



The Course & package of Handouts are based on the BOOKS:

- GML – *Global Management Lectures* (2016 – Joe Santangelo)
- **EXPORT MANAGEMENT & Corporate Strategy** (2016 – Joe Santangelo)
- CONTEMPORARY MANAGEMENT (2016 – Jennifer George)
- GLOBAL BUSINESS TODAY (2011 - Charles W. Hill)



INTERNATIONAL ACADEMY OF ROME

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COURSE: INTERNATIONAL BUSINESS (CERTIFICATE) IB4632

**SESSION: 9) GLOBAL PRODUCTION
& SUPPLY CHAIN MANAGEMENT**

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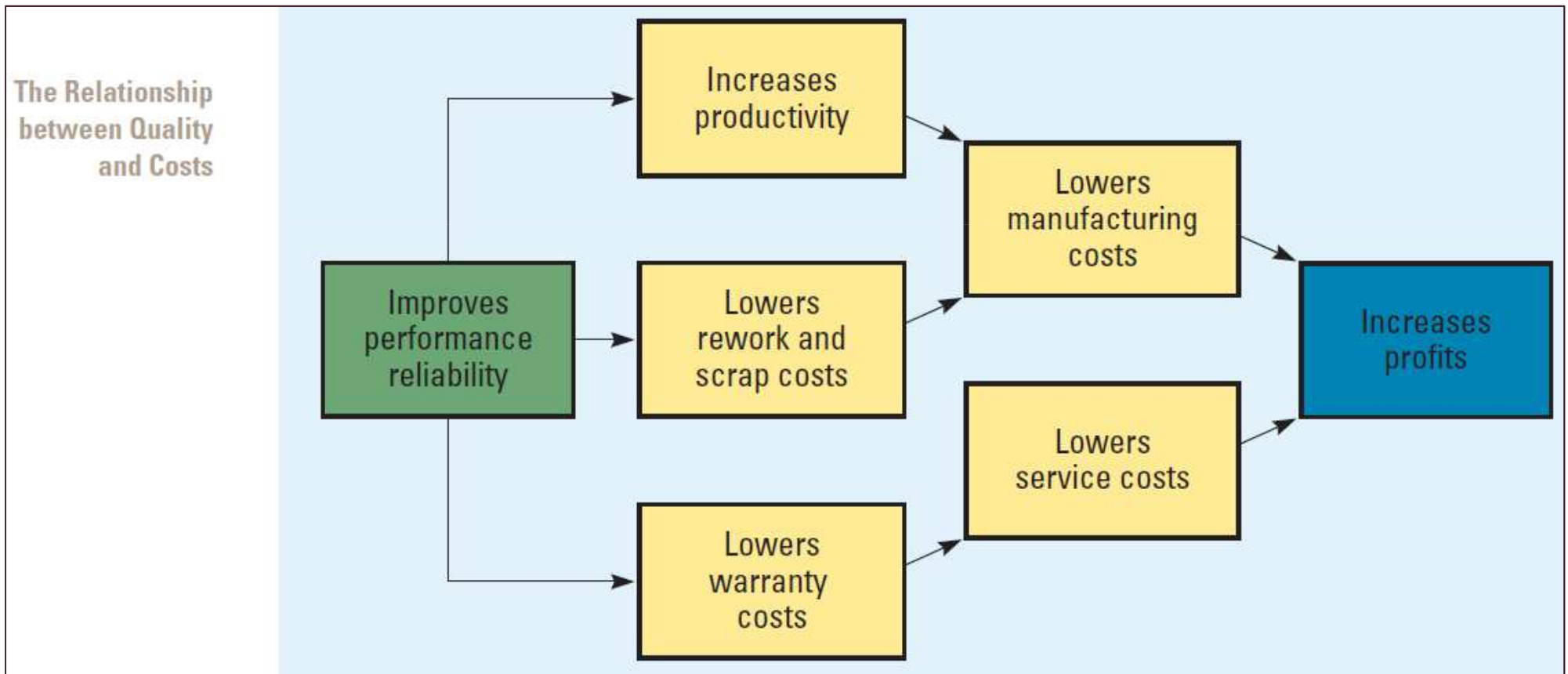


Synoptic Overview: SBU most affected by Global Production

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QUALITY & COSTs

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FACTORs affecting SCM

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Location Strategy and Production		Concentrated Production Favored	Decentralized Production Favored
	Country factors		
	Difference in political economy	Substantial	Few
	Difference in culture	Substantial	Few
	Difference in factor costs	Substantial	Few
	Trade barriers	Few	Substantial
	Location externalities	Important in industry	Not important in industry
	Exchange rates	Stable	Volatile
	Technological factors		
	Fixed costs	High	Low
	Minimum efficient scale	High	Low
	Flexible manufacturing technology	Available	Not available
	Product factors		
	Value-to-weight ratio	High	Low
	Serves universal needs	Yes	No

COUNTRY Factors

Where to Produce

An essential decision facing an international firm is where to locate its production activities to best minimize costs and improve product quality. For the firm contemplating international production, a number of factors must be considered. These factors can be grouped under three broad headings: country factors, technological factors, and product factors.

COUNTRY FACTORS

Political economy, culture, and relative factor costs differ from country to country. due to differences in factor costs, some countries have a comparative advantage for producing certain products.

we saw how differences in political economy and national culture influence the benefits, costs, and risks of doing business in a country. Other things being equal, a firm should locate its various manufacturing activities where the economic, political, and cultural conditions, including relative factor costs, are conducive to the performance of those activities.

Technological Factors

TECHNOLOGICAL FACTORS The type of technology a firm uses to perform specific manufacturing activities can be pivotal in location decisions. For example, because of technological constraints, in some cases it is necessary to perform certain manufacturing activities in only one location and serve the world market from there. In other cases, the technology may make it feasible to perform an activity in multiple locations. Three characteristics of a manufacturing technology are of interest here: the level of fixed costs, the minimum efficient scale, and the flexibility of the technology.


Fixed Costs

In some cases the fixed costs of setting up a production plant are so high that a firm must serve the world market from a single location or from a very few locations. For example, it now costs more than \$1 billion to set up a state-of-the-art plant to manufacture semiconductor chips. Given this, other things being equal, serving the world market from a single plant sited at a single (optimal) location can make sense.

Conversely, a relatively low level of fixed costs can make it economical to perform a particular activity in several locations at once. This allows the firm to better accommodate demands for local responsiveness. Manufacturing in multiple locations may also help the firm avoid becoming too dependent on one location. Being too dependent on one location is particularly risky in a world of floating exchange rates. Many firms disperse their manufacturing plants to different locations as a “real hedge” against potentially adverse moves in currencies.

Minimum Efficient Scale

**Minimum
Efficient Scale**
The level of output at
which most plant-level
scale economies are
exhausted.



Minimum Efficient Scale The concept of economies of scale tells us that as plant output expands, unit costs decrease. The reasons include the greater utilization of capital equipment and the productivity gains that come with specialization of employees within the plant. However, beyond a certain level of output, few additional scale economies are available. Thus, the “unit cost curve” declines with output until a certain output level is reached, at which point further increases in output realize little reduction in unit costs. The level of output at which most plant-level scale economies are exhausted is referred to as the **minimum efficient scale** of output. This is the scale of output a plant must operate to realize all major plant-level scale economies.

The implications of this concept are as follows: The larger the minimum efficient scale of a plant relative to total global demand, the greater the argument for centralizing production in a single location or a limited number of locations. Alternatively, when the minimum efficient scale of production is low relative to global demand, it may be economical to manufacture a product at several locations. For example, the minimum efficient scale for a plant to manufacture personal computers is about 250,000 units a year, while the total global demand exceeds 35 million units a year. The low level of minimum efficient scale in relation to total global demand makes it economically feasible for a company such as Dell to manufacture PCs in six locations.

Flexible Manufacturing

Flexible Manufacturing and Mass Customization Central to the concept of economies of scale is the idea that the best way to achieve high efficiency, and hence low unit costs, is through the mass production of a standardized output. The trade-off implicit in this idea is between unit costs and product variety. Producing greater product variety from a factory implies shorter production runs, which in turn implies an inability to realize economies of scale. That is, wide product variety makes it difficult for a company to increase its production efficiency and thus reduce its unit costs. According to this logic, the way to increase efficiency and drive down unit costs is to limit product variety and produce a standardized product in large volumes.

This view of production efficiency has been challenged by the rise of flexible manufacturing technologies. The term **flexible manufacturing technology**—or **lean production**, as it is often called—covers a range of manufacturing technologies designed to (1) reduce setup times for complex equipment, (2) increase the utilization of individual machines through better scheduling, and (3) improve quality control at all stages of the manufacturing process. Flexible manufacturing technologies allow the company to produce a wider variety of end products at a unit cost that at one time could be achieved only through the mass production of a standardized output.

Flexible Manufacturing Technology (Lean Production)

Manufacturing technology designed to improve job scheduling, reduce setup time, and improve quality control.

Mass Customization

The production of a variety of end products at a unit cost that could once be achieved only through mass production of a standardized output.

PRODUCT Factors

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PRODUCT FACTORS Two product features affect location decisions. The first is the product's *value-to-weight* ratio because of its influence on transportation costs. Many electronic components and pharmaceuticals have high value-to-weight ratios; they are expensive and they do not weigh very much. Thus, even if they are shipped halfway around the world, their transportation costs account for a very small percentage of total costs. Given this, other things being equal, there is great pressure to produce these products in the optimal location and to serve the world market from there. The opposite holds for products with low value-to-weight ratios. Refined sugar, certain bulk chemicals, paint, and petroleum products all have low value-to-weight ratios; they are relatively inexpensive products that weigh a lot. Accordingly, when they are shipped long distances, transportation costs account for a large percentage of total costs. Thus, other things being equal, there is great pressure to make these products in multiple locations close to major markets to reduce transportation costs.

LP-Facilities: Concentration

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LOCATING PRODUCTION FACILITIES There are two basic strategies for locating production facilities: concentrating them in a centralized location and serving the world market from there, or decentralizing them in various regional or national locations that are close to major markets. The appropriate strategic choice is determined by the various country-specific, technological, and product factors we have discussed in this section and are summarized in Table.

As can be seen, concentration of production makes most sense when:

- Differences between countries in factor costs, political economy, and culture have a substantial impact on the costs of manufacturing in various countries.
- Trade barriers are low.
- Externalities arising from the concentration of like enterprises favor certain locations.
- Important exchange rates are expected to remain relatively stable.
- The production technology has high fixed costs and high minimum efficient scale relative to global demand, or flexible manufacturing technology exists.
- The product's value-to-weight ratio is high.
- The product serves universal needs.

Alternatively, decentralization of production is appropriate when:

- Differences between countries in factor costs, political economy, and culture do not have a substantial impact on the costs of manufacturing in various countries.
- Trade barriers are high.

LP-Facilities: Decentralization

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- Location externalities are not important.
- Volatility in important exchange rates is expected.
- The production technology has low fixed costs and low minimum efficient scale, and flexible manufacturing technology is not available.
- The product's value-to-weight ratio is low.
- The product does not serve universal needs (that is, significant differences in consumer tastes and preferences exist between nations).

Make-or-Buy Decision Making

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Make-or-Buy Decisions

Whether a firm should
make or buy component
parts.

Outsourcing Production: Make-or-Buy Decisions

International businesses frequently face **make-or-buy decisions**, decisions about whether they should perform a certain value creation activity themselves or outsource it to another entity.²¹ Historically, most outsourcing decisions have involved the manufacture of physical products. Most manufacturing firms have done their own final assembly, but have had to decide whether to vertically integrate and manufacture their own component parts or outsource the production of such parts, purchasing them from independent suppliers. Such make-or-buy decisions are an important aspect of the strategy of many firms. In the automobile industry, for example, the typical car contains more than 10,000 components, so automobile firms constantly face make-or-buy decisions. Toyota produces less than 30 percent of the value of cars that roll off its assembly lines. The remaining 70 percent, mainly accounted for by component parts and complex subassemblies, comes from independent suppliers. In the athletic shoe industry, the make-or-buy issue has been taken to an extreme with companies such as Nike and Reebok having no involvement in manufacturing; all production has been outsourced, primarily to manufacturers based in low-wage countries.

MAKE-Benefits

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THE ADVANTAGES OF MAKE The arguments that support making all or part of a product in-house—vertical integration—are fourfold. Vertical integration may be associated with lower costs, facilitate investments in highly specialized assets, protect proprietary product technology, and ease the scheduling of adjacent processes.

Lowering Costs

Facilitating Specialized Investments

Protecting Proprietary Product Technology

Improving Scheduling

BUY-Benefits

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THE ADVANTAGES OF BUY Buying component parts, or an entire product, from independent suppliers can give the firm greater flexibility, can help drive down the firm's cost structure, and may help the firm capture orders from international customers.

Strategic Flexibility

Lower Costs

Offsets

Global Production: SUMMARY

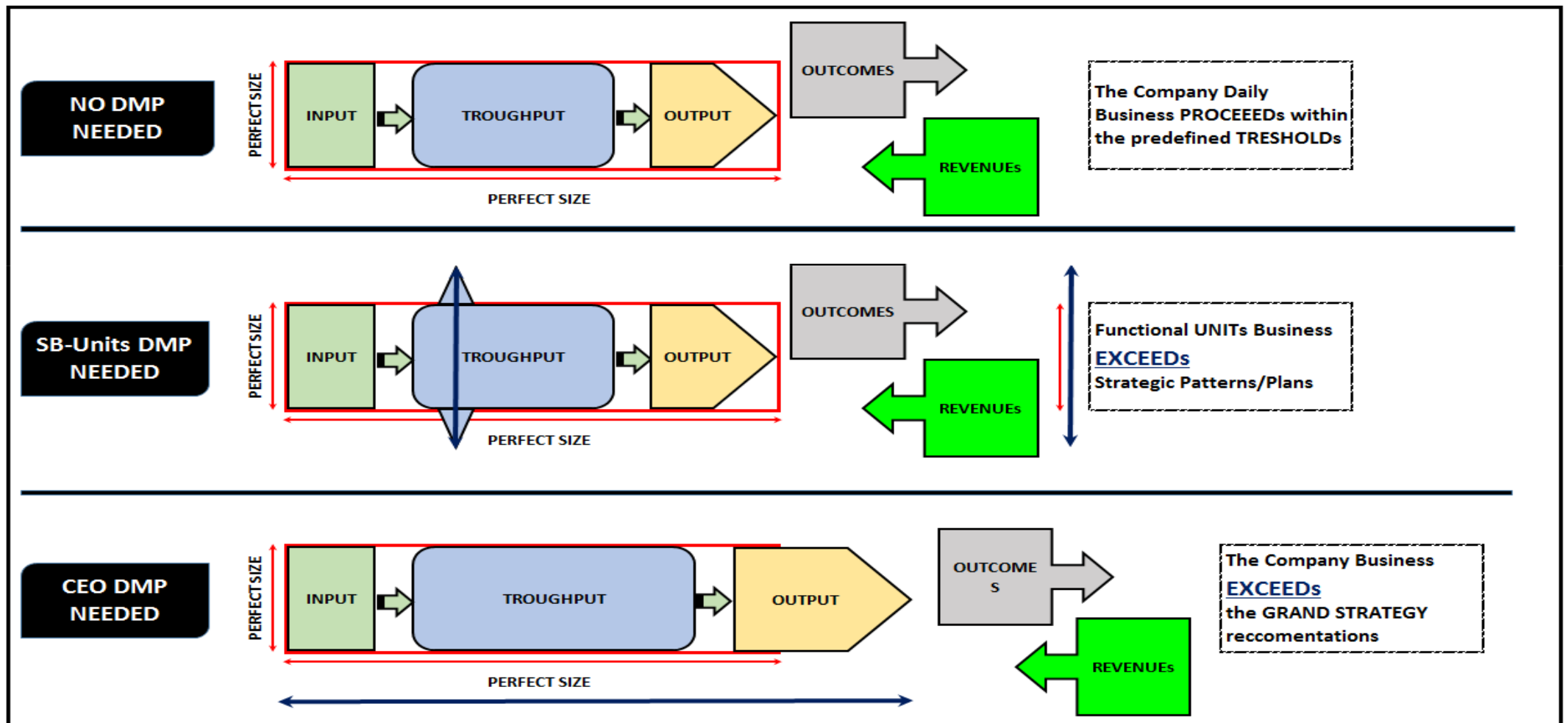
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1. The choice of an optimal production location must consider country factors, technological factors, and product factors.
2. Country factors include the influence of factor costs, political economy, and national culture on production costs, along with the presence of location externalities.
3. Technological factors include the fixed costs of setting up production facilities, the minimum efficient scale of production, and the availability of flexible manufacturing technologies that allow for mass customization.
4. Product factors include the value-to-weight ratio of the product and whether the product serves universal needs.
5. Location strategies either concentrate or decentralize manufacturing. The choice should be made in light of country, technological, and product factors. All location decisions involve trade-offs.
6. Foreign factories can improve their capabilities over time, and this can be of immense strategic benefit to the firm. Managers need to view foreign factories as potential centers of excellence and to encourage and foster attempts by local managers to upgrade factory capabilities.
7. An essential issue in many international businesses is determining which component parts should be manufactured in-house and which should be outsourced to independent suppliers.
8. Making components in-house facilitates investments in specialized assets and helps the firm protect its proprietary technology. It may improve scheduling between adjacent stages in the value chain, also. In-house production also makes sense if the firm is an efficient, low-cost producer of a technology.
9. Buying components from independent suppliers facilitates strategic flexibility and helps the firm avoid the organizational problems associated with extensive vertical integration.
10. Several firms have tried to attain the benefits of vertical integration and avoid its associated organizational problems by entering long-term strategic alliances with essential suppliers.
11. Although alliances with suppliers can give a firm the benefits of vertical integration without dispensing entirely with the benefits of a market relationship, alliances have drawbacks. The firm that enters a strategic alliance may find its strategic flexibility limited by commitments to alliance partners.
12. Logistics encompasses all the activities that move materials to a production facility, through the production process, and out through a distribution system to the end user. The logistics function is complicated in an international business by distance, time, exchange rates, custom barriers, and other things.
13. Just-in-time systems generate major cost savings from reducing warehousing and inventory holding costs and from reducing the need to write off excess inventory. In addition, JIT systems help the firm spot defective parts and remove them from the manufacturing process quickly, thereby improving product quality.
14. Information technology, particularly Internet-based electronic data interchange, plays a major role in materials management. EDI facilitates the tracking of inputs, allows the firm to optimize its production schedule, lets the firm and its suppliers communicate in real time, and eliminates the flow of paperwork between a firm and its suppliers.

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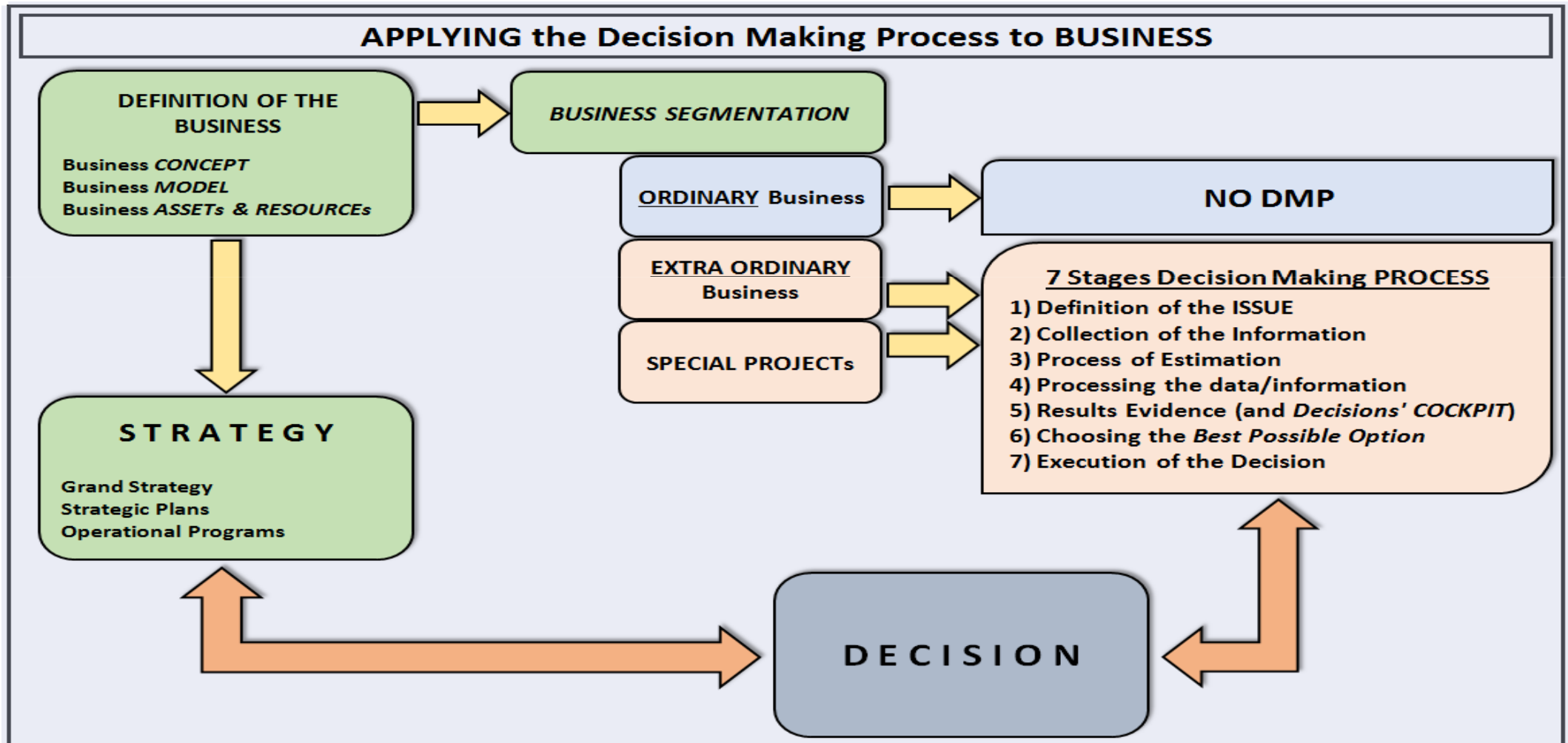
Decision-MAKING (1)

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Decision-MAKING (2)

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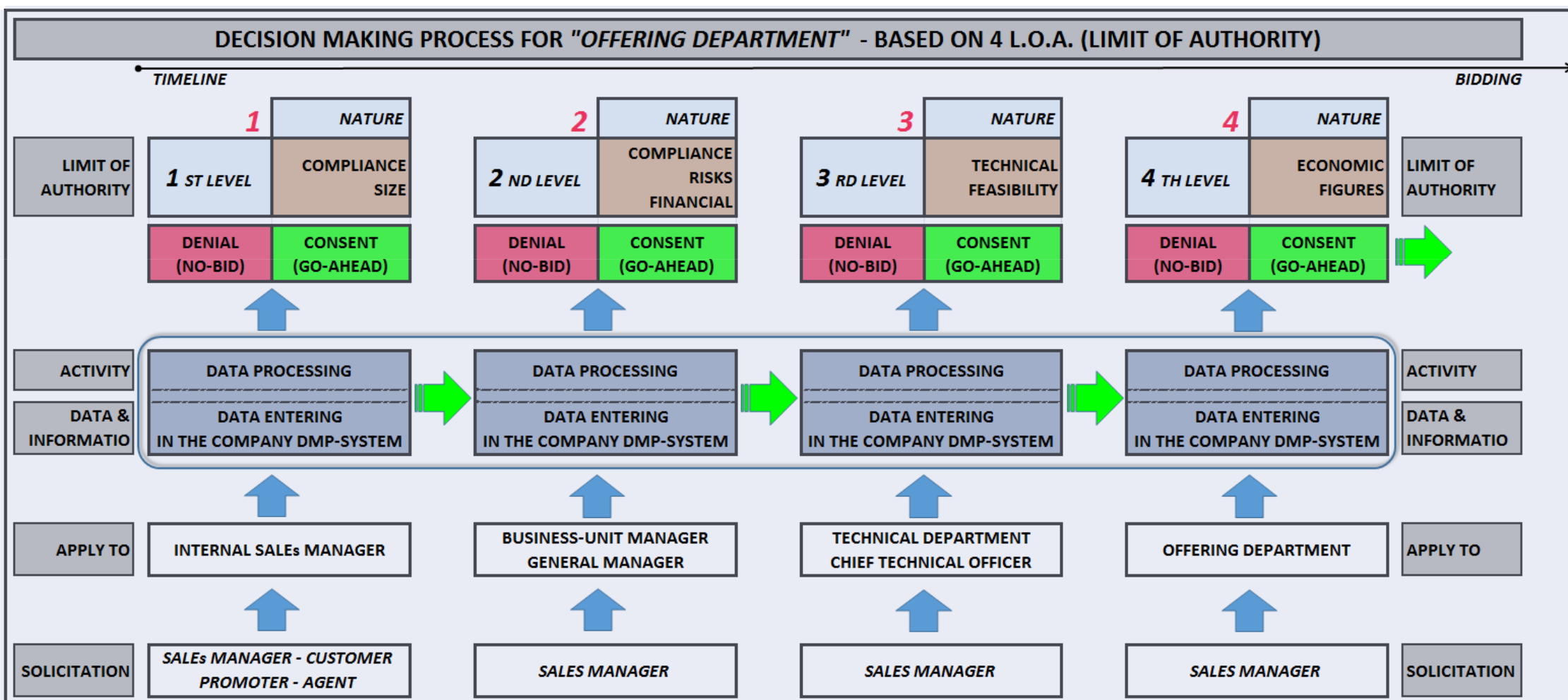
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DECISOR's COCKPIT

Decision-MAKING (4): SMS_Exm.

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**THANK YOU
FOR YOUR
ATTENTION**



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OPEN DEBATE – *Questions & Answers*



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