



Sandoz

Industry Supply Chain Resilience

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Division

Generic & Originator- One industry, two business models

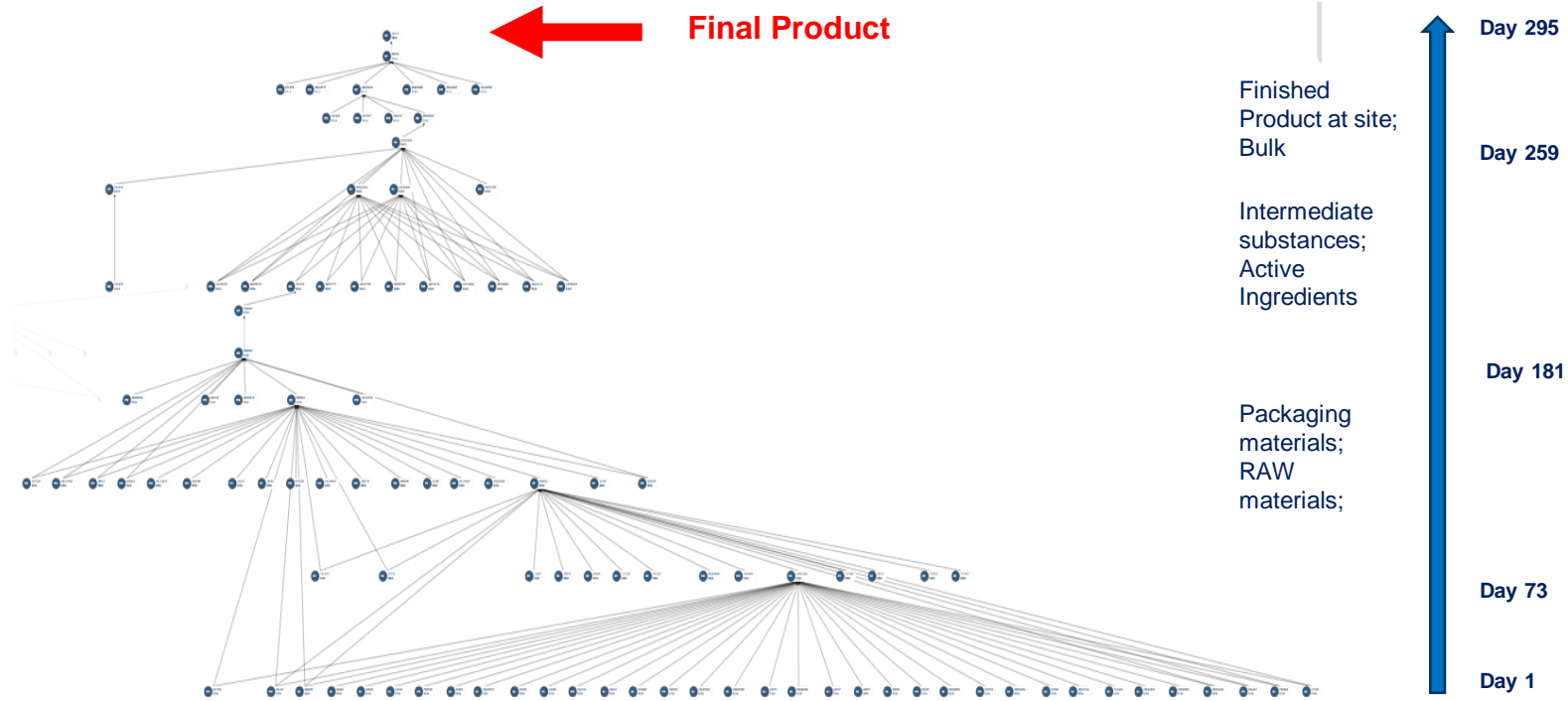


Business Model	Supply Chain Cost as % of price	Price
Originator	Lower	Higher
Generic	Higher	Lower

Cost of Generics Supply Chain is high compared to price
 Impact of cost burden seen in manufacturing consolidation, market exits & shortages, primarily in generics

Complexity of the supply chain to the Final Product

- EU Pharma Strategy encourages dialogue on supply chain



On average >350 components necessary either produced, purchased or in-house
We need them all on time to make the final product

Supply Risk Management

Inventory Management

- Inventory and product prioritization
- National/regional stockpile requests
- Customer dedicated inventories and demand management

Sourcing Strategy

- Dual sourcing
- Supplier risk identification & Audits
- Product prioritization

Mfg. network and footprint

- Preserve current strong EU footprint
- Launch sites (risk analysis & strategy)
- Network Analysis & Future sites

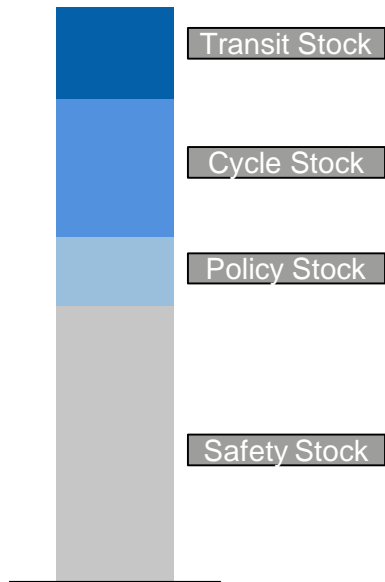
Governance / Training / Best Practice Sharing / Empowerment

Supply Risk Management process assesses whole supply chain network
Identifies risks & implements counter-measures across the portfolio

Stock and Dual Sourcing Strategy

- issues and costs discussed with commission, member states and industry

Stock Strategy



Dual Sourcing Strategy



Drug Substance first (longest duration)



Finished Product covered through safety stock



Drug Product. Focus on flexibility e.g. 2 sites registered

Average cost to build dual source is \$300K – \$1M

Ensure a clear policy on stock for entire portfolio
Link with the dual sourcing strategy brings supply chain resilience

The Future

Industry Focus



Further improve supply by continuing further

- active dual sourcing
- inventory policies
- operational excellence programs to further improve site reliability
- re-inforce end to end supply network management



«**European Footprint**» can reduce dependency on other territories

- only solution if combined with a shift in focus from industry and governments
- could have the opposite impact driving to even more shortages

Government & Industry Focus



Where a change in government & industry focus would help:

- **data transparency for coordination/collaboration** across industry
- reward manufacturers for **investing in supply resilience**
- **promote sustainable contracts and pricing**
- **Increase regulatory flexibility**