The Future of Supply Chain Management in a Demand Driven World

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TECHNOLOGY

The Death of Supply Chain Management

by Allan Lyall, Pierre Mercier, and Stefan Gstettner

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The supply chain is the heart of a company's operations. To make the best decisions, managers need access to real-time data about their supply chain, but the limitations of legacy technologies can thwart the goal of end-to-end transparency. However, those days may soon be behind us. New digital technologies that have the potential to take over supply chain management entirely are disrupting traditional ways of working. Within 5-10 years, the supply chain function may be obsolete, replaced by a smoothly running, self-regulating utility that optimally manages end-to-end work flows and requires very little

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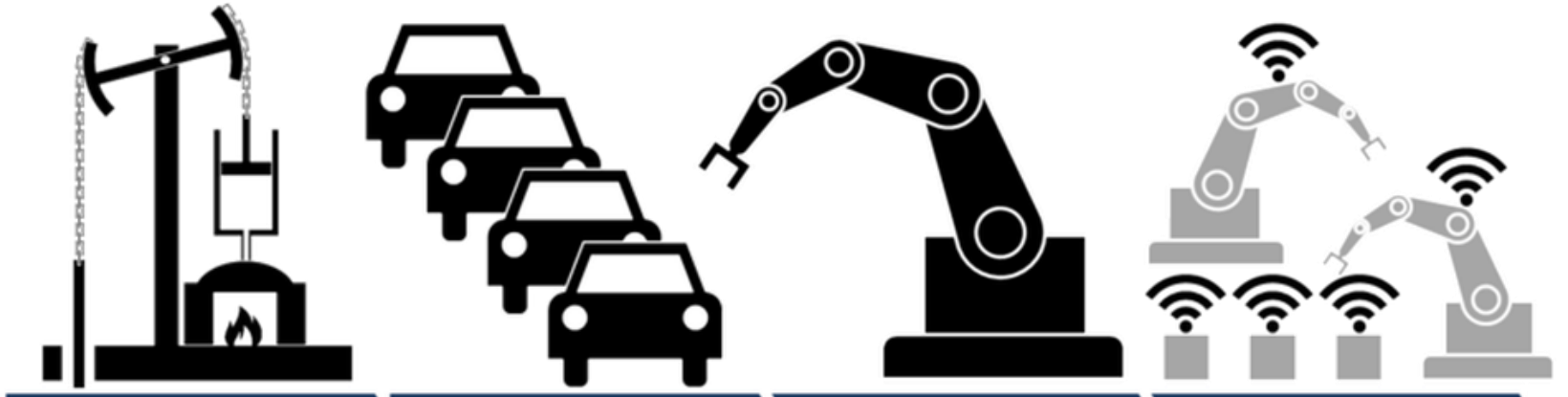
The Fourth Industrial Revolution



1st	2nd	3rd	4th
Mechanization, water power, steam power	Mass production, assembly line, electricity	Computer and automation	Cyber Physical Systems

The Top 10 Problems with "Supply Chains"

1. Supply Chains assume linear relationships
2. Supply Chains only flow downstream
3. Supply Chains are rigid and inflexible
4. Supply Chains are not integrated
5. Supply Chains plan at the speed of night
6. Supply Chains are cost driven
7. Supply Chains contain far too much waste
8. Supply Chains are too slow
9. Supply Chains contain too much risk
10. Supply Chains are not intelligent

Most Businesses make decisions based on forecasts and costs

- **The obsessive focus on reducing costs causes businesses to make the wrong decisions based on mass production and mass consumption**
- **Planning systems based on forecasts lead to excess inventory and material shortages**
- **Economies of scale lead to bigger batches, bigger containers, bigger ships and bigger problems**
- **Efficiency based measurement systems reward maximum utilization, highest output and lowest cost, this leads to higher levels of unsold inventory and does not reward customer service or product flow**

Customers do not care about your costs

Customers care about timely, accurate and effective delivery of a service or product at a reasonable price.

Customers care about the potential for loss or delay during transit

Example: Hanjin Shipping Company

Hanjin, the world's seventh-largest container carrier, filed for bankruptcy in August, 2016 stranding $14 billion worth of cargo at sea as the company lacked cash to pay cargo handlers, tug operators or ports.

Thinking outside the Box

The Munich Maersk is a huge (1200 feet long, 200 feet wide) state of the art Container Ship with a capacity of 20,568 TEU containers, it has a crew of 28 and all the loading and unloading can be done by 1 person

The Cost of Transportation is out of this World

Shipping a 170lb package with DHL express from Shanghai to London takes 3 times longer, costs four times as much, as buying a human of the same weight an airline ticket!

Adrift in a Sea of Paper

- **Dealing with customs clearances, insurance, transfers between sea, road rail and air carriers creates a lot of revenue for middlemen**
- **There are physical, procedural and bureaucratic holdups which require freight forwarders to handle**
- **Systems are not integrated**
- **Systems are outdated**
- **Global Logistics is now a $43 trillion industry (2014)**
- **There is no website for comparative shopping of the best freight rates**

Source: The Economist April 28, 2018

No wonder Shippers are

- 66% of US importers complain that 25% of their shipments arrive late
- 42% said that they spend over 2 hours to arrange the necessary paperwork to arrange a shipment
- 83% say they struggle to track items as the move across the world
- Amazon Prime can deliver to your house at a set time
- But you have no idea when your international shipments will arrive

Source: The Economist, April 28, 2018

But this is about to Change

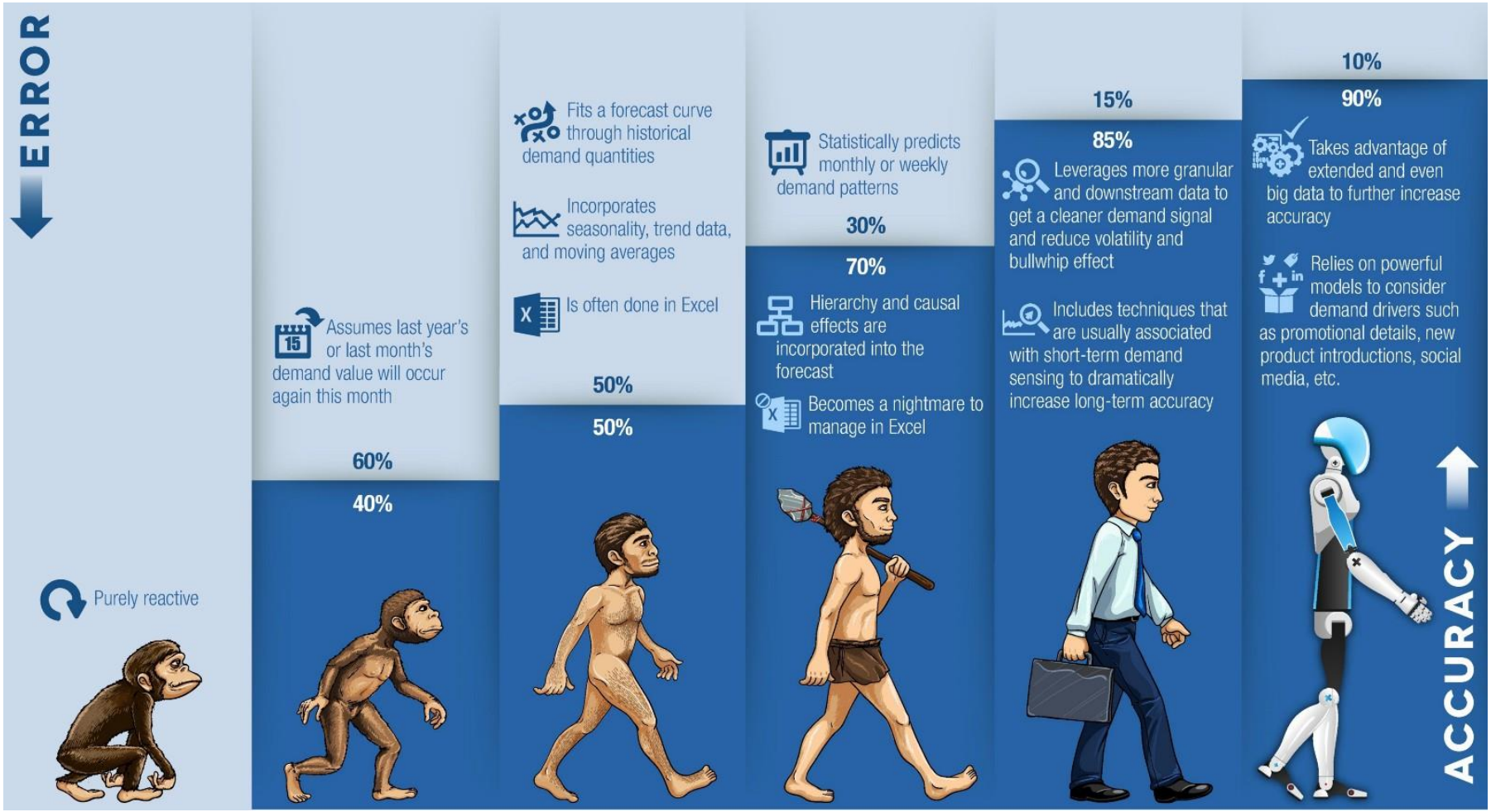
- The Uberization of Commercial Transportation is on the horizon
- US truckers are running empty for more than 25% of the time they are on the road
- This wasted capacity = 200,000 trucks driving 600 miles every day
- Uber Freight, Cargomatic and TruckerPath are apps to match cargo loads with unused truck capacity
- The vision is to extend these applications to global point to point solutions using multi-modal platforms

Technology is now replacing people employed in traditional supply chain functions

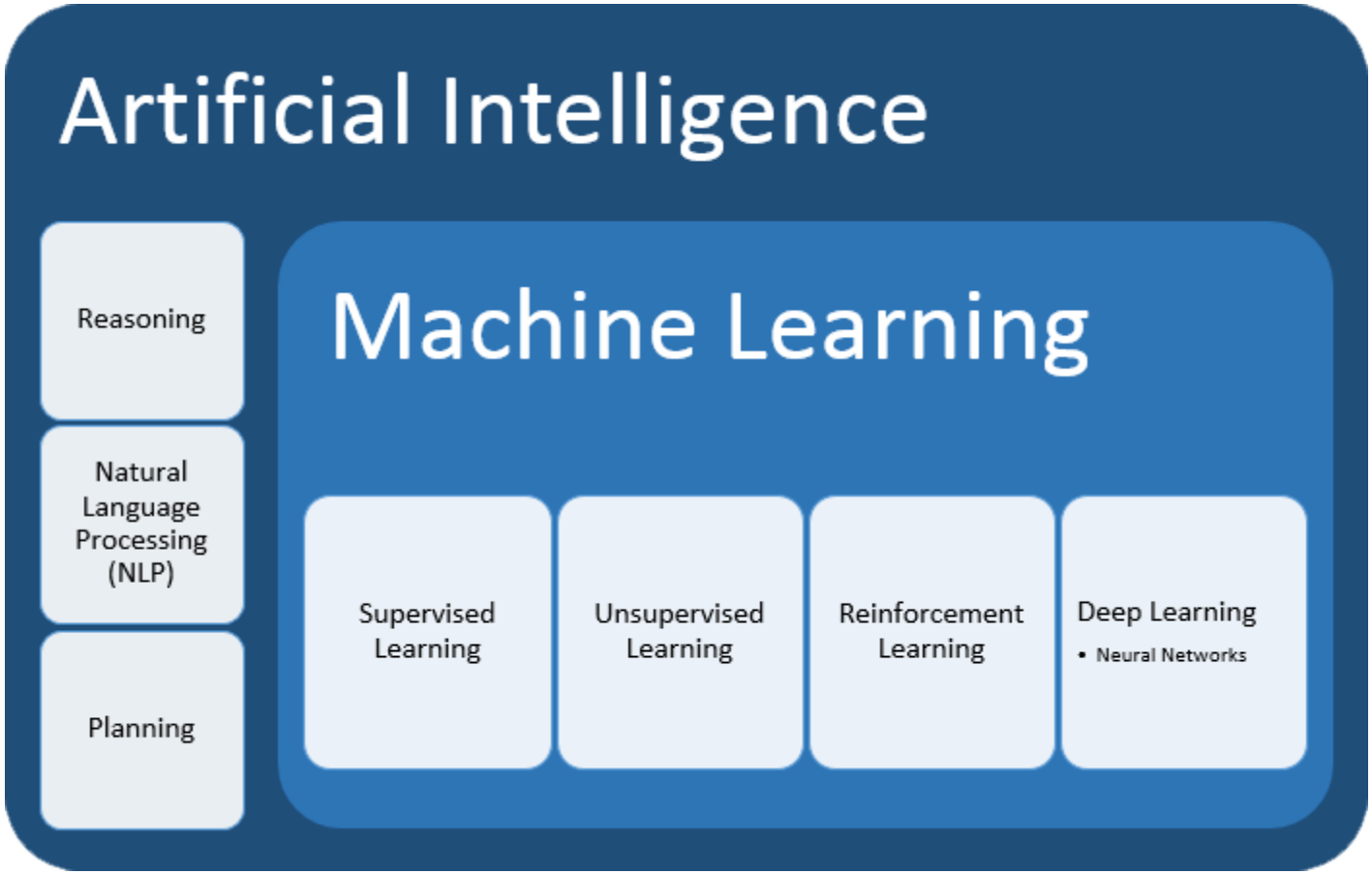
The trend is clear: Technology is replacing people in supply chain management — and doing a better job. It's not hard to imagine a future in which automated processes, data governance, advanced analytics, sensors, robotics, artificial intelligence, and a continual learning loop will minimize the need for humans:-

But when planning, purchasing, manufacturing, order fulfillment, and logistics are largely automated, what's left for supply chain professionals?

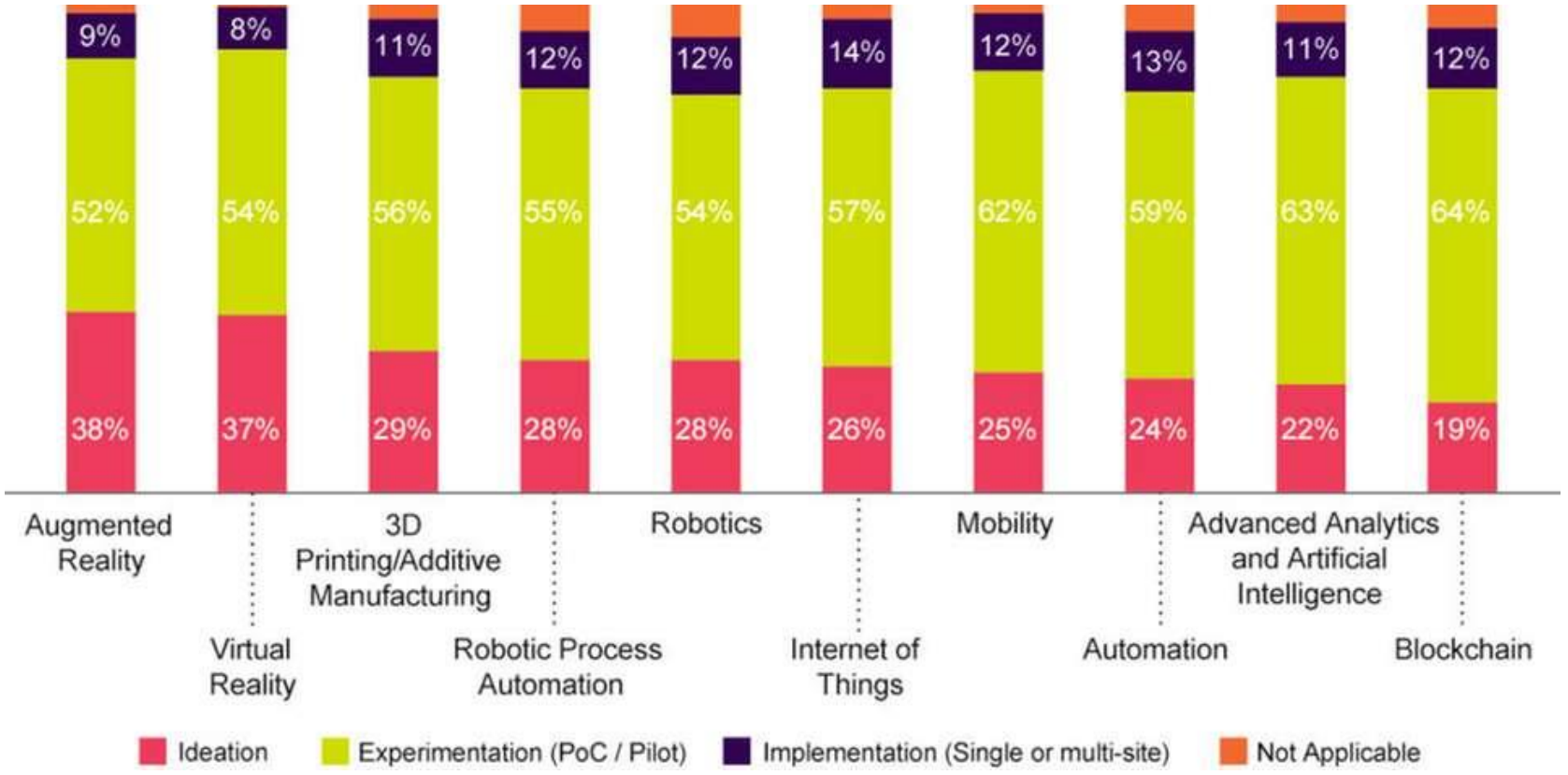
Machine Learning



Artificial Intelligence



Areas of Applicability for Supply Chain Digitization



The World needs Strategic Flow Network Designers

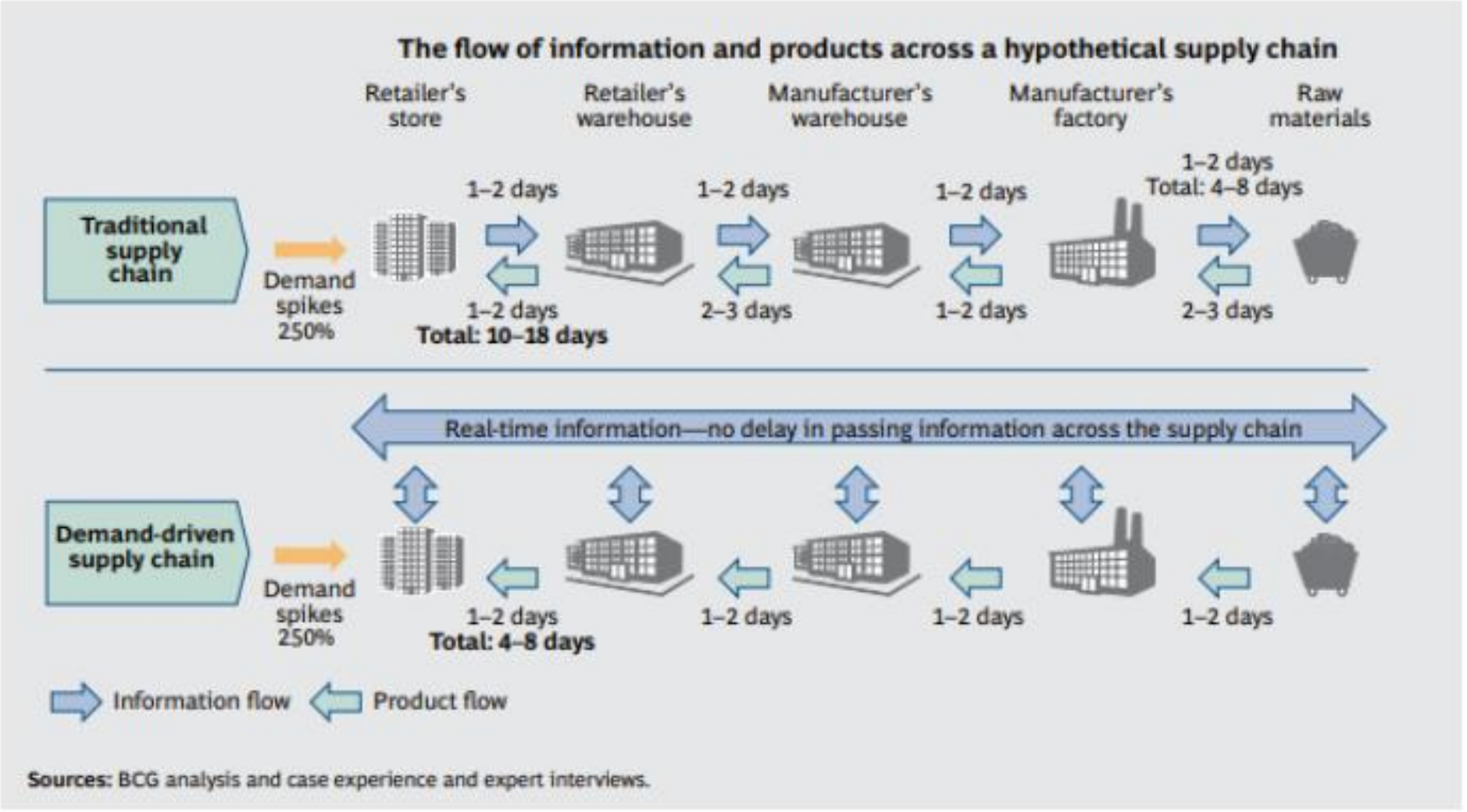
In the short term, supply chain executives will need to shift their focus from managing people doing mostly repetitive and transactional tasks, to designing and managing information and material flows with a limited set of highly specialized workers.

In the near term, designers will be needed to set up strategically buffered product flow networks, and analysts who can analyze data, structure and validate data sets, use digital tools and algorithms, and manage demand effectively will be essential.

The Digital Control Tower

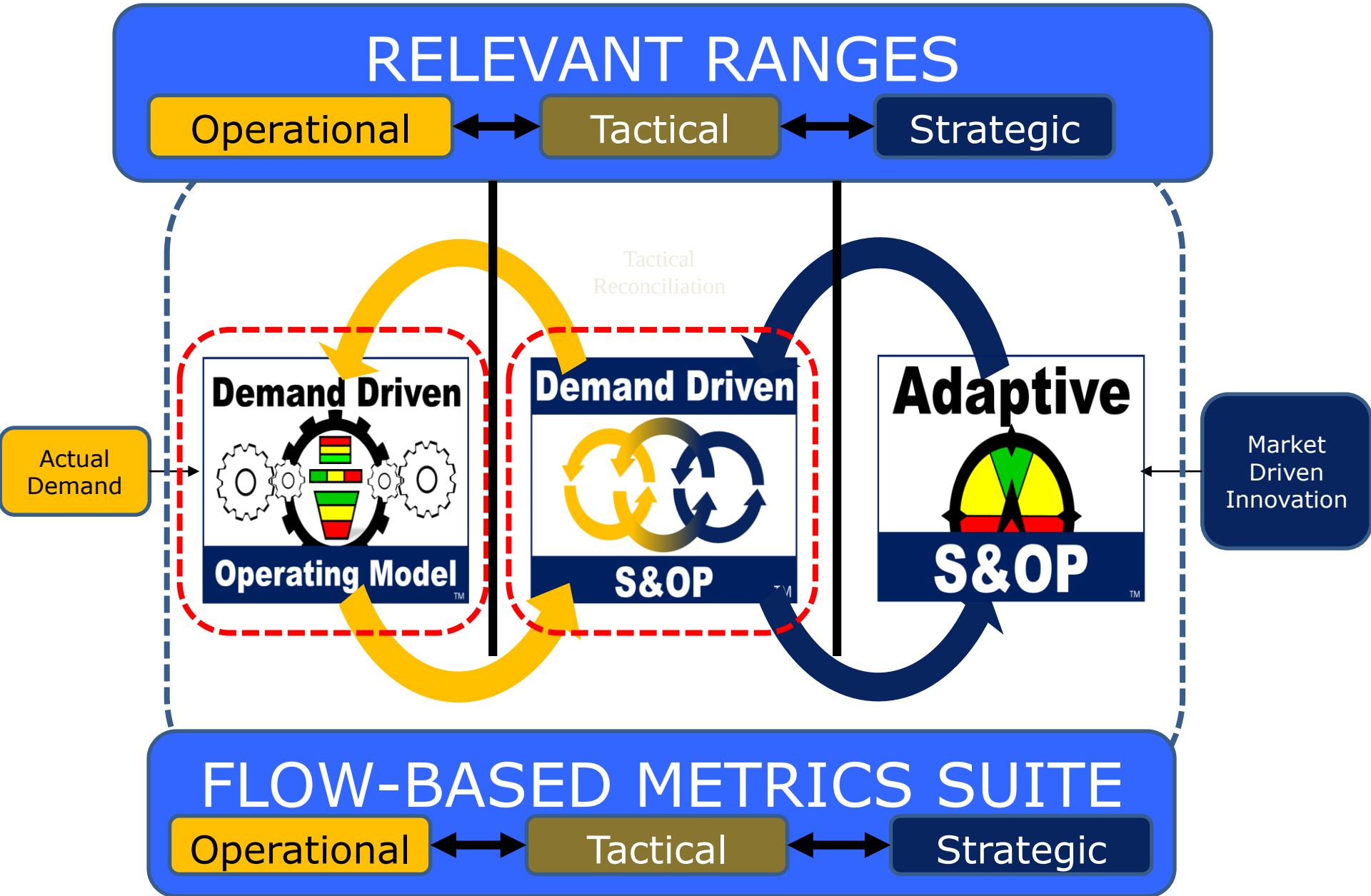
A Digital Control Tower is a virtual decision center that provides real-time, end-to-end visibility into global supply chains.

Demand Driven Supply Chain

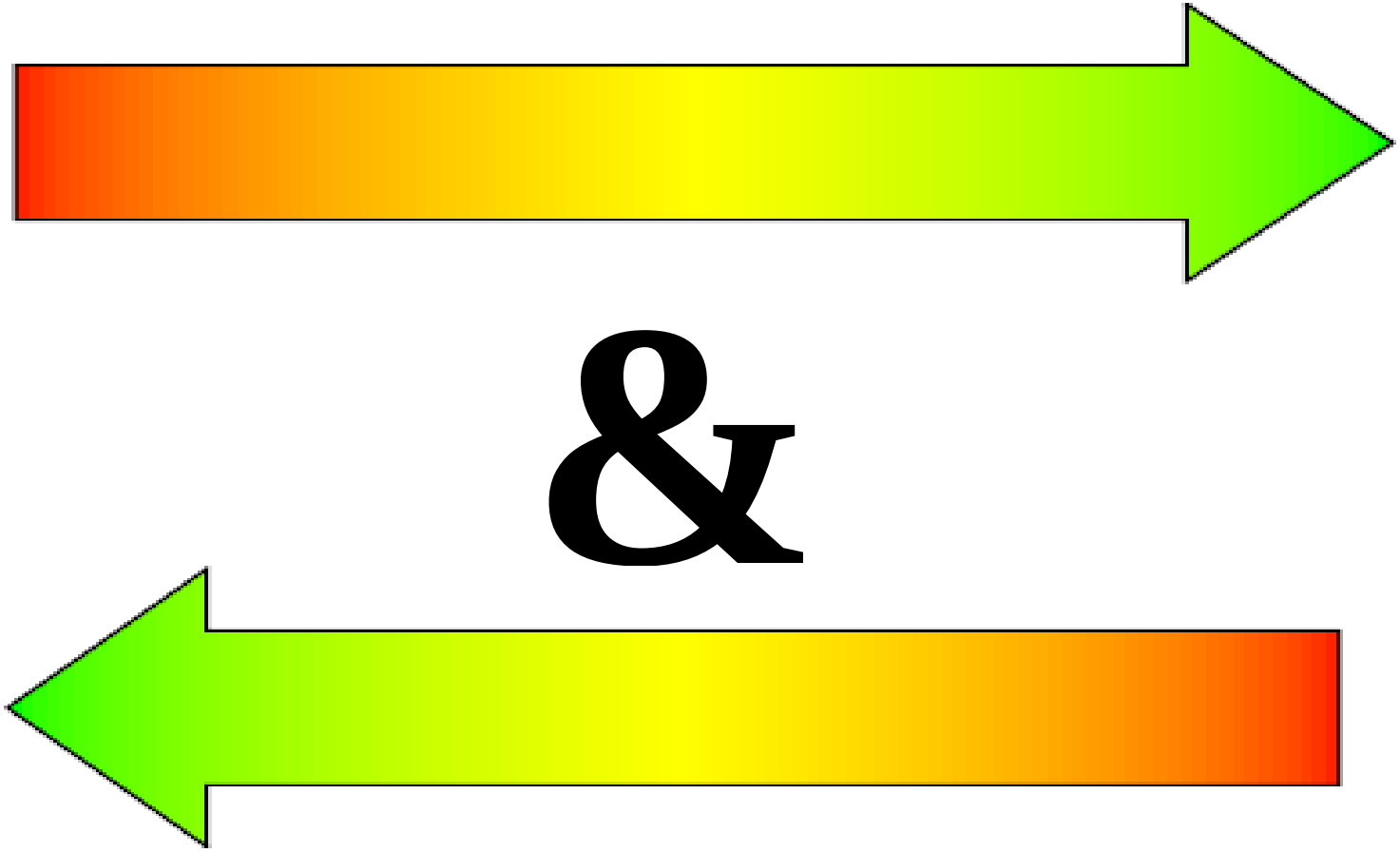


Sources: BCG analysis and case experience and expert interviews.

Demand Driven Adaptive Enterprise



Increased Product Flow to Market

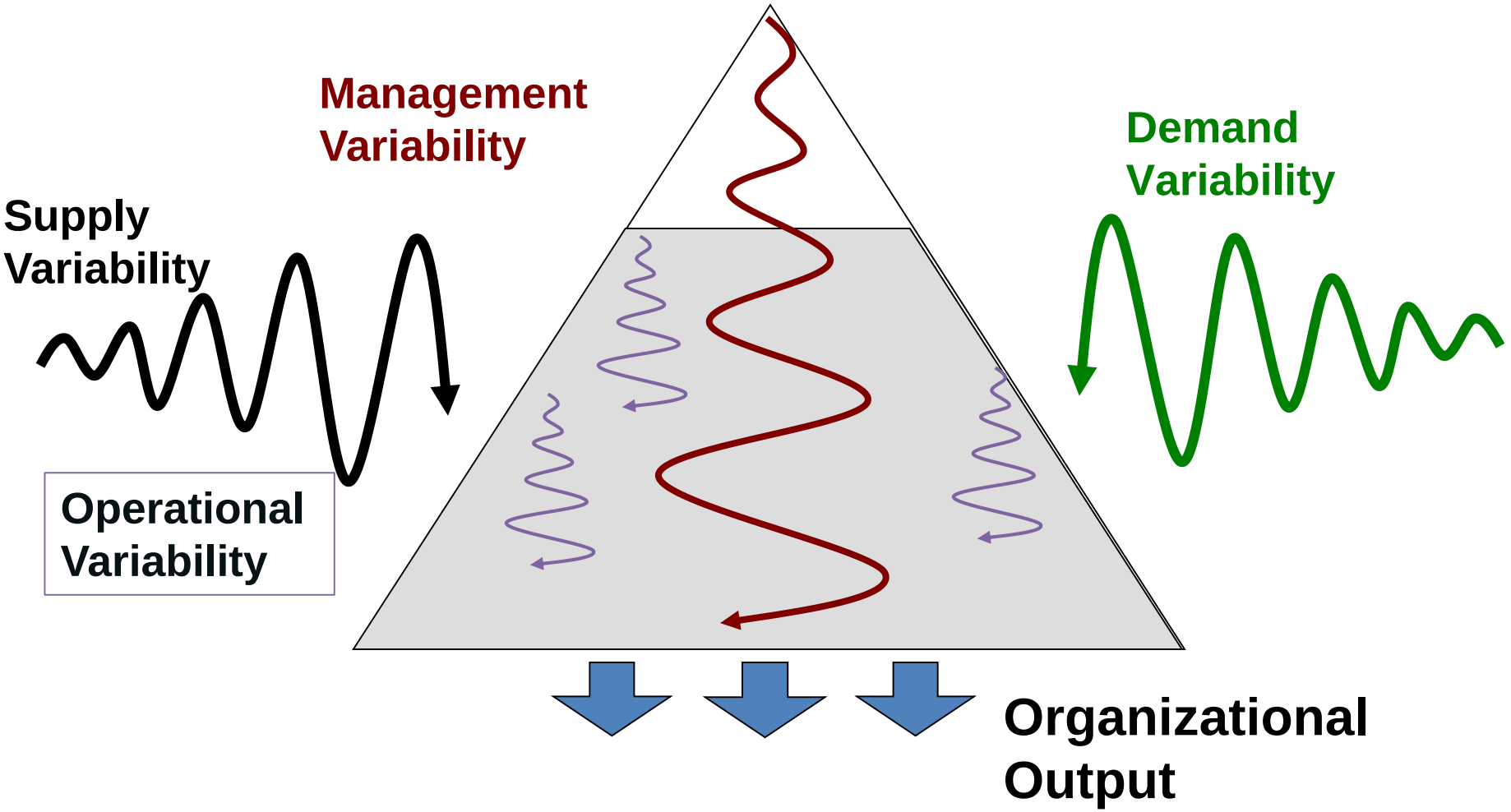


Increased Profit in Return

What is important to Flow

- Visibility to the relevant information
- Velocity of the product and cash flow
- Variability impedes steady product flow
- Value is defined by the customer
- Product that has no value does not flow
- Your customer values flow not storage

Sources of Variability



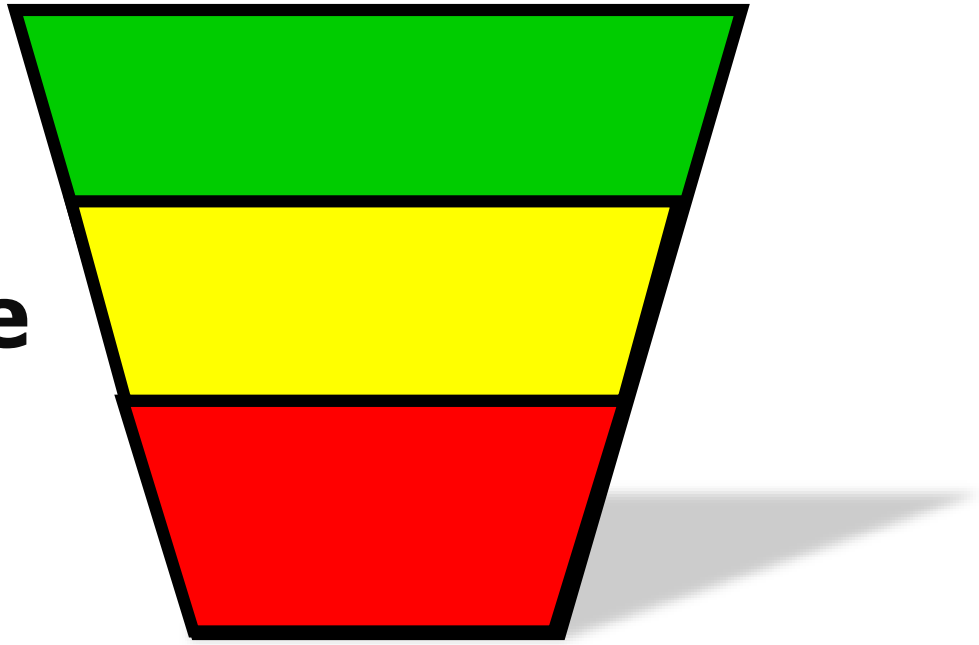
Source: Demand Driven Institute

Mitigating Variability

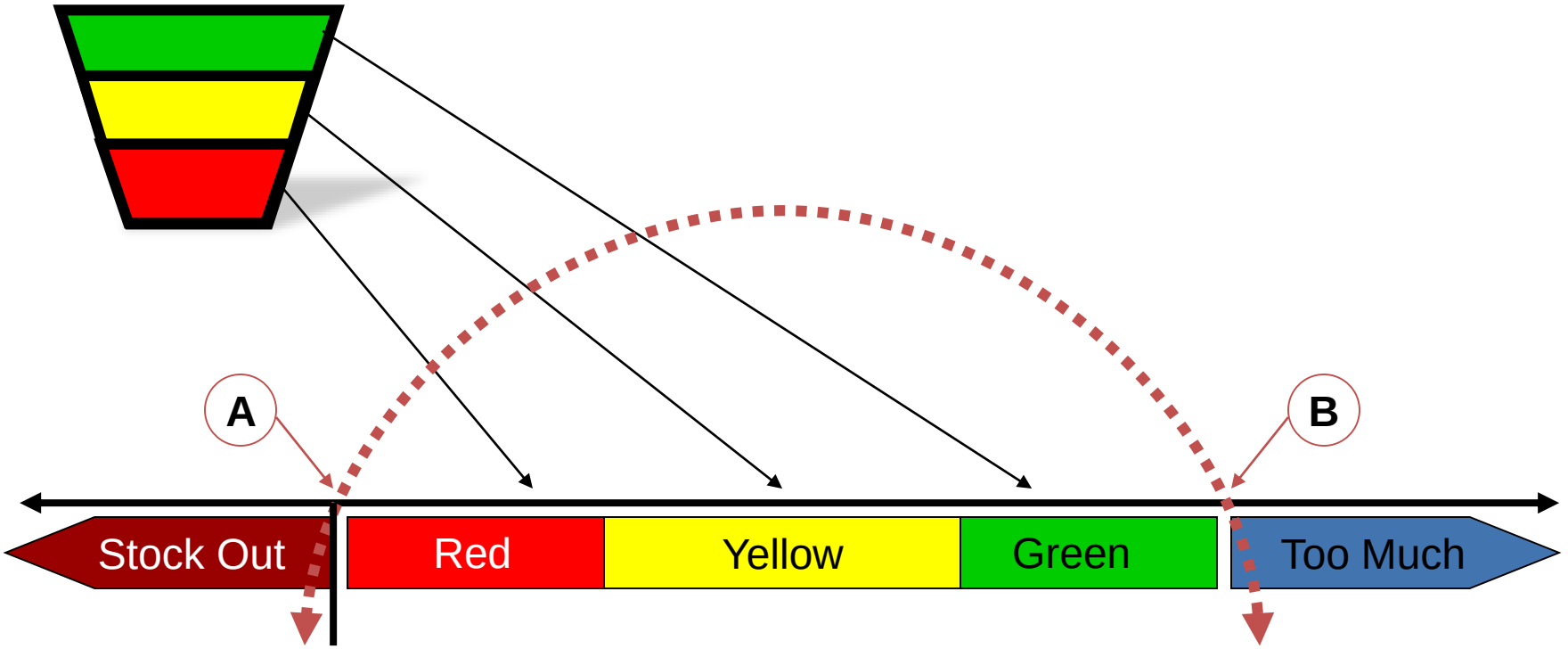
- **The only way to stop the Bullwhip Effect is to stop distortion from being passed between the parts of the system IN BOTH DIRECTIONS**
- **This is accomplished by "decoupling" and then "buffering" the "decoupling point"**

SMART Buffers

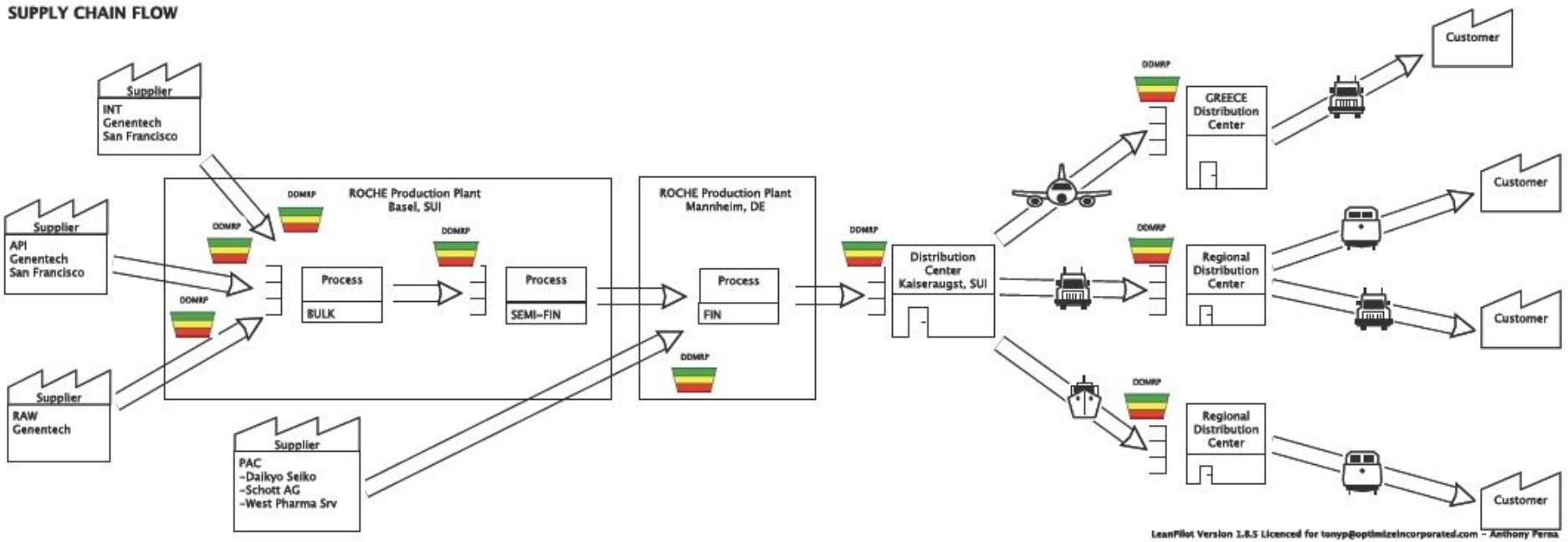
- Strategic
- Managed
- Adaptable
- Robust
- Tolerant



Buffer's Protect Product Flow

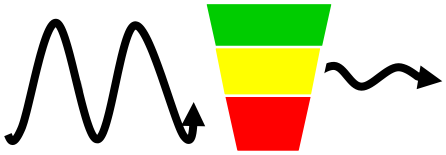


Buffered Product Flow Network

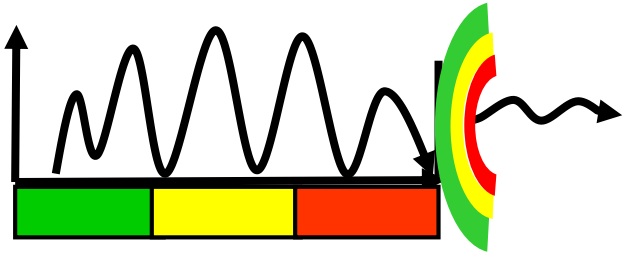


3 Buffer Types to Protect Control Points

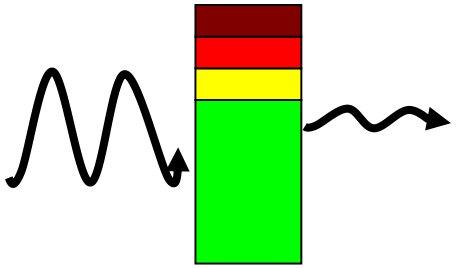
Stock



Time



Capacity



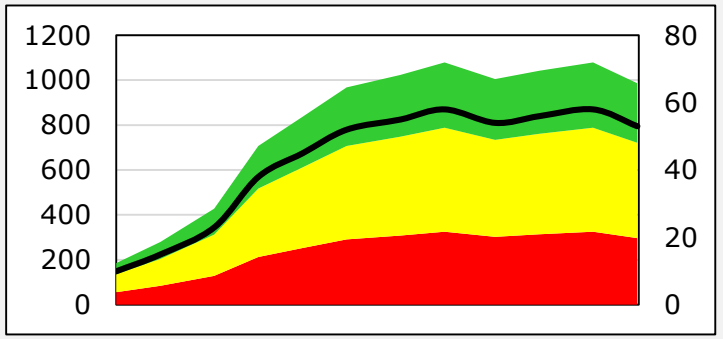
Buffers Protect For

- Customer Tolerance Lead Time
- Market Potential Lead Time
- Demand Variability
- Supply Variability
- Inventory Leverage and Flexibility
- Critical Operations Protection

Buffers are Dynamic

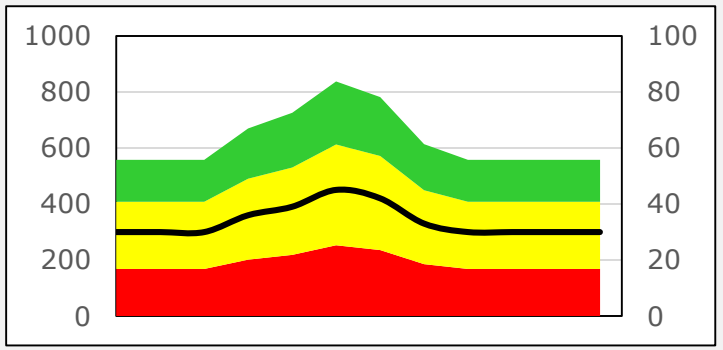
Recalculated Adjustments

Buffer levels flex as Average Daily Usage (ADU) is updated.



Demand Adjustment Factors

Buffers are intentionally flexed up or down in anticipation of planned events or seasons.



Product Flow Networks start with Demand Driven Planning

Demand Driven Planning is a visual product flow positioning and protection system, designed to improve business performance and increase return on working capital

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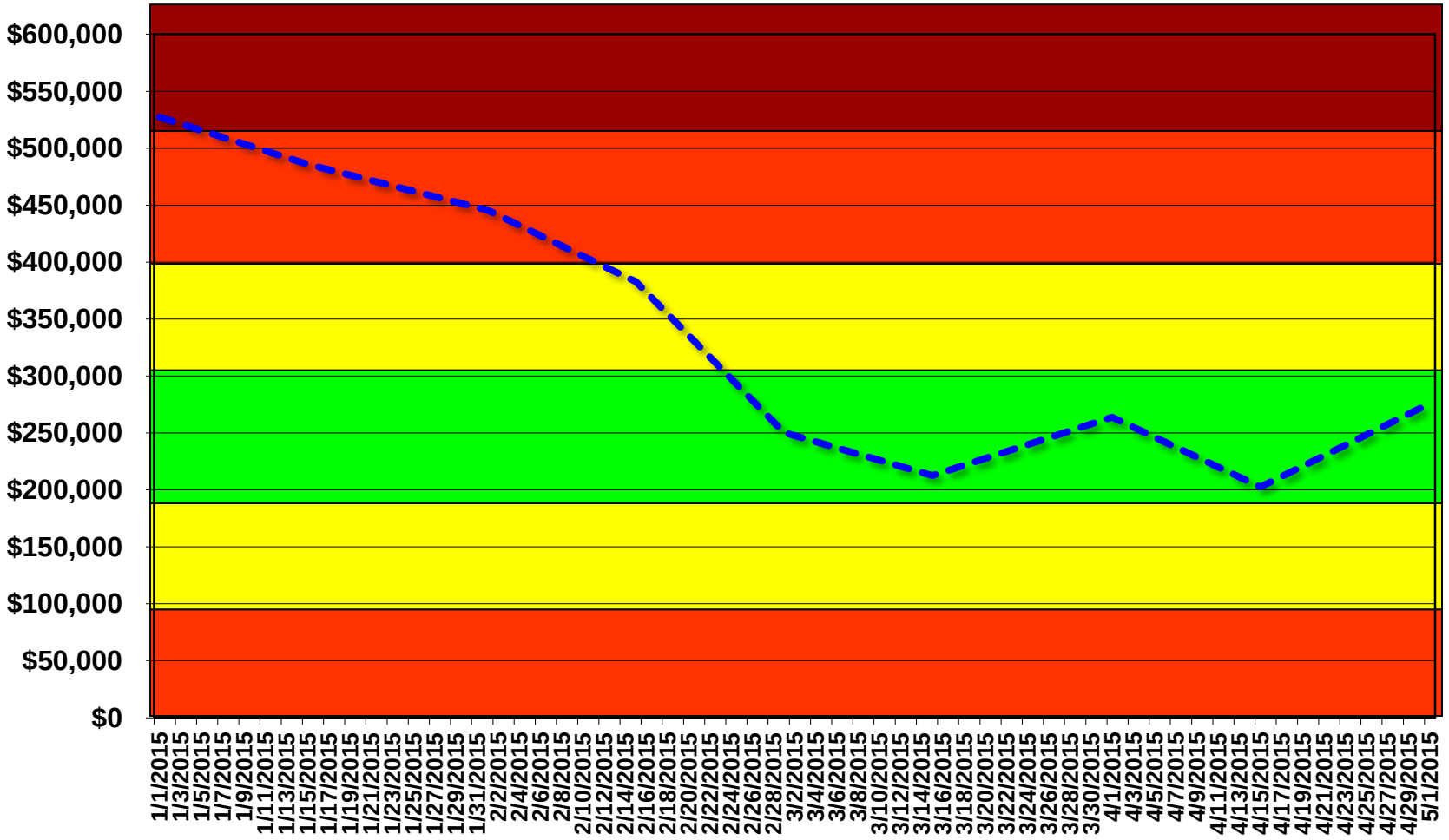
DDP's Proven Benefits – Camelot Benchmark Study

Proven Business Benefits	Overall	Life Sciences	Chemicals	Consumer Products	Industrial Manufacturing
Inventory Reduction % Median Best in Class	 31 60	 30 49	 32 52	 36 60	 26 54
Customer Service % Improvement Median Best in Class	 11 45	 8 16	 1 7	 2 38	 17 45
Lead Time Reduction % Median Best in Class	 22 85	 25 65	 12 40	 7 85	 60 85

On Hand $ Jan – April (Part#1234)

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Register
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North Atlantic Ocean
South Pacific Ocean
South Atlantic Ocean
Indian Ocean
Manufacturing
Headquarters
Demand Driven Planning provides the information skills and analytical tools that empower Intelligent Product Flow Networks
GAP Inc.
The "sourcemap" of the locations of GAP Inc. retail stores, raw materials, and manufacturing sites. Includes transportation route from start to finish and "newsflashes" about working conditions in countries.
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