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

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

***Product Development Strategies***

***Chapter 11***

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|  | |  |  |  | | --- | --- | --- | | **Design** |  | **Example** | | Design Supply Chain  Design Development Chain  Design for Logistics  Design for Production | 🡪  🡪  🡪  🡪 | PUSH-PULL  Product Structure  Inventory & Transportation  Mass 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 pasta  2. PULL: PC, printers, and cell phones  3. PULL: Cell phone engine  4. 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 |  |  |  |  |  | Increased  Variety and Service |  |
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|  |  |  |  | Mass customization |  |  |  |  |
|  | Mass production |  |  |  |  | Decreased  Cost and Time to market |  |
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| Where would these attributes be most effective in supporting mass customization?  *Instantaneousness – Costless – Seamless – Frictionless* |