions to assist in knowledge creation

Clusters enable value chain economic effectiveness cont

Clusters Facilitate Commercialization and New Business Formation

- Opportunities for new companies and lines of established business are more apparent
- Spinoffs and startups are encouraged by the presence of other companies, commercial relationships, and concentrated demand
- Commercializing new products and starting new companies is easier because of available skills, suppliers, etc.

Packaging Value chain driven clusters needed

- Clusters reflect the fundamental influence of linkages and spill-overs across firms and associated institutions in competition
- Clusters are aligned toward end product
 - Electronics
 - Footwear
- Packaging is often external to clusters
 - Existing opportunities for specialized packaging suppliers
- Related industries hold packaging expertise needed for innovation
- Linking packaging value chain to clusters is essential

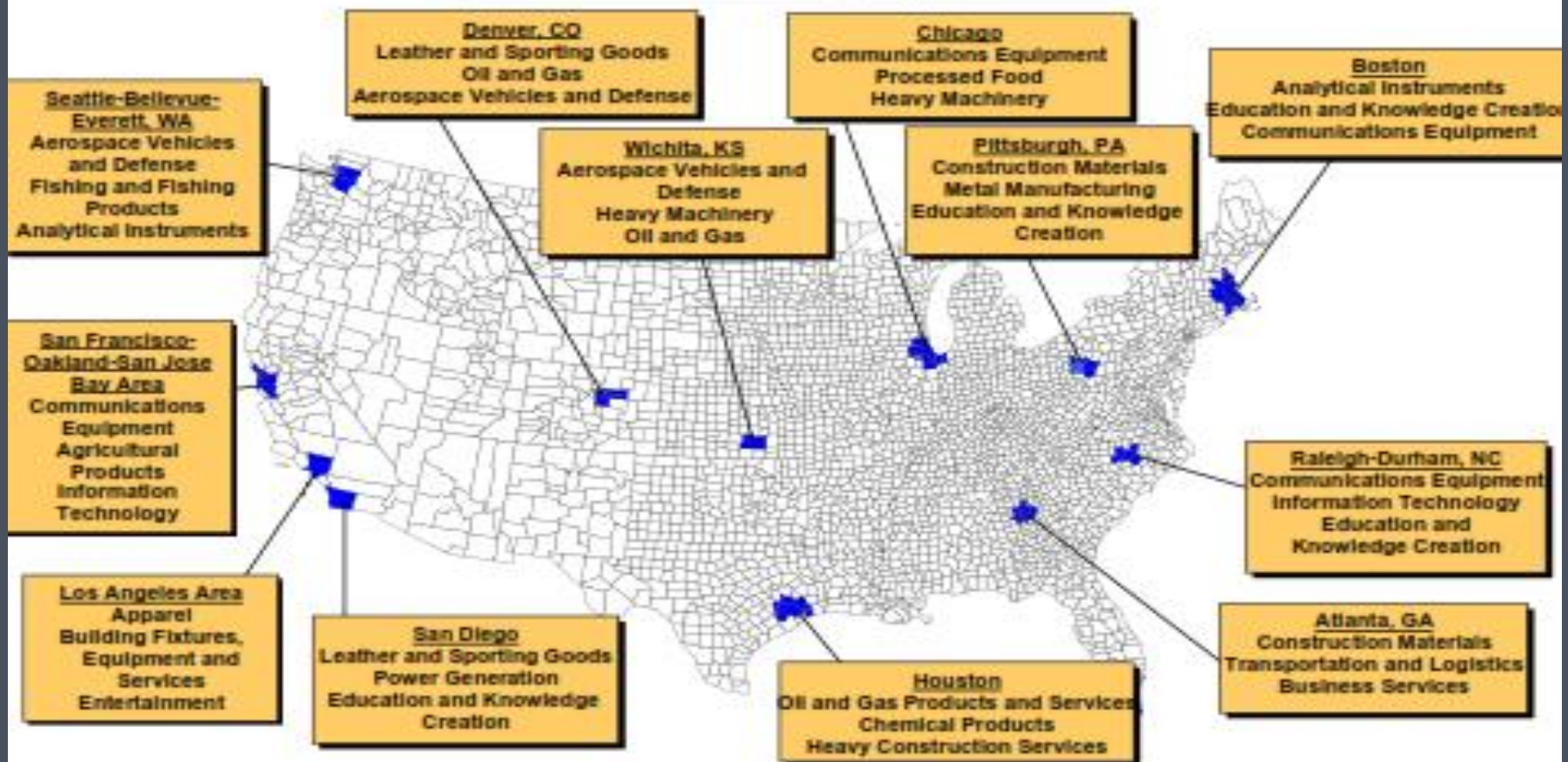
Footwear Clusters differ

Cluster Specialization Selected Footwear Clusters



Regions have different clusters

Specialization of Regional Economies Selected U.S. Geographic Areas

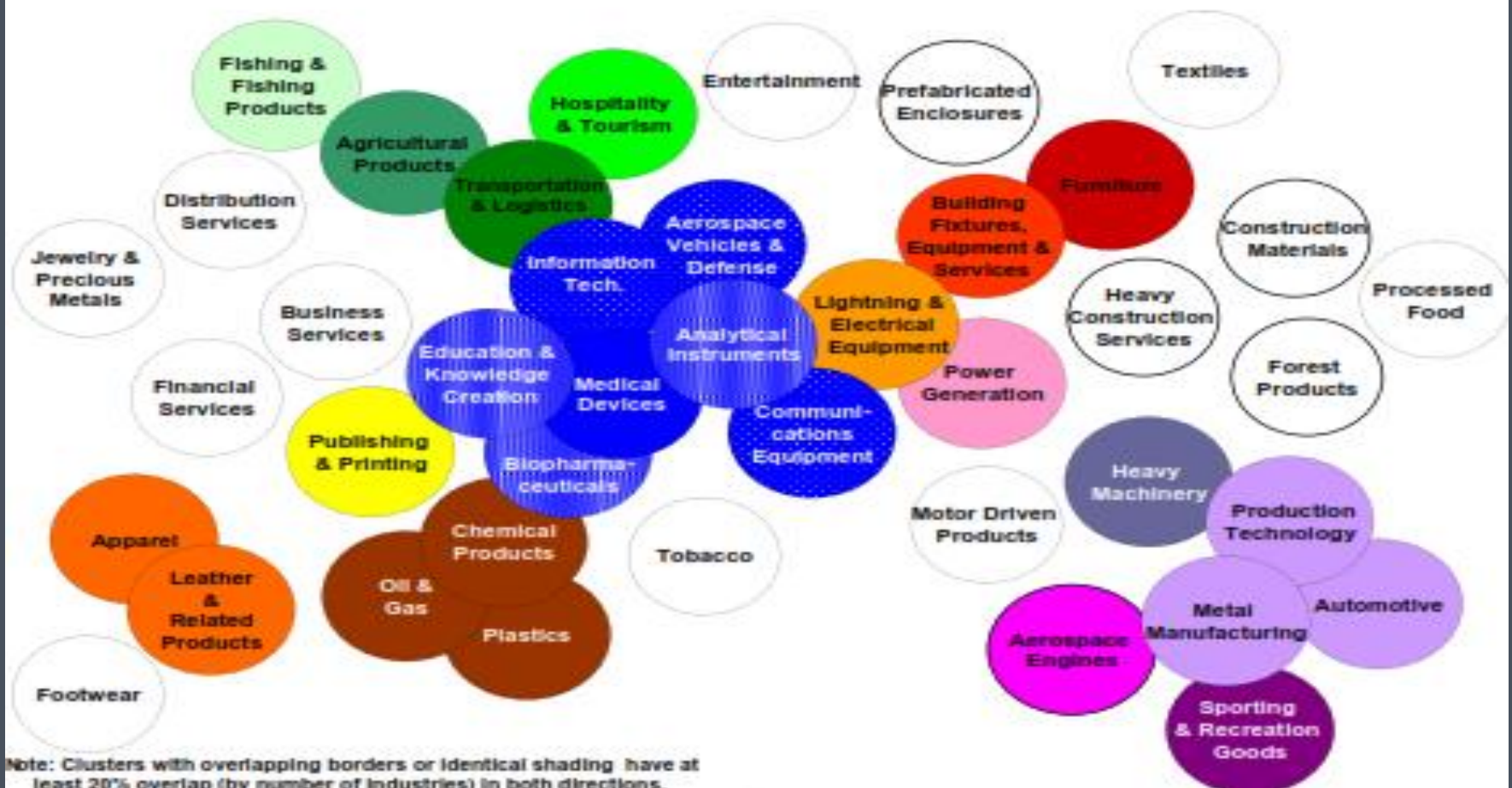


Note: Clusters listed are the three highest ranking clusters in terms of share of national employment.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School, 11/2006.

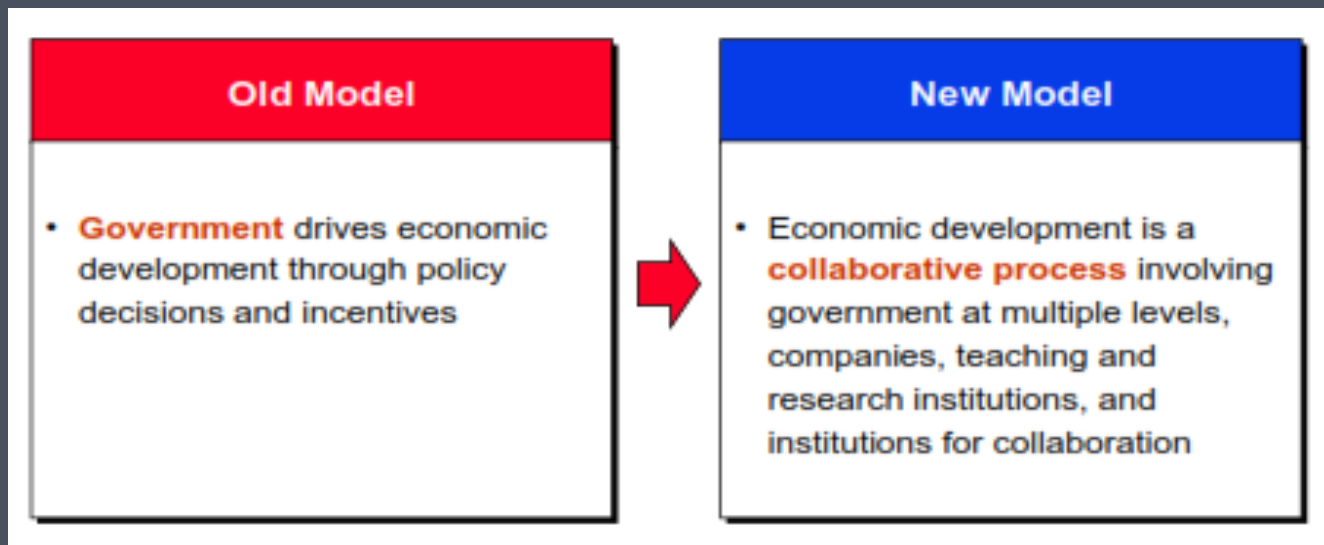
Clusters link industries

Linkages Across Clusters



Clusters work in the new model

- Competitiveness must be a bottoms-up process in which many individuals, companies, and institutions take responsibility
- Clusters provide a platform to address the specific barriers companies face
- in a given market, not just general challenges all companies are exposed to



Cluster Policy

Neutral across clusters

- Enhancing productivity of multiple firms/institutions
- Facilitating/capturing linkages and externalities
- Facilitating the flow of information/knowledge across actors
- Engaging the private sector, not just government
- Preserving and enhancing market competition, not retarding it

Summary

- Future Value Chain can enable agility as top economies reshuffle
- Packaging can be optimized for growing urbanization
- Packaging will moderate in effective resource management
- Packaging will facilitate data sharing
- Clusters can be employed to extend economic effectiveness to the value chain

