Theory of Constraints Practitioners Alliance www.tocpractice.com

The Layers of Supply Chain Synchronization

by Humberto Baptista

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Topics

- TOC Solution for Distribution
- The layers of integration
- Challenges and obstacles
- TOC Contribution to each layers
- Open problems

The Problem

- Starting assumption:

Definetively

"As long as the end consumer hasn't bought, nobody in the supply chain has sold." E.G.

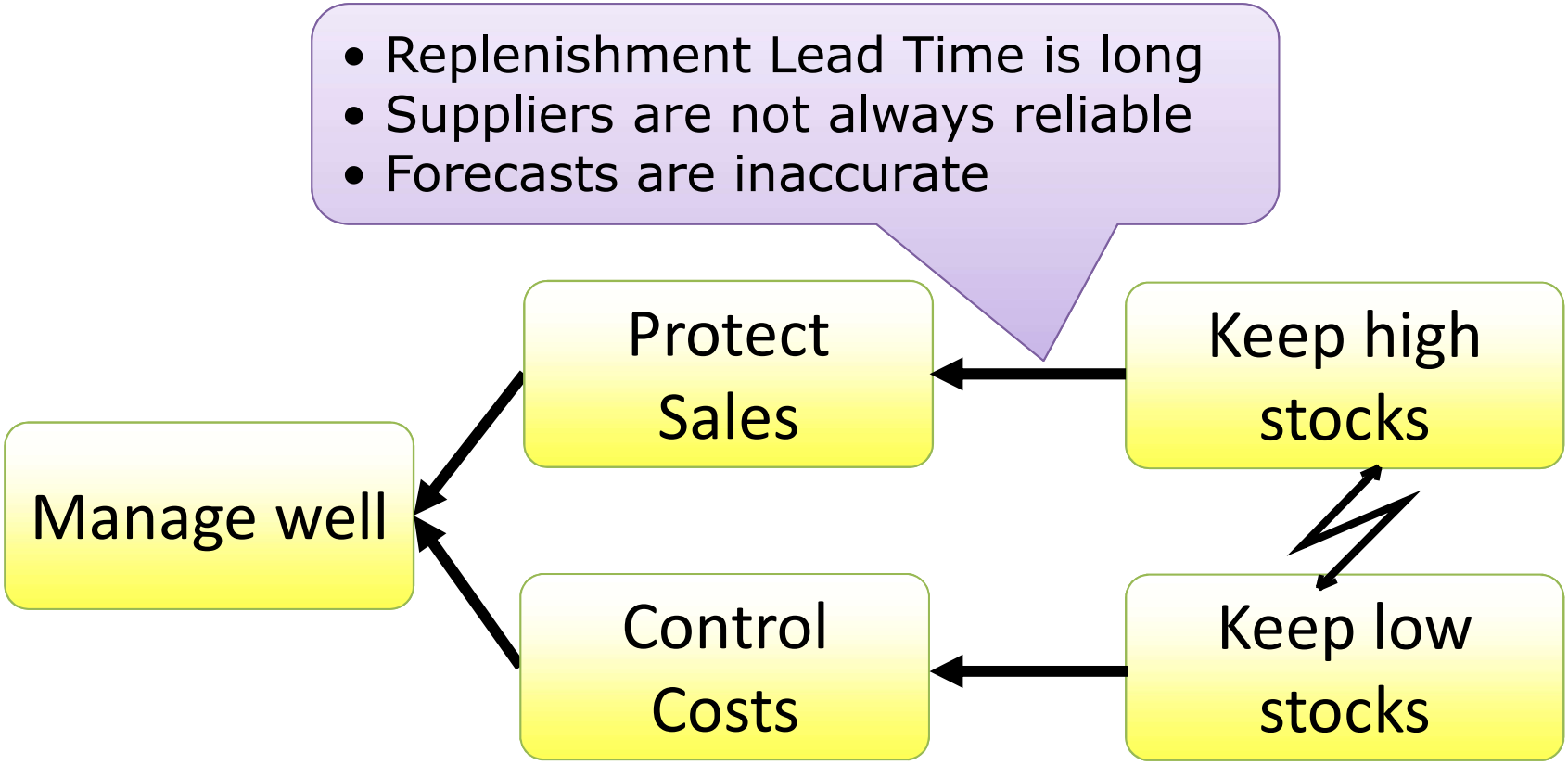
Focusing Steps

1. **IDENTIFY the system's constraint(s)**	The clients that enter the store (wanting to buy)
2. ***Decide*** **how to EXPLOIT the constraint(s)**	Have high availability of products (not too little nor too much) / The right product at the right place at the right price at the right quantities
3. **SUBORDINATE everything else to the above decision**	Establish a pull system that adapts to shifts in demand and follow it to the letter
4. **ELEVATE the constraint(s)**	Not necessary?
5. **WARNING!!!! If in the previous steps a constraint has been broken go back to step 1, but do not allow INERTIA to cause a system's constraint**	Does not happen?

The Thinking Processes

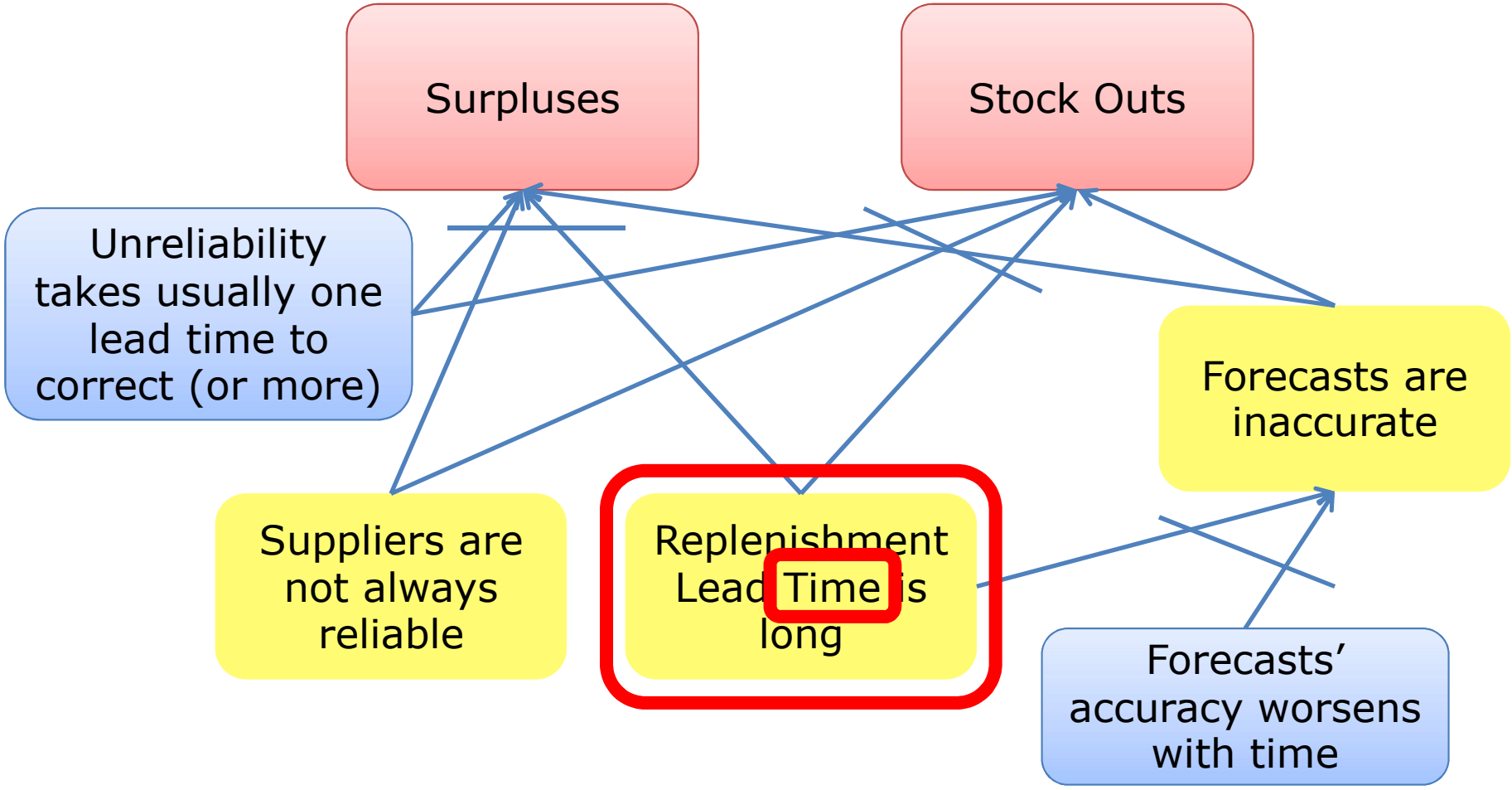
Source: *Isn´t it Obvious*? – E.G.

Core Cloud

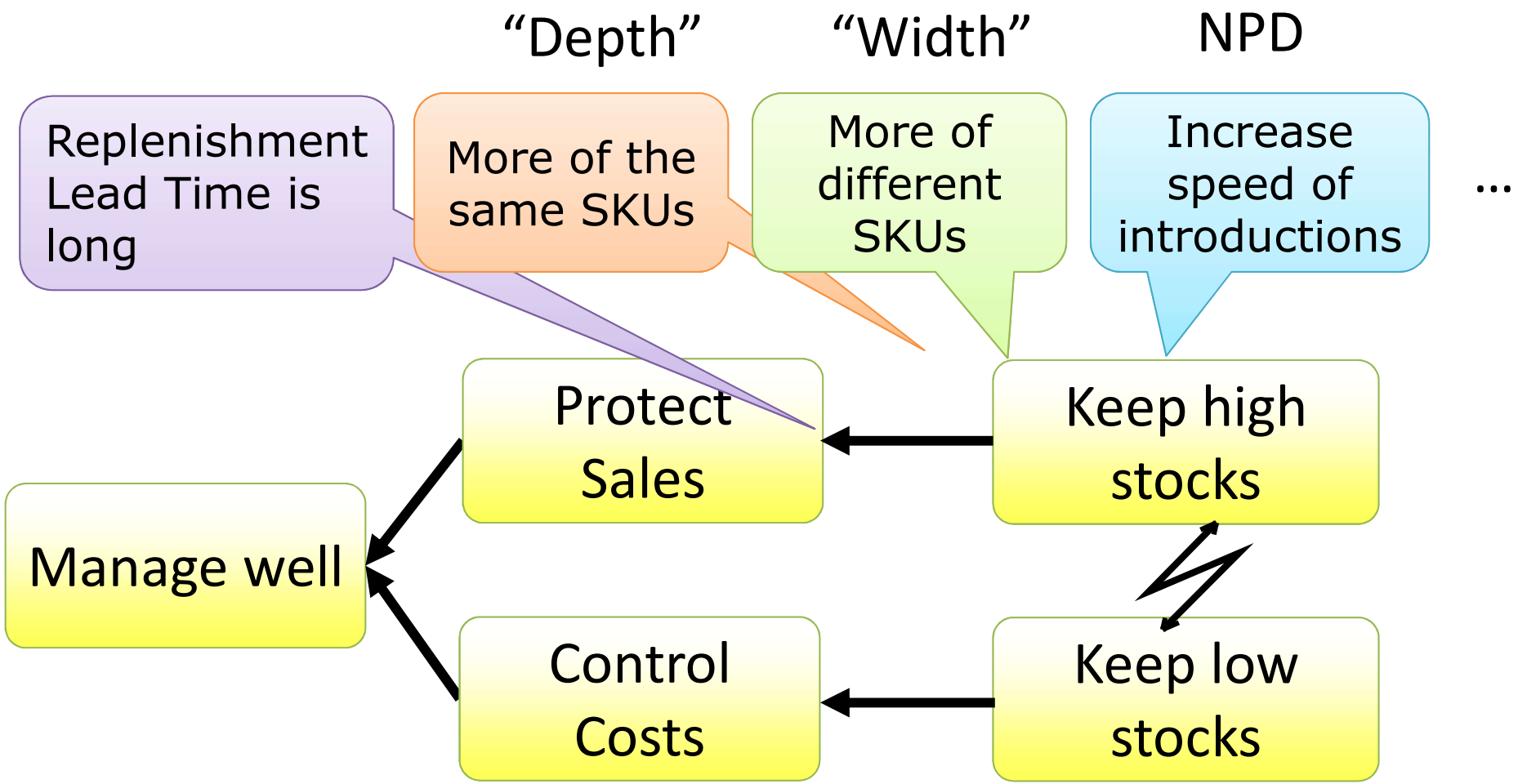

• Replenishment Lead Time is long
• Suppliers are not always reliable
• Forecasts are inaccurate
Protect Sales
Keep high stocks
Manage well
Control Costs
Keep low stocks

Core Cloud

- **3** assumptions to challenge? Where to start?



Core Cloud Again

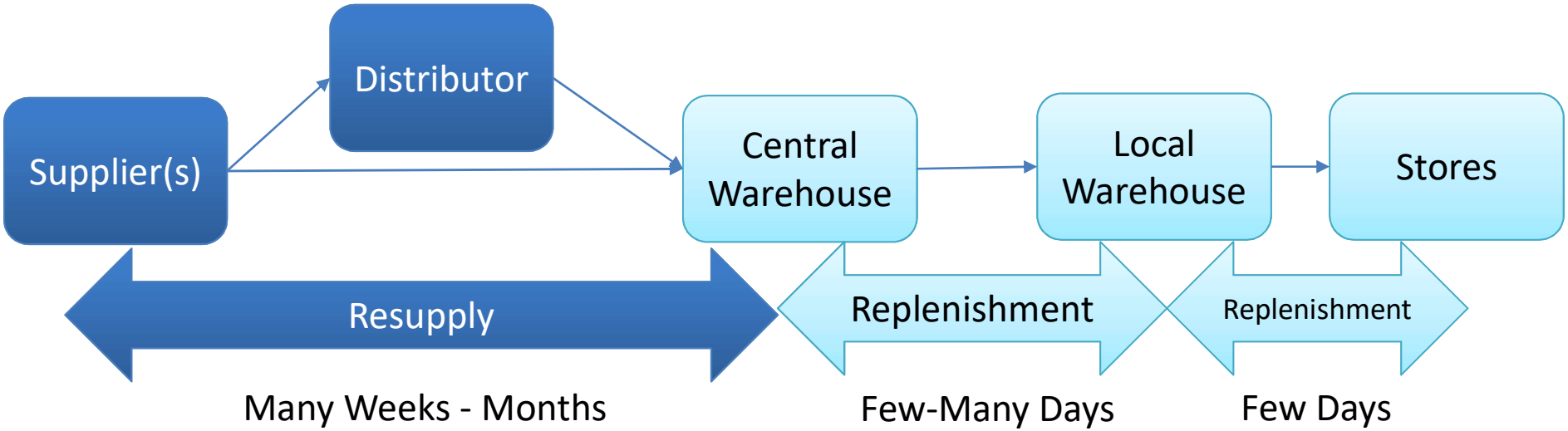


Aspects

The right:

- **Product** Mix (variety)
  - Number of products (width)
  - Specific choice of each product
- **Quantity** Depth (volume)
- **Place** Local Mix (Alpha, Beta, Gamma)
- **Time** Speed of SC & specific moments of demand
- **Price** The balance between perceived value and total demand

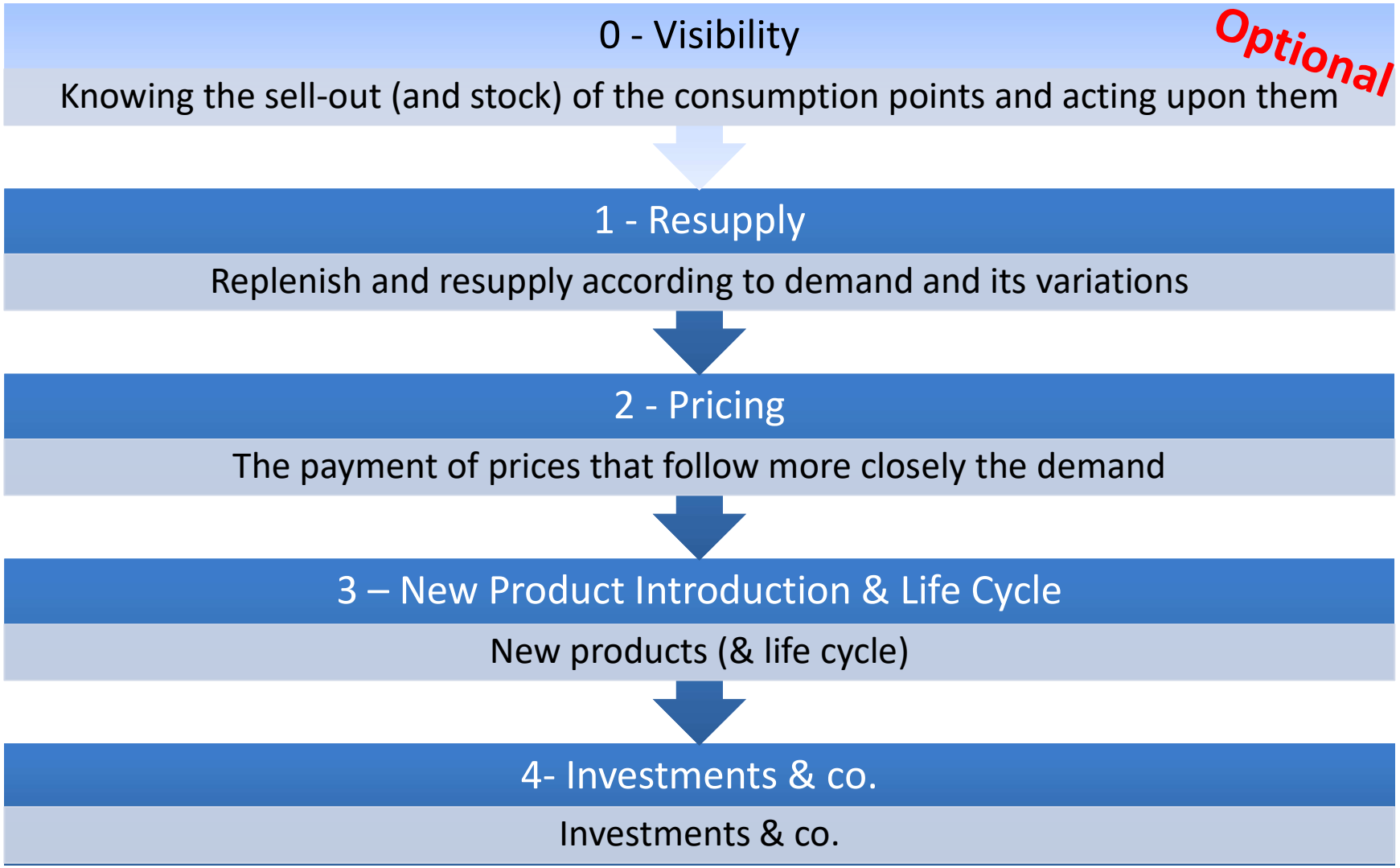
Elements of the chain



Distortions largely due to business transaction models ("I sold it, not my problem anymore", volume discounts, etc.) and rigidity of production (increases lT and decreases availability)

Distortions largely due forecasting and local optimization (picking efficiency, truck optimization, freight economies, etc.) and impression of more stock means more sales.

Layers


0 - Visibility
Optional
Knowing the sell-out (and stock) of the consumption points and acting upon them
1 - Resupply
Replenish and resupply according to demand and its variations
2 - Pricing
The payment of prices that follow more closely the demand
3 – New Product Introduction & Life Cycle
New products (& life cycle)
4- Investments & co.
Investments & co.

Layer 0 – Visibility (optional)

- In some industries there is the possibility of sharing "**Visibility**" data.
- I.E. Sales at the final consumption points (retail **sell-out**) and sometimes even stock
- While this may offer opportunities to better synchronize the supply chain to demand the potential is seldom exploited.
- When available and used: mostly by marketing (trade marketing) departments for actions and tracking of actions. (Promotions, promoters, NPI, etc.)

Layer 1 - Resupply

- Core of TOC Distribution Solution (and Retail)
- Resupplying/replenishment of existing SKU-Locations
- Demand and trends in demand determine Buffers
- Geared towards the right quantity
- Extensions to handle known seasonalities
  - But with variable support in Software
- No provision for introduction / discontinuation
  - That is: no support to get to or get out of buffers of size zero.

Layer 2 - Pricing

Consumer end

- Usually the focus (should it?)
- Experimenting with Price sensitivity by: focusing on Throughput x Price and
- Exploiting limitations on supply (raising prices on really scarce fast movers)
- Generating **T/SKU** info for other layers

Other links of the chain

- Sharing revenues
  - Splitting the value of the sale
  - Especially for consignment
- Turns retroactive bonuses
  - Alignment with VMI
  - Incentives to better SLA and mix
  - Also encourages reverse logistics
- Much less affected by uncertainties compared to end-consumer pricing.

Layer 3 – NPI & Life Cycle

- In each location, what signals from demand do we use to:
- **Bring in new products**
- **Discontinue products**
- (always: driven from demand)

- Also how to size the mix of each category?
- Necessity or a expected consequence?
- (see my presentations on TOCPA 11 and 23)

Layer 4 – Investments

- How far / deep can the cooperation between links go?
- Imagine if the launch of a new product family/line or store/location could be co-financed by different links of the chain
- And if the options for attracting investment could be securitized?
- When done in a fast, adaptive and demand driven way the impact can be significant

Conclusion

- There is much potential in synchronizing (driving) the Supply Chain by its demand
- Life cycles are getting shorter
- New channels are getting a lot of strength
- More complexity and more options available
- Speed and adaptation are the key advantages
- Not yet fully supported by TOC compatible software

Q&A

THANK YOU

About Humberto Baptista

Humberto holds a BsC and MsC in Computer Science and an MBA, he is the CEO and founder of Vectis Solutions - a TOC Consulting company – is the Strategic Advisor for Neogrid, and was a member of Goldratt Group as TOC Expert for Goldratt Consulting and Faculty Member for Goldratt Schools.

Humberto led many projects ranging from leading Viable Vision projects on Consumer Goods and Retail to functional implementations in manufacturing, projects and services, led translation efforts (TOC Insights, GS material, GWS in CCPM and Viable Vision S&Ts), taught TOC VV Application Experts in Logistics, Project Management and Sales & Marketing and Project Leaders in many countries.

His current interests include: TOC Principles, Implementations guided by S&Ts, advanced topics of TOC Finance, TOC for Retail, TOC for NPO (including Government, Health and Education), TOC4E and techniques for teaching TOC.

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About this webinar

TOC solutions enable the synchronization of the supply chain with the actual demand, but the focus has been on moving products with little attention and support to other very important aspects of supply chains that also should be synchronized with demand. Namely: prices, mix & NPI and investments & financing. This webinar presents the challenges to deepen the synchronization of the supply chain in a sequence of layers and what does TOC add to these questions.