***Supply Chain Management – Strategy***

🡨 Flow of Information 🡨

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| Supplier | 🡪 | Manufacturer | 🡪 | Distributor | 🡪 | Retailer | 🡪 | Customer |

🡪 Flow of Material 🡪

***Coordinated Product and Supply Chain Design***

***Chapter 11***

**Supply Chain Design & Development Chain Design**

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| **Supply Chain Design** | >Demand uncertainty  >Economies of scale  >Lead time |
| **Development Chain Design** | >Technology clockspeed. *Product Introduction.*  Innovative product vs. Functional product  >Make/buy decisions. *Outsourcing Decisions.*  Modular product vs. Integral product  combined with knowledge or capacity.  >Product structure. *Design for logistics.*  Packaging, parallel processing, standardization. |

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|  | **Supply Chain Design** | | |  |  |  | **Development Chain Design** | | |  |
|  |  | PULL | PUSH |  |  |  |  | Innovative  (Modular) | Functional  (Integral) |  |
|  | Demand Uncertainty | High | Low |  |  |  | Clockspeed | Fast | Slow |  |
|  | Economies of Scale | Low | High |  |  |  | Product Variety | High | Low |  |
|  | Lead Time | Short | Long |  |  |  | Profit Margins | High | Low |  |
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|  |  | ***Development Chain*** |  |  |  | Product  Design |  | Innovative vs.  Functional |  |  |  |  |  |
|  |  |  |  |  | ↓ |  |  |  |  |  |  |  |
|  |  |  |  |  | Outsource  Decisions |  | Knowledge vs.  Capacity |  |  |  |  |  |
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|  |  |  |  |  | Design for  Logistics |  | Packaging  Parallel  Processing  Standardization |  |  |  |  |  |
|  |  |  |  |  |  | ↓ |  |  |  |  |  |  |  |
|  |  |  |  | Supplier | 🡪 | Manufacturer | 🡪 | Distributor | 🡪 | Retailer | 🡪 | Customer |  |
|  |  |  |  | 🡨 Flow of Information 🡨  🡪 Flow of Material 🡪 | | | | | | | | |  |
|  |  |  |  | ***Supply Chain*** | | | | | | | | |  |
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|  | **Product Design – Demand Uncertainty – Supply Chain Strategy** | | | | | | |  |
|  | Clockspeed | Product  Design |  | Demand  Uncertainty | Focus |  | Supply Chain  Strategy |  |
|  | Slow | Integral |  | Low | Cost |  | PUSH |  |
|  | Fast | Modular |  | High | Service |  | PULL |  |
|  | Fast | Modular |  | Low | Cost |  | PUSH |  |
|  | Slow | Integral |  | High | Service |  | PUSH-PULL |  |
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***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 |   . . . | | |
|  | 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. |  |
|  | 3. Product Standardization.  >Downward substitution.  >Super product design. |  |
|  | 4. Procurement Standardization.  >Equipment procurement to meet multiple internal process needs. |  |
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| **Extend production system design to “Mass Customization”**   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Craft production |  |  |  |  |  | Increased  Variety and Service | |  |  |  |  |  | |  |  |  | Mass customization |  |  |  | |  |  |  |  |  | Decreased  Cost and Time to market | | Mass production |  |  |  |  |  | |  |  |  |  |  |  |  |  | | --- | | Where would these attributes be most effective in supporting mass customization? *Instantaneousness – Costless – Seamless – Frictionless* |   . . . |