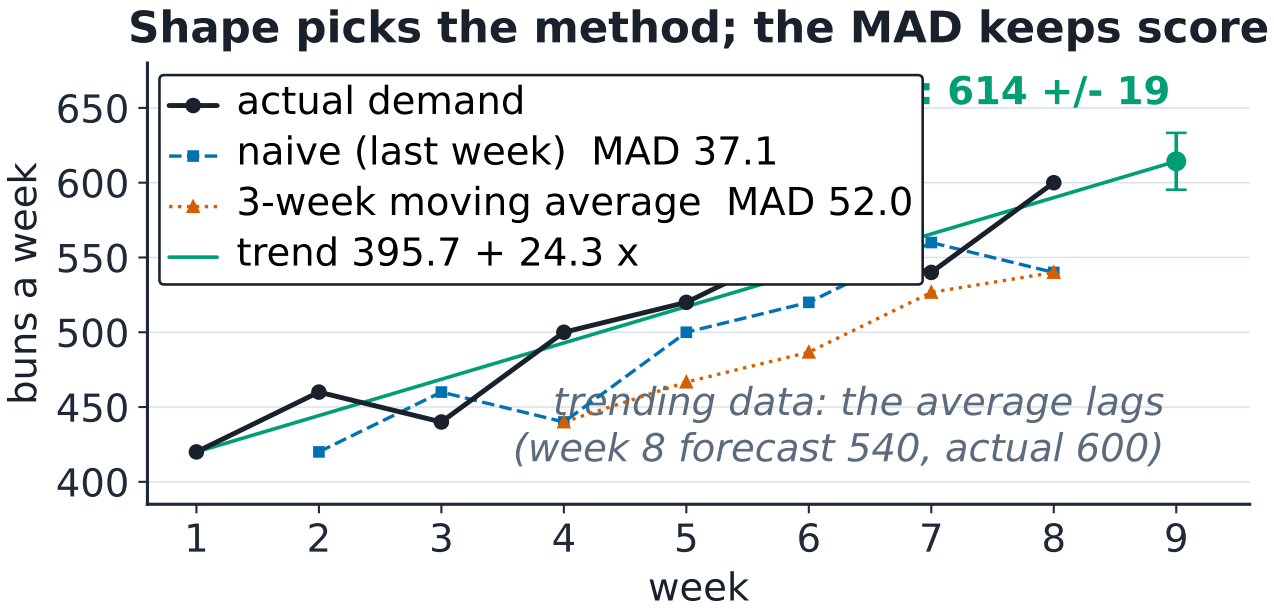
Exercise walk-through

10.3 Inventory

University Business

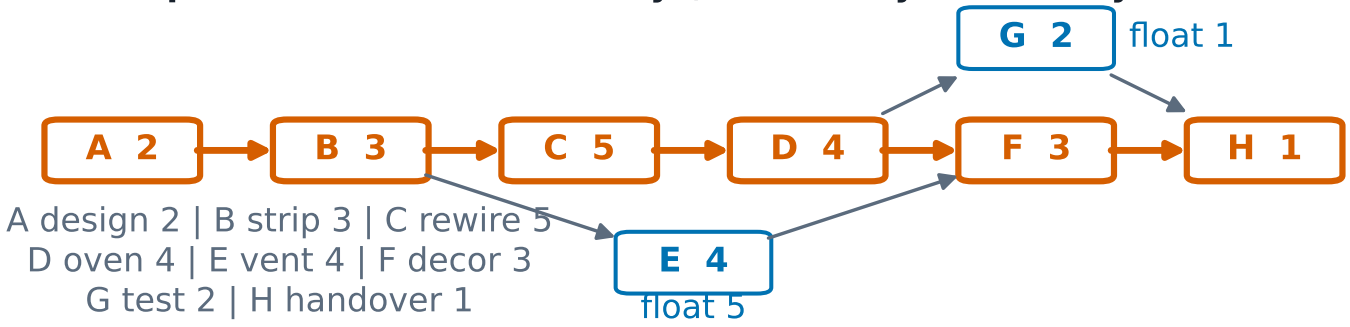
Forecasting: shape picks the method



The trend line beats the averages: week 9 forecast 614 +/- 19.

Project management: the critical path is the project

Critical path A-B-C-D-F-H = 18 days; crash C by 2 and D by 1 to reach 15

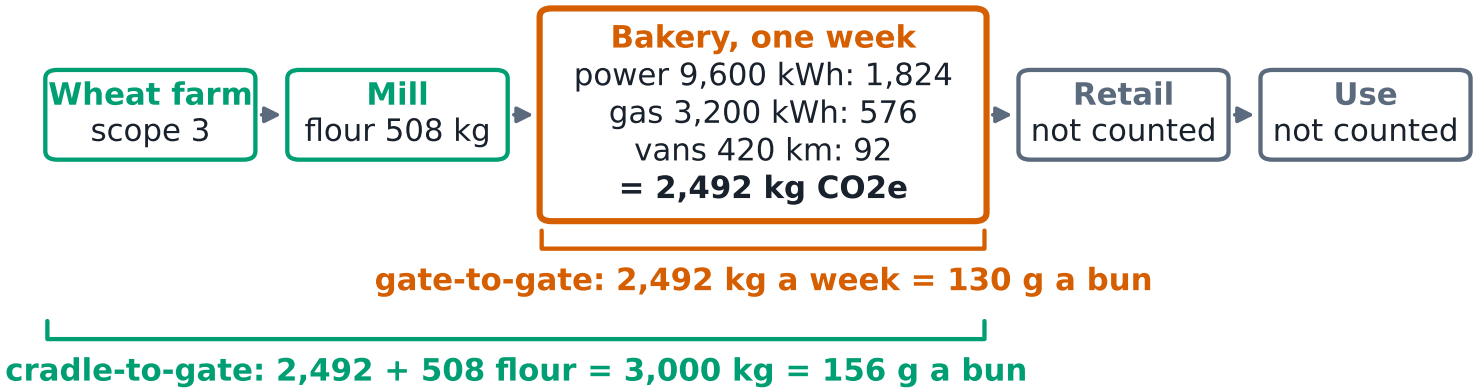




Critical path 18 days; at day 10, CPI 0.824 and EAC 72,800.

Sustainability in operations: the boundary is the claim

Same bun, two footprints: the boundary is the claim



renewable tariff at 0.06 kg/kWh cuts electricity 1,824 to 576: the site week halves to 1,244; the flour does not move

2,492 kg a week gate-to-gate; 3,000 kg with the flour counted.

Exercises 2.1·2.2

2.1 Sugar: 30,000 kg a year, 60 an order, 1.60 a kg a year to hold. The EOQ and the orders a year. [4]

2.2 Annual ordering and holding cost at the EOQ. [2]

Exercises 2.1·2.2

2.1 Sugar: 30,000 kg a year, 60 an order, 1.60 a kg a year to hold. The EOQ and the orders a year. [4]

2.1

- $\sqrt{2 \times 30{,}000 \times 60/1.60} = \sqrt{2{,}250{,}000} = 1{,}500$ kg.
- $30{,}000/1{,}500 = 20$ orders a year.

2.2 Annual ordering and holding cost at the EOQ. [2]

2.2

- Ordering $20 \times 60 = 1{,}200$; holding $750 \times 1.60 = 1{,}200$ - equal, as the EOQ requires.

exercises.lol exercises.com.cn

Exercises 2.3·2.4

2.3 Lead time 5 days, daily demand sd 12 kg, service level 97.5% ($z = 1.96$). Lead-time demand, safety stock and the reorder point (nearest kg). [5]

2.4 The supplier offers 3% off the 0.80 a kg price for orders of 3,000 kg. Total cost at the EOQ and at 3,000 kg; decision. [4]

Exercises 2.3·2.4

2.3 Lead time 5 days, daily demand sd 12 kg, service level 97.5% ($z = 1.96$). Lead-time demand, safety stock and the reorder point (nearest kg). [5]

2.3

- Daily 30,000/365 = 82.2 kg; lead-time demand $82.2 \times 5 = 411$ kg.
- $\sigma_{LT} = 12\sqrt{5} = 26.8$; safety stock $1.96 \times 26.8 = 53$ kg.
- $ROP = 411 + 53 = 464$ kg.

2.4 The supplier offers 3% off the 0.80 a kg price for orders of 3,000 kg. Total cost at the EOQ and at 3,000 kg; decision. [4]

2.4

- EOQ: purchase 24,000 + 1,200 + 1,200 = 26,400.
- 3,000 kg: purchase 23,280 + ordering $10 \times 60 = 600$ + holding $1{,}500 \times 1.60 = 2{,}400$ = 26,280.
- Saves 120 a year - take it, but only just; a 2.5% discount would break even.