

The bullwhip effect – why small ripples in a shop become crises in the factory

Upcoming episode

Why a small change on a shop shelf becomes a large swing in the factory: the bullwhip effect explained, with the nappies that exposed it, the four causes, the toilet paper of 2020 – and what actually dampens it.

MAIN TOPICS

- What the effect is, and where the name comes from
- The nappies that exposed it
- The four causes
- Safety margin on top of safety margin
- Ordering by the pallet
- The promotion that looks like demand
- Ordering more than you need, because everyone else does
- What actually dampens it

QUESTIONS THIS EPISODE ANSWERS

- What is the bullwhip effect?
- Why do the swings grow further up the chain?
- What was the Procter & Gamble example?
- Why do promotions amplify the effect?
- What happened with toilet paper in 2020?
- How can the effect be dampened?
- What does this have to do with lean?

KEY POINTS

- The bullwhip effect is that orders swing more than sales, and the swing grows upstream.
- Procter & Gamble found that nappy orders swung more than babies could explain.
- Lee, Padmanabhan and Whang identified four causes – and all four are rational choices.
- Every tier adds its own safety margin, and the margins multiply.
- Promotions create a demand peak that is purchases moved in time, not new consumption.
- In a shortage everyone orders more than they need, making the shortage worse.
- What dampens the effect is shared information, not better guessing at each tier.

SOURCES AND REFERENCES

- Hau L. Lee, V. Padmanabhan and Seungjin Whang – Information Distortion in a Supply Chain: The Bullwhip Effect, Management Science 43(4), 1997

<https://pubsonline.informs.org/doi/10.1287/mnsc.43.4.546>

- Jay W. Forrester – Industrial Dynamics (1961), where the phenomenon was first described

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