

## Engineering Decision Example

Changing manufacturing equipment, for example, can boost production. A manufacturing company modified its production line to incorporate speedier, automated technology, aiming to meet rising customer demand and increase throughput. Although daily output increased significantly, the choice had unexpected effects throughout the system. More faulty goods reached consumers as the higher production rate overloaded the quality inspection crew. Teams in logistics and warehouse operations also battled the higher demand, resulting in delayed shipments and inventory mismanagement. If not considered using a systems thinking approach, an engineering decision focused on one subsystem (such as production speed) can have adverse effects on linked areas, including quality control, logistics, and customer satisfaction (Senge, 2006; Sterman, 2000). One such real-world example is Boeing's 737 MAX production ramp-up. Boeing accelerated its production schedule to meet demand from a competitive market. Made mainly from a production perspective, nevertheless, this choice affected regulatory compliance, pilot training, and software validation downstream. Two deadly crashes and the worldwide grounding of the 737 MAX fleet were caused in part by these errors. This emphasizes the need to employ systems thinking to evaluate engineering decisions, thereby grasping more general consequences beyond the immediate subsystem (Meadows, 2008; Gelles & Kitroeff, 2019).

## References

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