MICHIGAN STATE UNIVERSITY

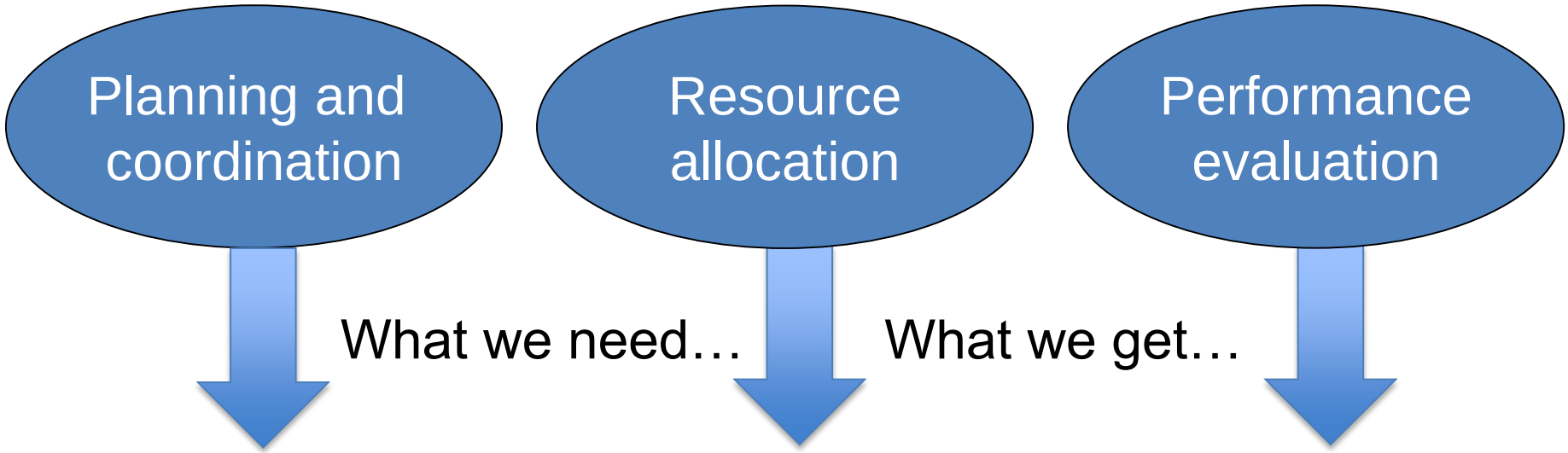
Decision-facilitating use of accounting information: The role of forecasting within organizations and the effects of forecast error on operations

Karen Sedatole
Michigan State University

In which of these topical areas do you expect to need resources (e.g. professional development, guidance, articles, reports or tools) within the next 2 years?

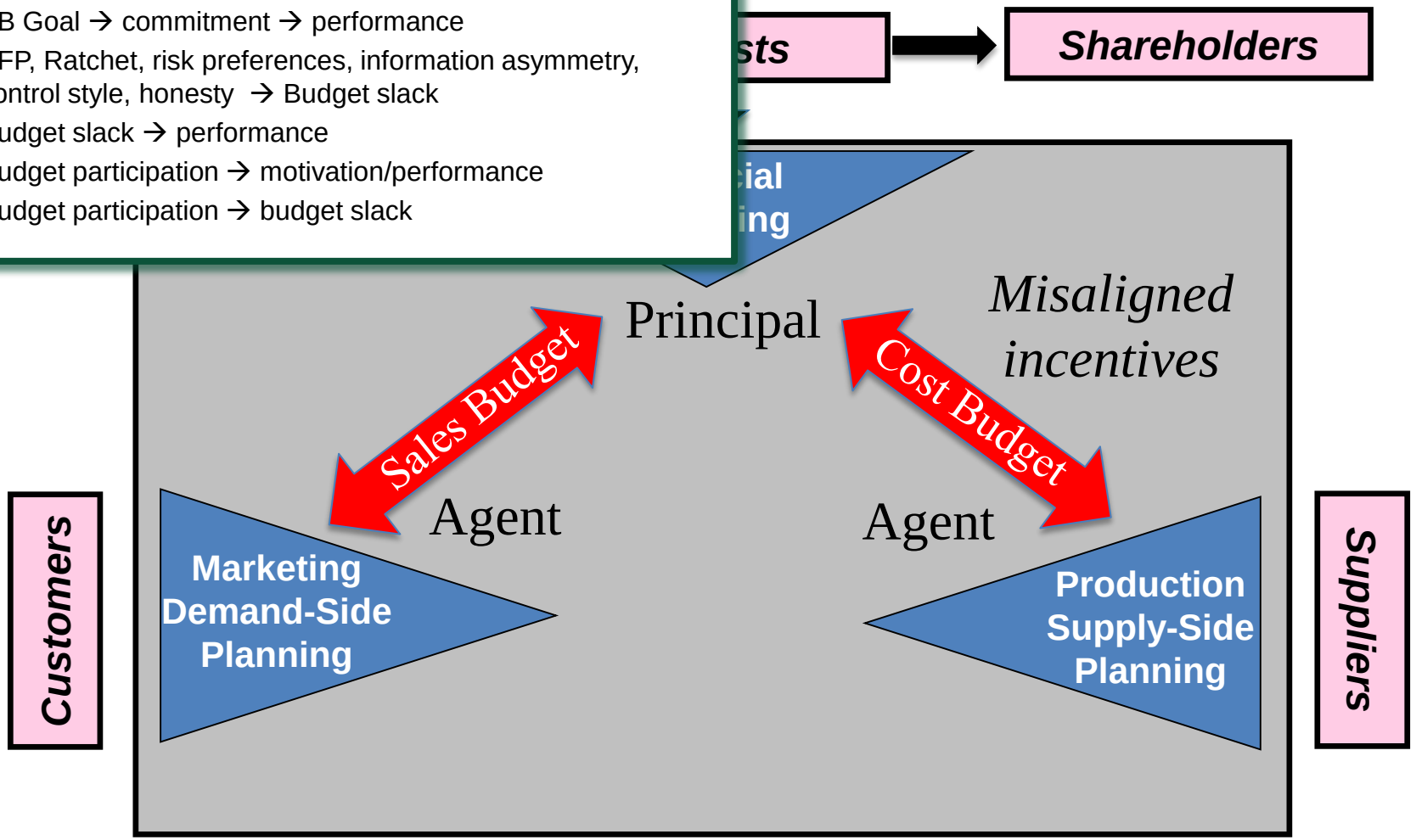
Source: AICPA survey of CGMA holders

Role of Budgets



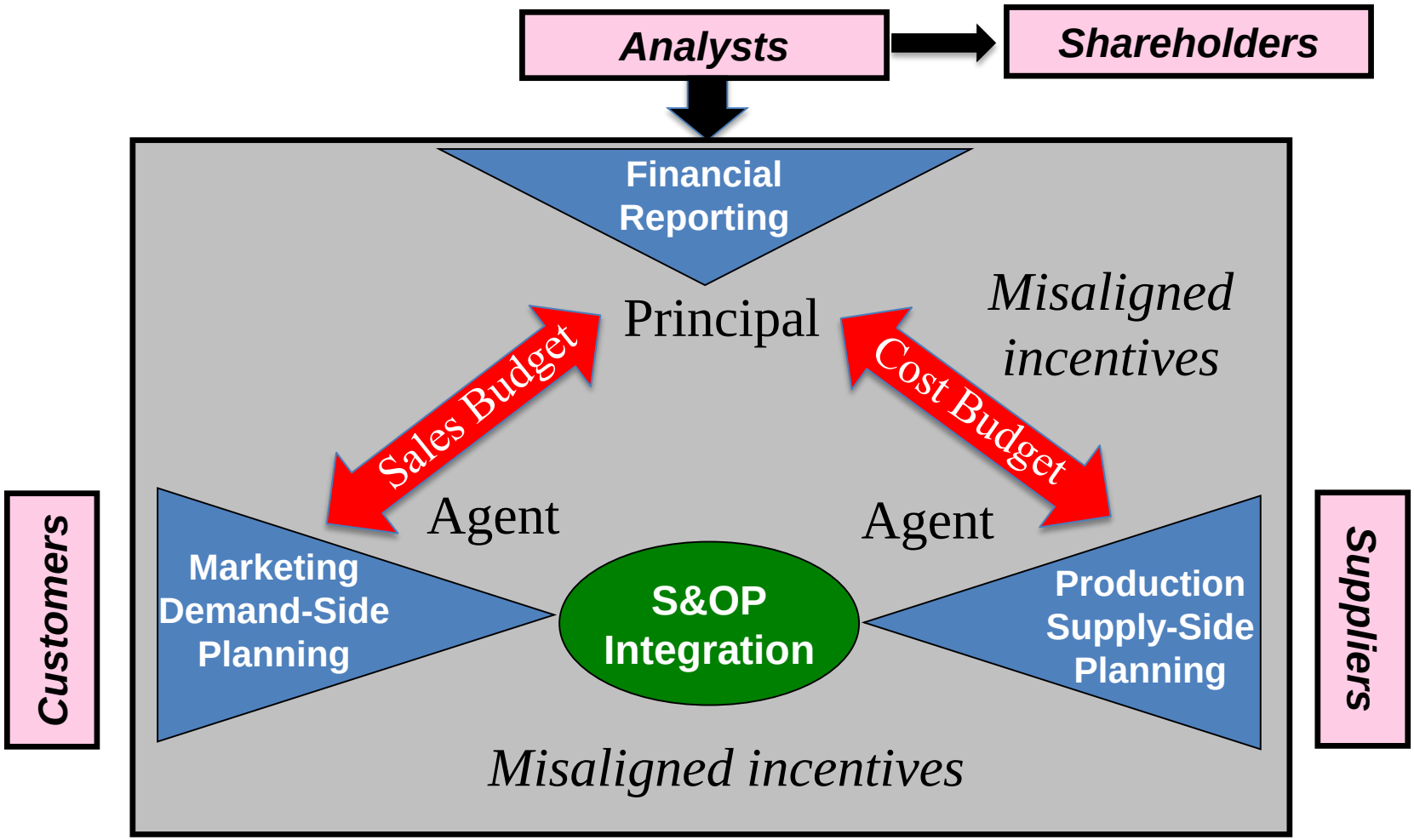
66 percent of CFOs surveyed believe their planning process is influenced more by politics than by strategy

- BB Goal + PFP → motivation/performance
- BB Goal difficulty → motivation
- BB Goal → commitment → performance
- PFP, Ratchet, risk preferences, information asymmetry, control style, honesty → Budget slack
- Budget slack → performance
- Budget participation → motivation/performance
- Budget participation → budget slack

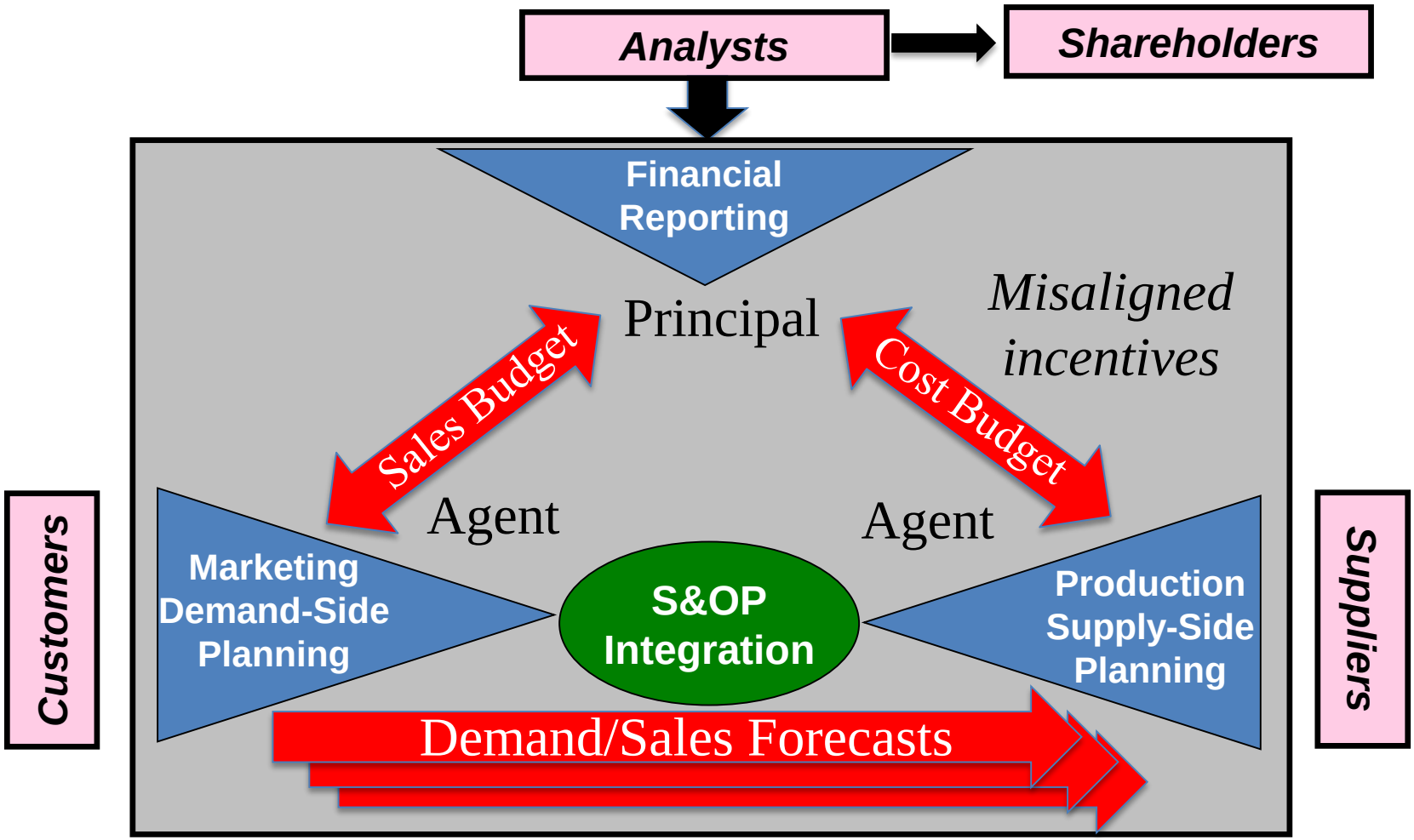


The determinants and consequences of budget-based (BB) control practices are among the most widely studied topics in management accounting.

(Covaleski et al. 2003)



By contrast, there are many unexplored opportunities for management accounting researchers in the examination of demand/sales forecasts that provide for ongoing coordination.



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What we know…

- Practitioners…
  - Regard planning/forecasting as more important than control (Sivabalan et al. 2009),
  - Argue that forecasts are supplanting the budget as the primary planning and coordination tool, especially in highly uncertain environments (Vadasz and Lorain 2010; Hagel 2014; Sivabalan et al. 2009)

And yet…

- Little accounting research examining the role that forecasts play in planning and coordination (Selto and Widener 2001; Hansen et al. 2003; Hansen and Van der Stede 2004).

Enterprise resource planning (ERP)

ERP is the integrated management of core business processes, often in real-time and mediated by software and technology. These business activities can include:

- production planning
- manufacturing or service delivery
- marketing and sales
- materials management
- inventory management
- shipping and payment
- finance

Annual Sales Budget

- Beginning of year
- Sales budget = f(prior year, managerial judgment, negotiation)

- Fixed (largely)
- High level
- Resource allocation (LT)
- Performance benchmark (control)
- Negotiated up the hierarchy
- Aspirant

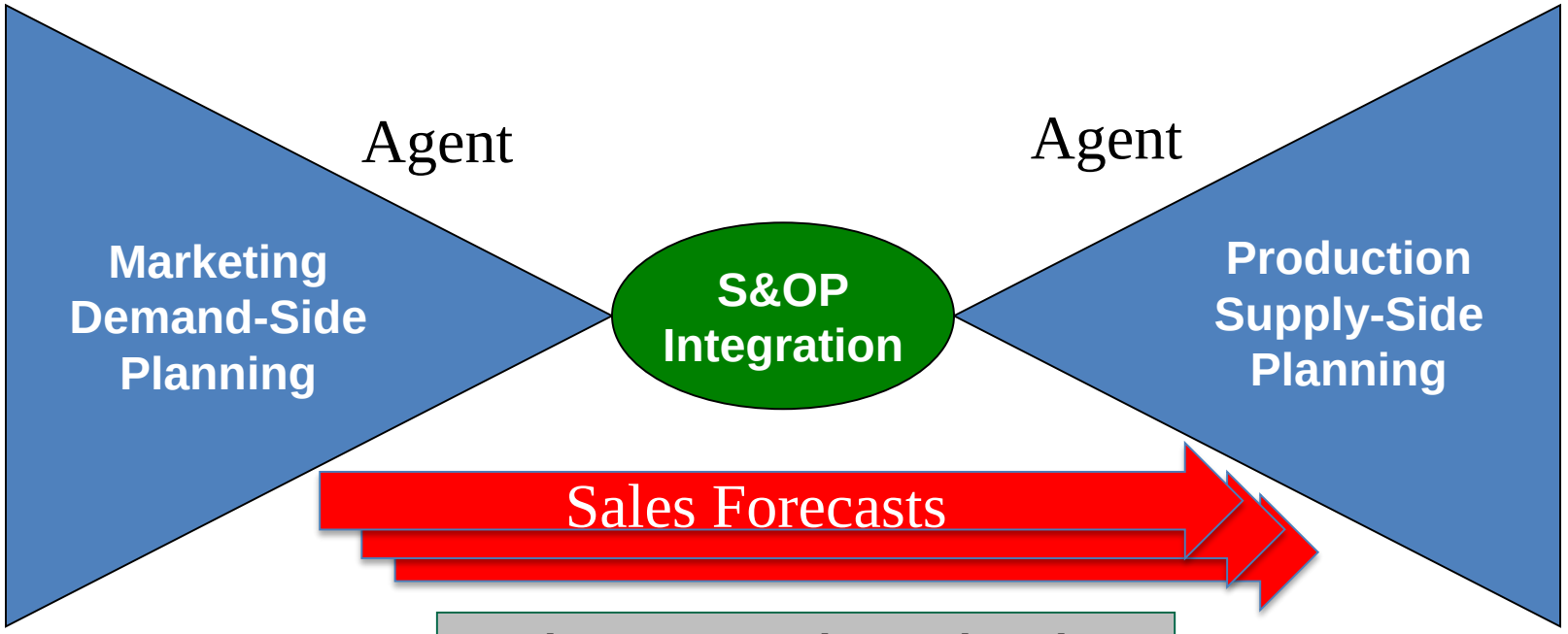
Decisions to create the conditions to generate a desired level of sales and profits.

Sales Forecasts

- Throughout the year
- Sales forecast = f(statistical algorithms, managerial judgment)
  - competitor actions, market conditions, customer responses to promotion activities (Bowersox et al. 2012; Sivabalan et al. 2009).
- Changing
- Detailed
- Resource acquisition (ST)
- Coordination
- Communicated up and across the hierarchy
- Expected

Prediction of sales and profits under given conditions. (Horngren et al. 1999, p. 262)

Misaligned incentives in planning



- Product Variation
- Rapid Response
- High Service
- Maximize Revenue
- Minimize Stockout

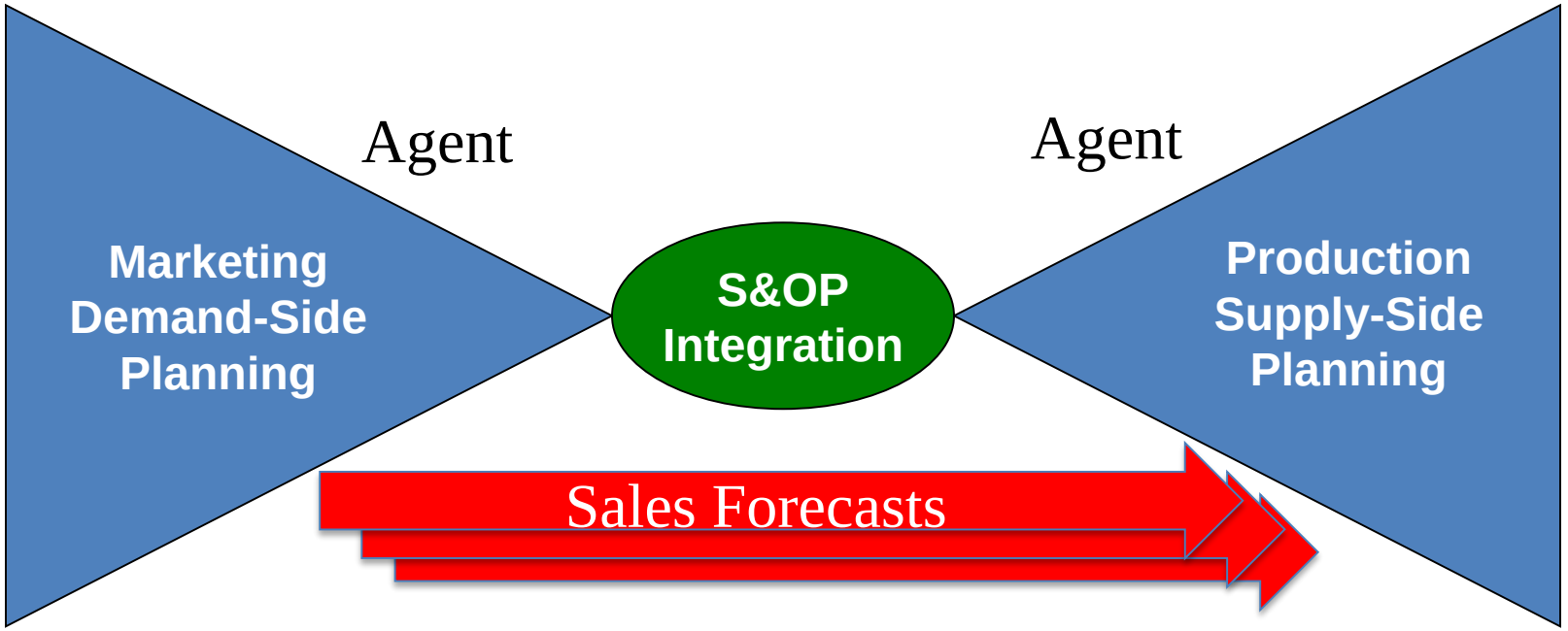
Sales & Operations Planning (S&OP) Process

… the coordination of demand-facing activities of sales and marketing with supply-facing activities of operations (e.g., production, logistics, supply chain management).

(Oliva and Watson 2011)

- Long Runs
- Stable Schedules
- Long Lead times
- Minimize Costs
- Minimize Inventory

Misaligned incentives in planning



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Misaligned incentives

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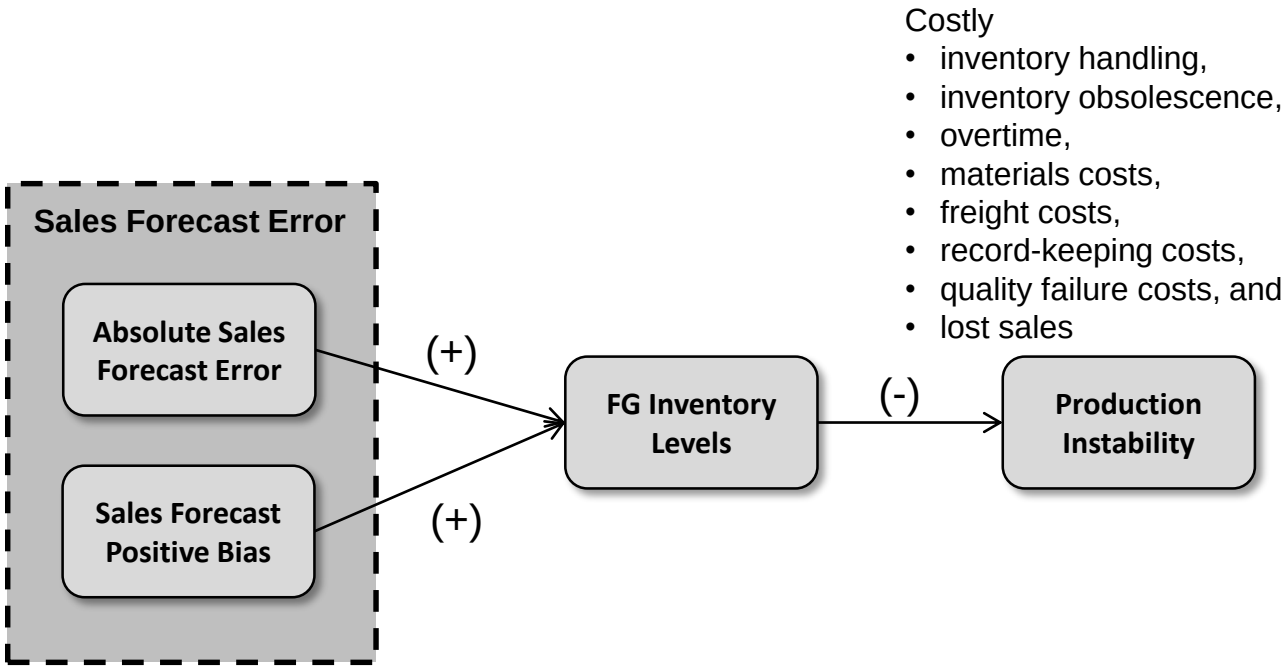
Inflate the forecast

TENSION

Underproduce

Example



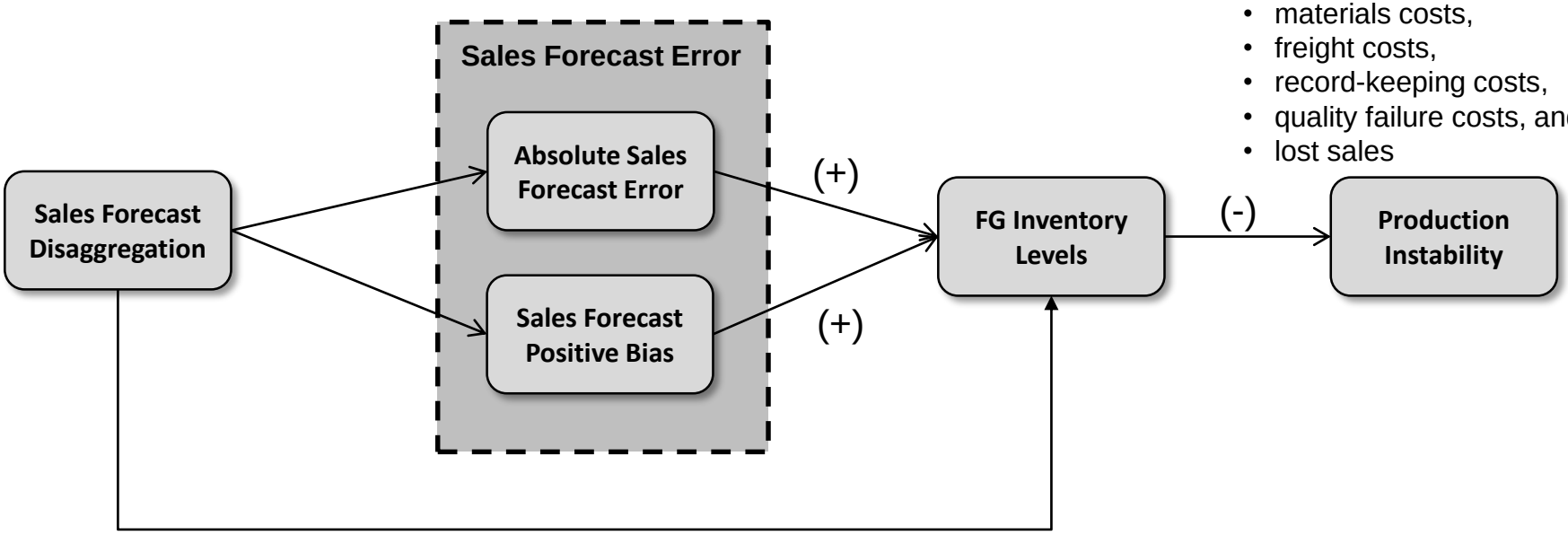
- Sales forecast error results in an increase in production instability (Jeunet 2006; Kerkkänen et al. 2009; Pujawan and Smart 2012)

  "the intensity of revisions or changes to the production schedule over time." (Pujawan and Smart 2012)

- Studied in operations, but in a very "mechanistic" way
  - Identify optimization opportunities

Example

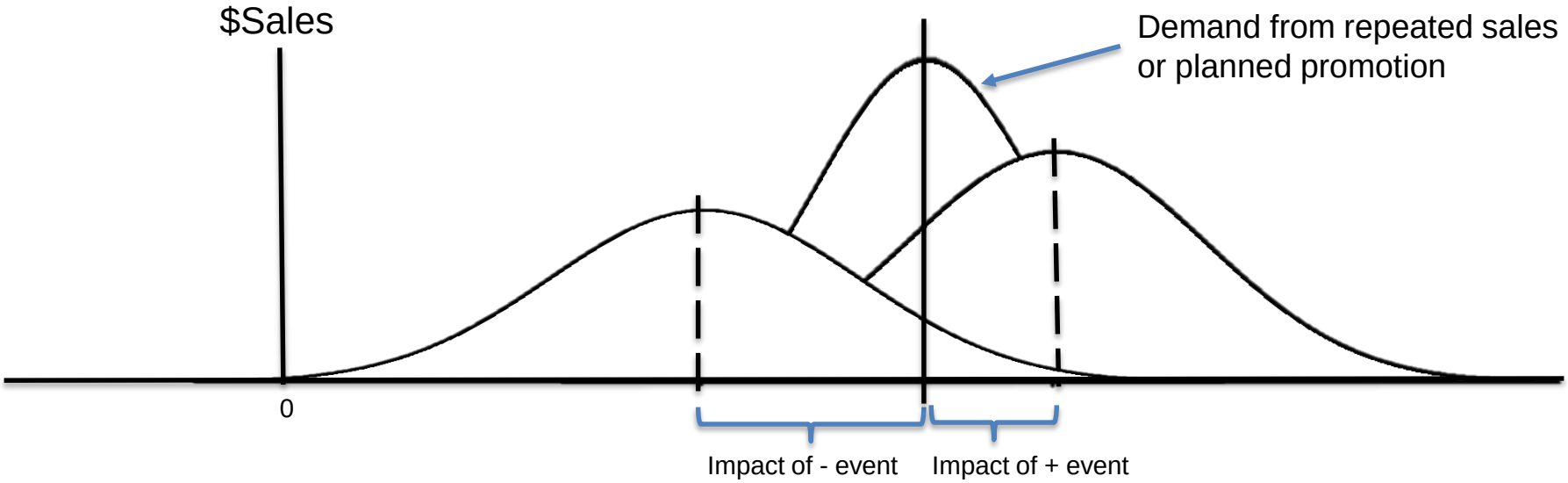
Costly
- inventory handling,
- inventory obsolescence,
- overtime,
- materials costs,
- freight costs,
- record-keeping costs,
- quality failure costs, and
- lost sales



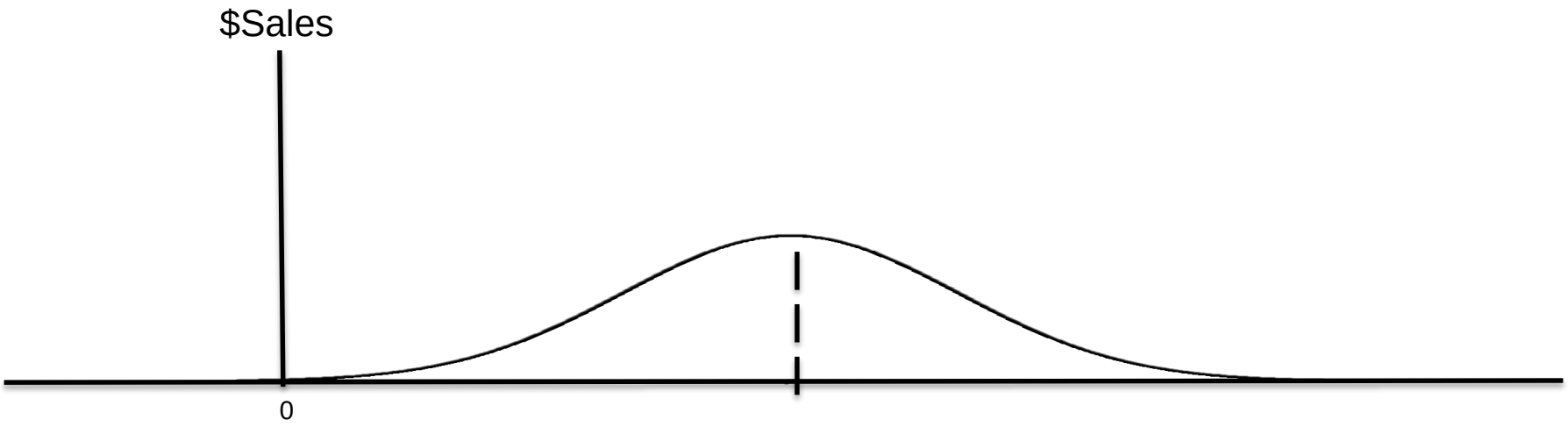
- We study an organization that took an information-based approach to the problem.

"Sales forecast disaggregation"…

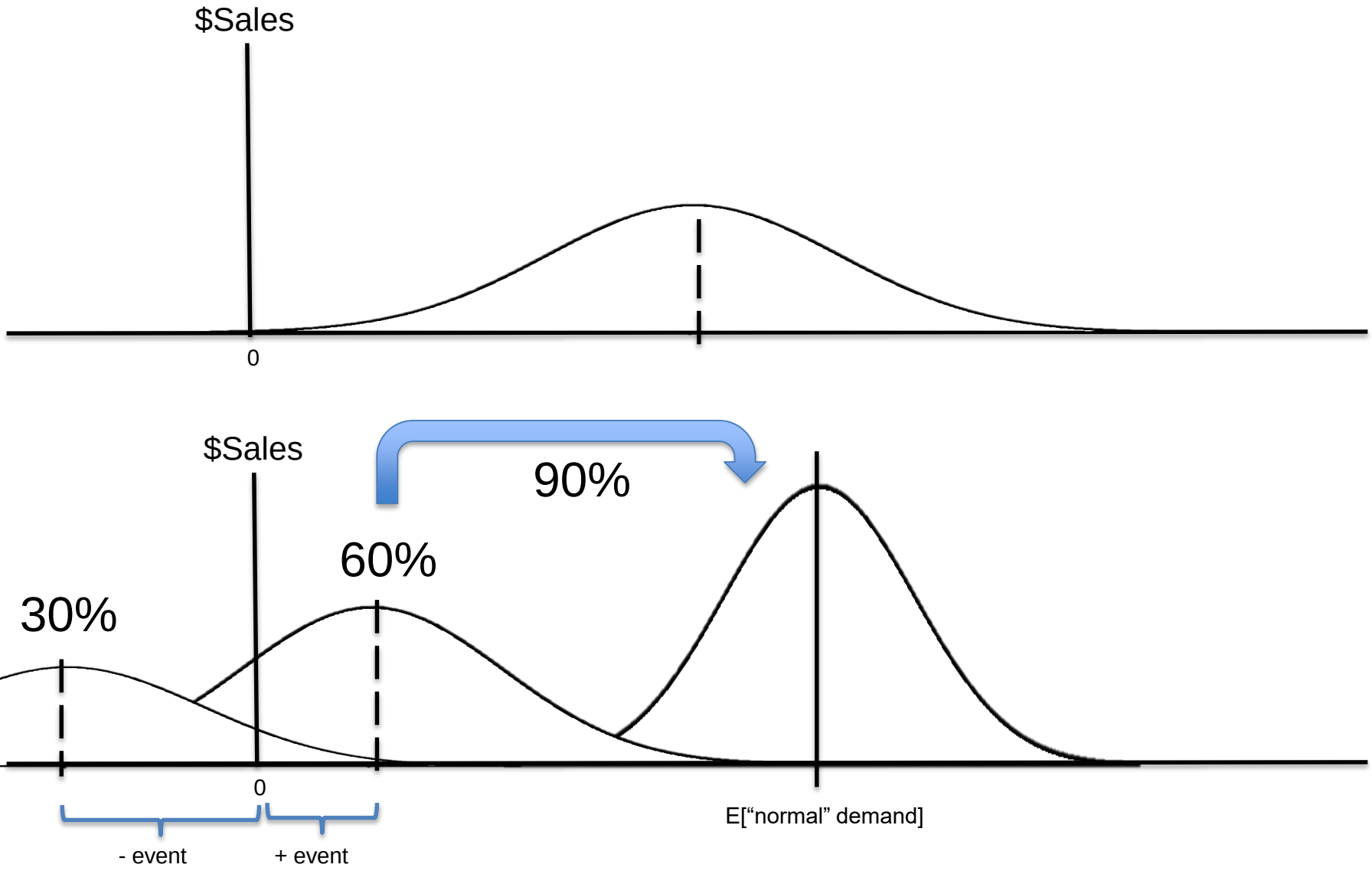
Sales Forecast Disaggregation



Sales Forecast Disaggregation



Sales Forecast Disaggregation

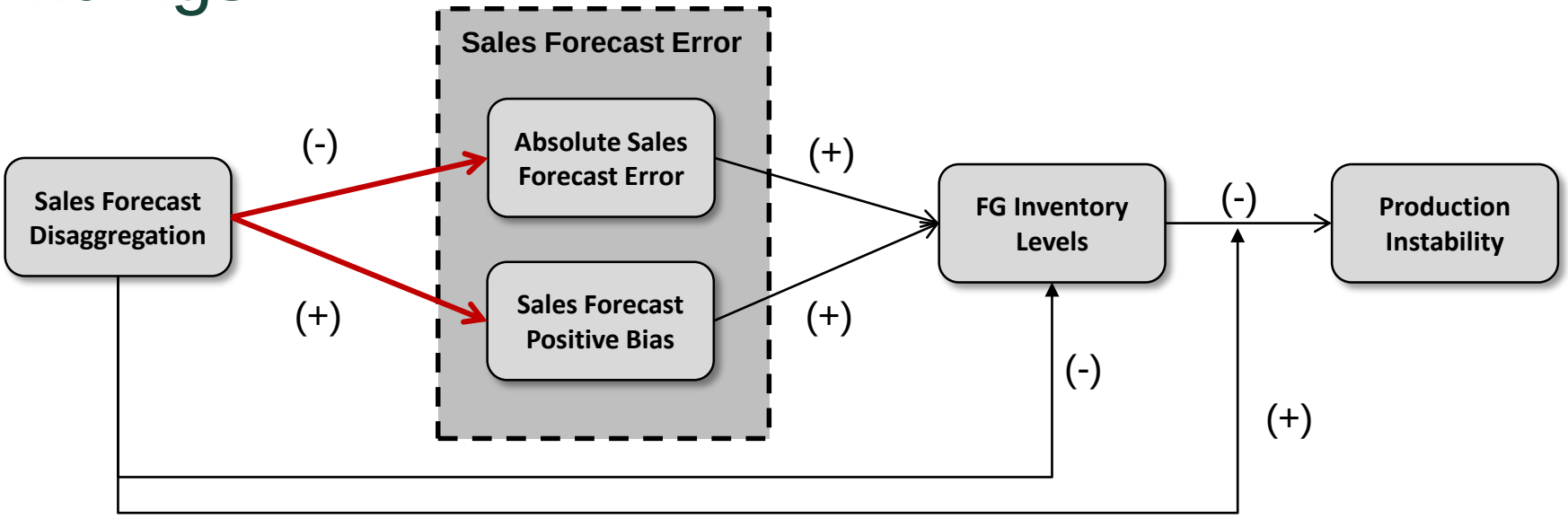


Research Question

- Is a change in the information environment an alternative (partial) solution to the problems created by forecast error?
  - *Sales forecast disaggregation*

- What effect does sales forecast disaggregation have on:
  - Forecast error and bias?
  - Inventory levels?
  - Production instability?

Findings



- Decrease in absolute forecast error
  - Reduction in cognitive demands (Ravinder 1988; Henrion et al. 1993; Chen et al. 2015)
- Increase in positive forecast bias
  - Classification discretion → greater opportunity and incentive to bias (Abdel-Rahim et al. 2015).
- Inventory effects:
  - Offsetting indirect effects through forecast error/bias
  - Favorable direct effect (production postponement strategy)
  - Overall favorable effect and with no degradation in production stability

Where can we contribute?

We can contribute to the ***operations*** literature by:

1. Examining the S&OP process within the organizational context.
   - Operations research provides a dearth of empirical evidence of presumed associations (Kerkkänen et al. 2009), resulting in a stream of research that is largely devoid of the organizational context.
   - We can shed light on the role that the behavior of self-interested managers plays.
2. Focusing on an accounting information solution to the problems operations researchers document.
   - Potential to affect ***practice***.

Where can we contribute?

We can contribute to the ***accounting*** literature by:

3. Extending previous budgeting literature by examining:
   - misaligned incentives between two groups of agents
   - on-going forecasting (i.e., budget revisions)
     - while accounting budgeting literature documents budget "slack," what biases might we observe for forecasts?
   - the planning and coordination use of accounting information.
     - prior research (over-)emphasizes the control use
4. Extending financial accounting research that examines the determinants and consequences of management forecast accuracy.

Thank you!