

# EOQ – how much to order at once, and why the answer is flat

Upcoming episode

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How much should you order at once? The EOQ formula explained with a worked example, the elegant property at the optimum, why the cost curve is so flat that precision barely matters – and what lean does to the whole calculation.

## MAIN TOPICS

- The two costs pulling opposite ways
- The 1913 formula, and the man who was forgotten
- A worked example
- The elegant property at the optimum
- Why the curve is flat – and what that means
- What the model assumes
- The lean attack on the formula itself
- The link to the bullwhip effect

## QUESTIONS THIS EPISODE ANSWERS

- What is EOQ?
- Which two costs are being balanced?
- What is the formula, and how is it used?
- What happens if I get the order quantity wrong?
- What does the model assume?
- Why do lean practitioners want small batches when EOQ says large?
- What does EOQ have to do with the bullwhip effect?

## KEY POINTS

- EOQ balances the cost of ordering often against the cost of holding stock.
- The formula is the square root of twice demand times order cost, divided by holding cost.
- At the optimum the two costs are exactly equal.
- The curve is flat – being 25 per cent out costs only a few per cent.
- That means you do not need precise figures to make a good enough decision.
- The model assumes steady demand and instant delivery. Neither is true.
- Lean does not dispute the answer, it attacks the input: cut the order cost and EOQ falls.

## SOURCES AND REFERENCES

- Ford W. Harris – How Many Parts to Make at Once, Factory, The Magazine of Management 10 (1913)

- Donald Erlenkotter – Ford Whitman Harris and the Economic Order Quantity Model, Operations Research 38(6), 1990  
<https://pubsonline.informs.org/doi/pdf/10.1287/opre.38.6.937>
- Economic order quantity – overview article  
[https://en.wikipedia.org/wiki/Economic\\_order\\_quantity](https://en.wikipedia.org/wiki/Economic_order_quantity)

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