***Supply Chain Management – Product Development Strategies***

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| **Overview of Key Strategy Topics** |
| Chapters out of Simchi-Levi Text.

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| **Product Development Strategies** |  |
| Chapter 11. **Coordinated Product & Supply Chain Design** | *Integrating product design with* *supply chain design.* |
| \*Supply Chain Design (PUSH-PULL)\*Development Chain Design (Product Structure)\*Design for Logistics (Inventory & Transportation)\*Design for Production | \*Design Supply Chain-Demand uncertainty-Economies of scale-Lead time\*Design Development Chain-Technology clockspeed-Outsourcing decisions-Modular & Integral products\*Design for Logistics-Packaging-Parallel processing-Standardization\*Design for Production-Mass Customization |

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***Product Development Strategies***

***Chapter 11***

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| **Design** |  | **Example** |
| Design Supply ChainDesign Development ChainDesign for LogisticsDesign for Production | 🡪🡪🡪🡪 | PUSH-PULLProduct StructureInventory & TransportationMass Customization |

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|  | **Design Supply Chain**>Demand uncertainty>Economies of scale>Lead time | **Design for Logistics**>Packaging>Parallel processing>Standardization |  |
|  | **Design Development Chain**>Technology clockspeed>Outsourcing decisions>Modular & Integral products | **Design for Production**>Mass Customization |  |
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**Design Supply Chain**. Push vs. Pull

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| Demand uncertainty:Economies of scale:Lead time: | High uncertainty (PULL) vs. Low uncertainty (PUSH)Low dependence (PULL) vs. High dependence (PUSH)Short lead times (PULL) vs. Long lead times (PUSH) |

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| **Design Supply Chain & Design Development Chain** |
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|  |  |  | ***Supply Chain Design*** |  |
|  |  | Low Demand Uncertainty | High Demand Uncertainty |  |
|  | ***Development Chain Design*** | PUSH | PULL |  |
|  | Fast Clockspeed | Modular Product | 3. PUSH | 2. PULL |  |
|  | Slow Clockspeed | Integral Product | 1. PUSH | 4. PUSH-PULL |  |
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| Examples:1. PUSH: Diapers, soup, and pasta2. PULL: PC, printers, and cell phones3. PULL: Cell phone engine4. PUSH-PULL: High-end furniture, chemical products, commodities, and specialty items. . . |

***Design for Logistics (DFL) – Inventory, Transportation***

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| Packaging.>Design dimensions to reduce space.>Design product for delayed packaging to support cross-docking. |
| Parallel processing.>Translate series functions to parallel functions.>Decouple processes to support parallel functions. |
| Standardization.>Aggregate demand to support risk pooling and economies of scale.>Create modularity. Create a modular product and/or modular process. |

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| ***Standardization*** | Process NOT Modular |  |  | Modular Process |
| Modular Product | Part Standardization | 1 | 2 | Process Standardization |
| Product NOT Modular | Product Standardization | 3 | 4 | Procurement Standardization |

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| 1. Part Standardization.>Commonality |
| 2. Process Standardization.>Postponement or Delayed Product Differentiation.>Process re-sequencing to support postponement.>Modularity of products through re-sequencing of processes to support postponement(generic product to specific product). |
| 3. Product Standardization.>Downward substitution.>Super product design. |
| 4. Procurement Standardization.>Equipment procurement to meet multiple internal process needs. |

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| Where would PUSH-PULL boundary occur?What are Drivers for location?How does Outsourcing correspond to DFL? |

**Design for Production – “Mass Customization”**

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|  | Craft production |  |  |  |  |  | IncreasedVariety and Service |  |
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|  |  |  |  | Mass customization |  |  |  |  |
|  | Mass production |  |  |  |  | DecreasedCost and Time to market |  |
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| Where would these attributes be most effective in supporting mass customization?*Instantaneousness – Costless – Seamless – Frictionless* |