

#010 : Uncertainty in Supply Chain Planning

Uncertainty is the new normal

“Decision making situations in the Supply Chain in which the decision maker does not know definitely what to decide as he/she is indistinct about the objectives :

- lacks information about (or understanding of) the supply chain or its environment;
- lacks information processing capacities;
- is unable to accurately predict the impact of possible control actions on supply chain behavior;
- or, lacks effective control actions (non-controllability).”

Sources

1

Inherent

- Uncertain decisions
- Uncertain delays / Lead times
- Product returns
- Product quality

2

Contingent

- Accidents / breakdowns
- Political
- Environment

3

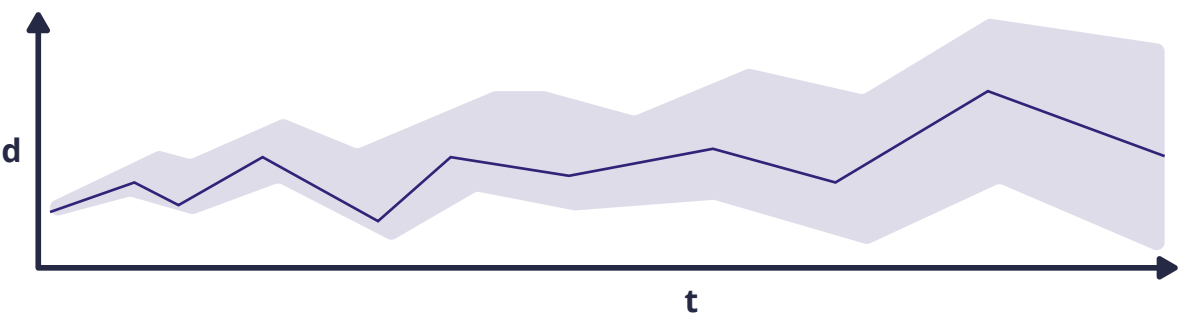
Errors

- Inventory record mismatch
- Non-traceability

Effects

- A. Shortages / Lost sales
- B. Increased cost of operation
- C. Increased inventory cost
- D. ...

Example : Demand uncertainty



Demand information is more uncertain far in future

Mitigation

- A. Demand driven planning
- B. Building in agility
- C. Inclusion of uncertainty into planning

Costs (d=10, h=1, p=10)	Deterministic Planning	Probabilistic Planning
Expected Inv. cost	1.25	4.18
Expected shortage cost	21.51	1.86
Net Cost	13.76	6.05

d = Mean demand (Poisson), h = Inventory cost, p = Shortage cost