Arcos Group

Sample Document – Inventory Diagnostic

Client: *Middle market PE firm*
Industry: *Consumer goods*
Scope: *Diagnostic and Roadmap*

NOVEMBER 2022

Agenda

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Project overview

Baseline and Target

Diagnostic Analyses

Strategy and Execution

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Finished goods inventory reduction for consumer client

We helped our client save $10M on inventory (15% reduction) by deploying our inventory optimization model into a best-in-class SIOP process. Within weeks, we could measure the impact of our work as we freed up capital, reduced carrying costs and reduced the likelihood of waste.

Impact

We reduced a client's finished goods inventory by $10M by deploying an efficient technology-enabled SIOP process. We delivered a technology tool, planning process and built capabilities for our client to sustain the impact long after we were finished.

Context

Our client was showing signs of a sub-optimal planning process for their finished goods inventory. They had both wasted products, and inventory shortages occurring at high rates. The need for change was clear, but how to get it done was not. We partnered together to define a 3-month journey to diagnose the problem, build a solution and ensure lasting success through capability building.

Approach

We started by quantifying the opportunity at stake. This had the added benefit of establishing how we would measure the impact of our work. With this in hand, we built data pipelines into our optimization engine that allow for rapid calculations of optimum order schedules. We worked side-by-side with the clients planning team to deploy the tool, measure the impact, and train their staff as we "worked ourselves out of a job".

EXAMPLE INVENTORY DIAGNOSTIC WORKPLAN

Work-stream

- **Build taxonomy of inventory**
- **Quantify and capture opportunities to reduce inbound inventory in 2019**
- **Articulate updates supply chain strategy improvement opportunities**

Week	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5
Tasks	• Launch data request • Confirm timing of progress reviews • Phone introductions to key contacts (data, operations management)	• Set baseline inventory position • Establish taxonomy of current inventory and finalize "in scope" SKUs • Begin quantification of inventory red. opportunities	• Refine quantification of inventory reduction opportunities • Document and ROM sizing of operational updates • Begin intervening with inbound orders	• Shift toward intervention of incoming orders • Develop accurate and sustainable impact tracking	• Focus on intervention of incoming orders • Capture strategic priorities to improve inventory mgmt.	• Continued intervention of incoming orders • Finalize strategic priorities to improve inventory mgmt. • Hand off tracking responsibilities to working team
Mile-stones	• Data request launched	• Data finalized • Inventory taxonomy finalized • Live project kick off	• 1st progress review • Begin intervening on inbound orders	• 2nd progress review • Continued intervention on inbound POs	• 3rd progress review • Continued intervention on inbound POs	• Finalize ABC/XYZ • Articulate strategy for each segment of inventory • Hand over tools and analyses

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[Client] holds $XM of inventory as of [Date]. Approximately $YM of this inventory is sourced from suppliers

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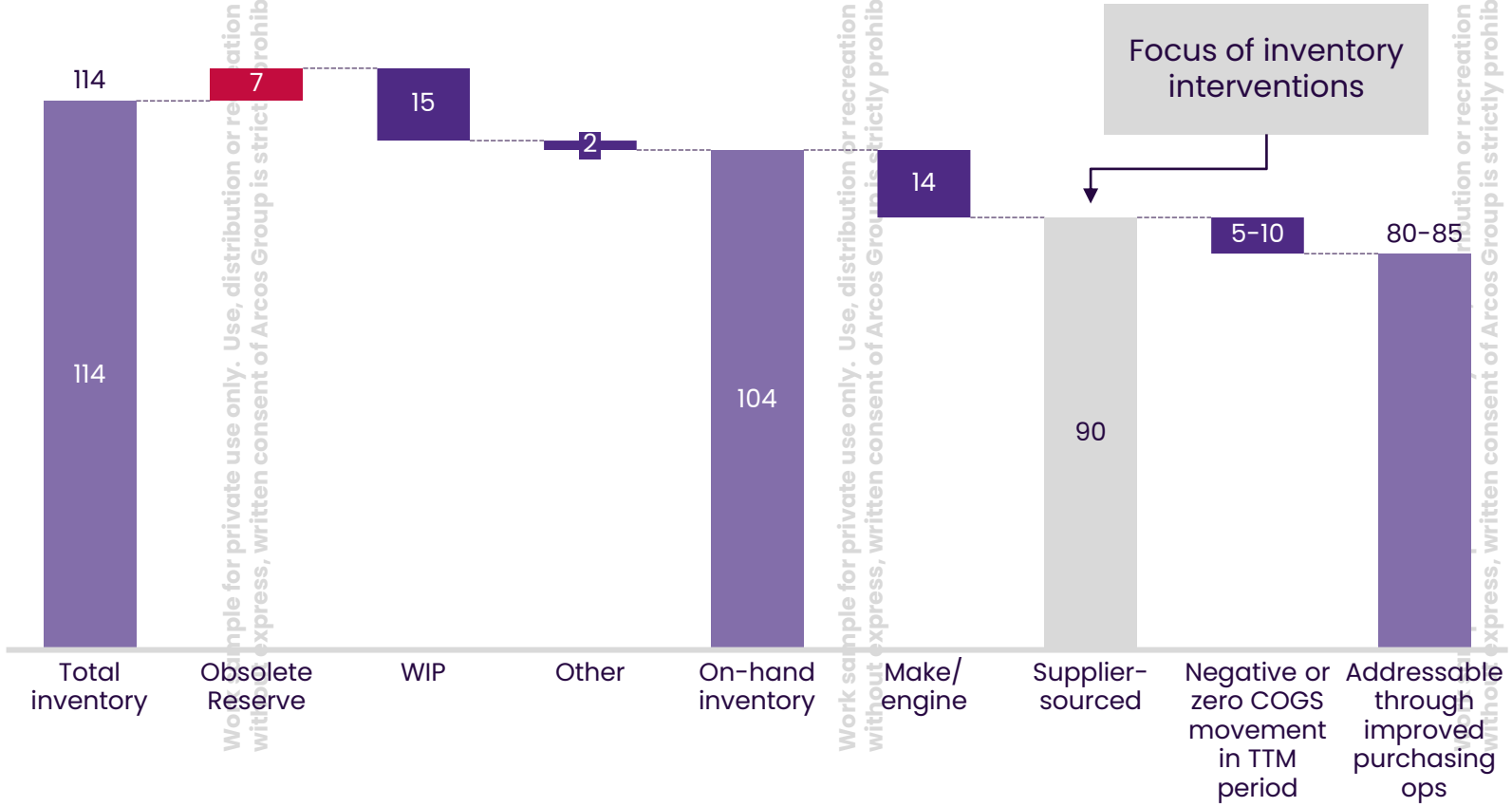
Inventory position as of [Date]

USD millions



Insights

- **Finished goods drives X% of total inventory** and is only addressable through improved sales velocity
- **Slow moving inventory accounts for $X-YM, depending on method of valuation.** These SKUs show zero or net-negative velocity over TTM period (negative demand recorded). **Current obsolete reserve captures $XM,** suggesting up to $XM in additional reserve may be necessary
- **Approximately $XM of inventory is addressable through improved purchasing operations** (deferring or resizing purchase orders)

SOURCE: Inventory analysis as of Month Day, Year

With current constraints, improved inventory management discipline would reduce inventory by $XM+ over the next 12 months

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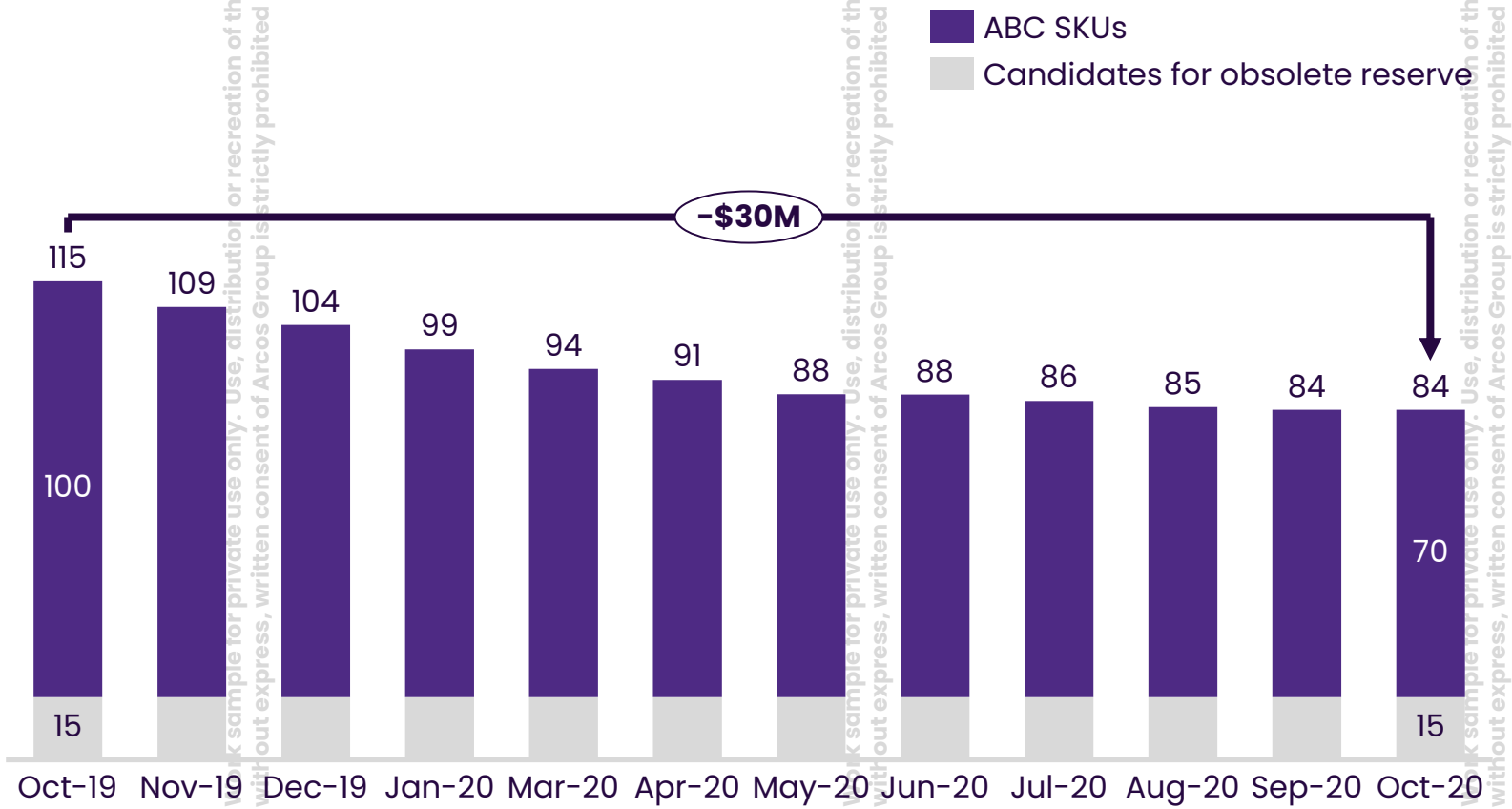
12 month supplier sourced inventory projection with improved re-order discipline[1]

USD millions



Assumptions

- Safety stock levels calculated by service level driven inventory management strategy
- Lead times and MOQs at current state
- Re-order frequency: maximum of 1x/month
- Demand forecast as of [Date]
- Service levels:
  - A-category: 95%
  - B-category: 97%
  - C-category: 99%

SOURCE: Inventory analysis as of Month Day, Year

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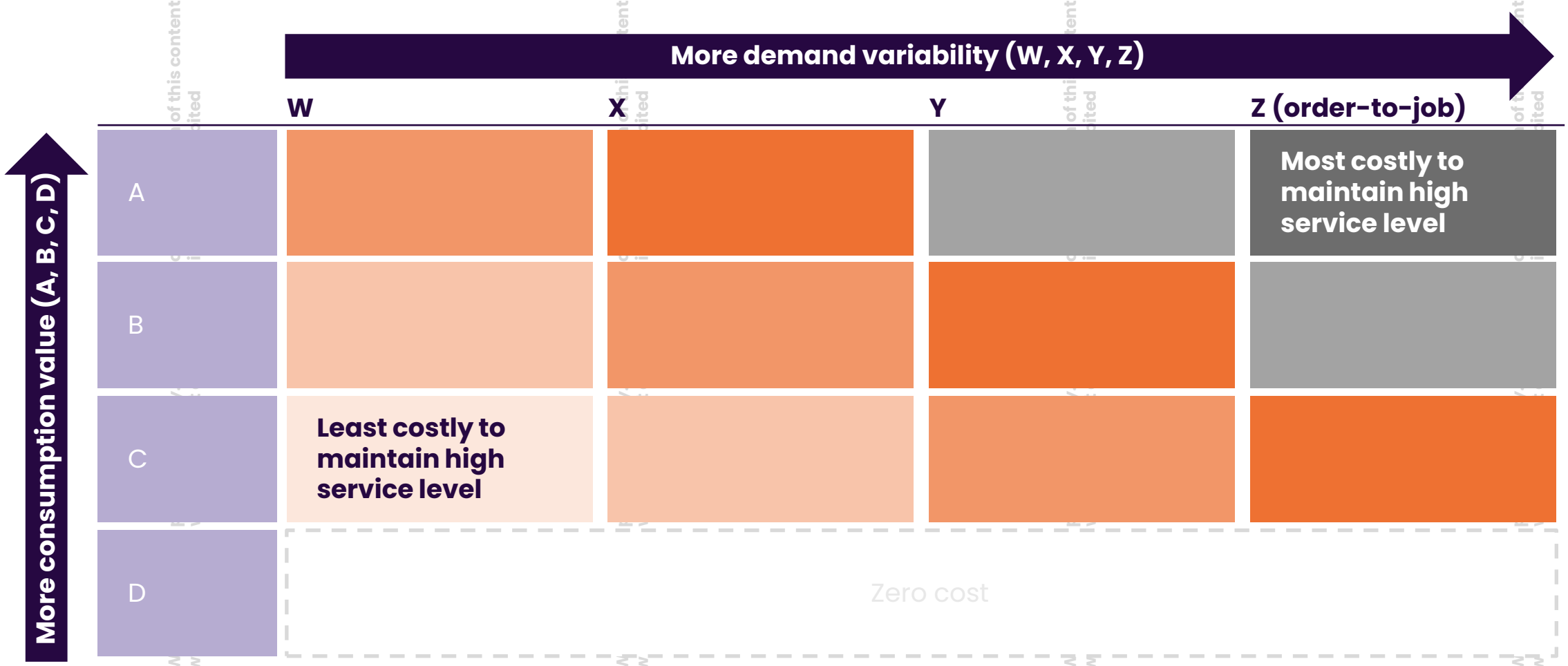
High cost and high demand variability drive inventory cost. Highly variable, expensive items are most costly to deliver high service level



ABC classification based on 9 month demand forecasted COGS

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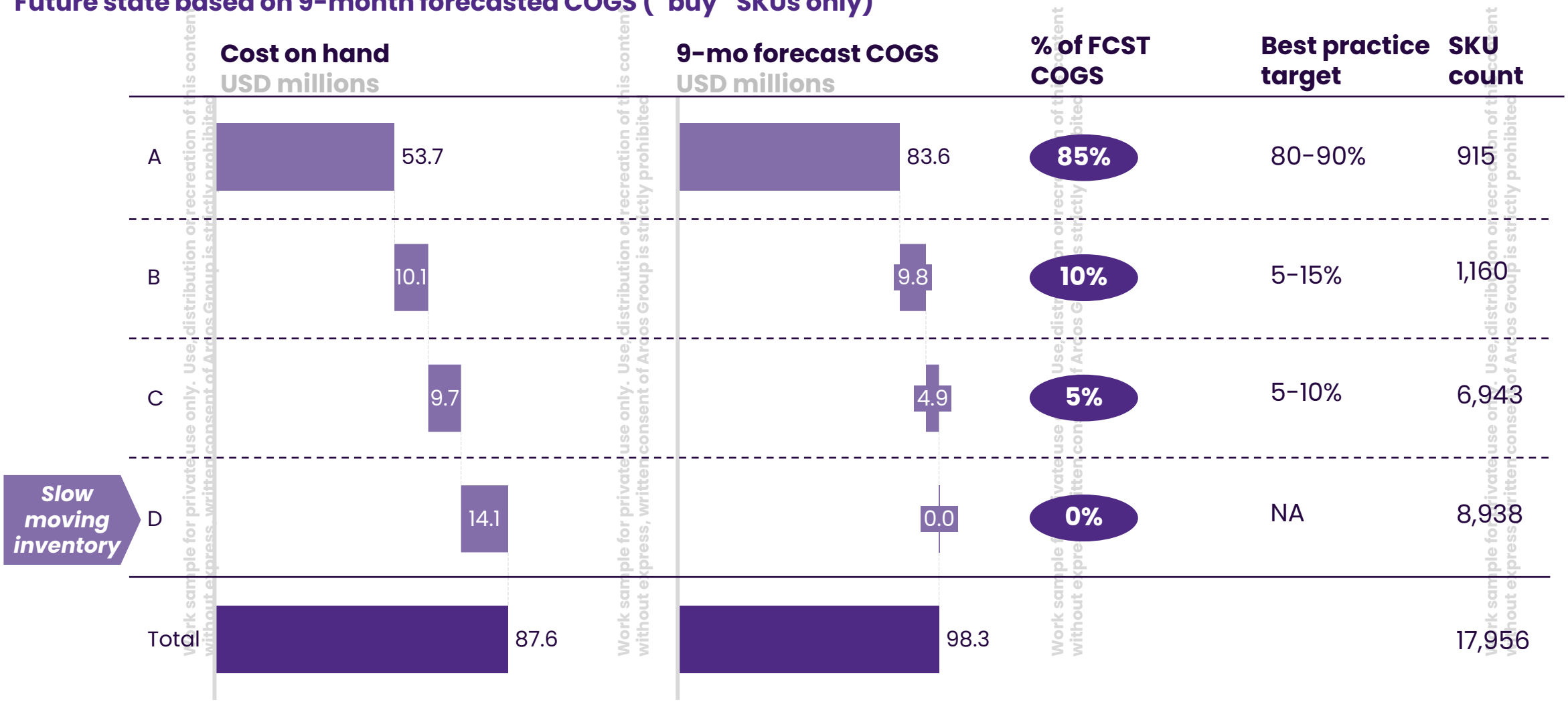
Future state based on 9-month forecasted COGS ("buy" SKUs only)



ABC classification detail based on 9-month forecasted COGS

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Future state based on 9-month forecasted COGS ("buy" SKUs only)

		No dem. history	W	X	Y	Z (make-to-order)	Total
Cost on hand	A	$728,222	$41,099,457	$9,999,995	$1,864,429	$0	$53,692,103
	B	$189,540	$5,282,764	$3,714,685	$922,339	$0	$10,109,328
	C	$328,492	$2,992,796	$4,110,969	$2,311,200	$0	$9,743,457
	D	$9,432,008	$250,522	$1,207,183	$3,176,190	$0	$14,065,903
	Total	**$10,678,262**	**$49,625,539**	**$19,032,832**	**$8,274,158**	**$0**	**$87,610,791**

		No dem. history	W	X	Y	Z	Total
9-mo forecasted COGS	A	$585,431	$67,145,418	$13,275,200	$2,556,307	$0	$83,562,357
	B	$134,210	$5,914,173	$3,024,842	$774,281	$0	$9,847,506
	C	$102,619	$2,352,301	$1,765,635	$695,862	$0	$4,916,418
	D	$0	$0	$0	$0	$0	$0
	Total	**$822,260**	**$75,411,893**	**$18,065,678**	**$4,026,451**	**$0**	**$98,326,280**

		No dem. history	W	X	Y	Z	Total
SKU count	A	7	642	216	50	0	915
	B	17	688	362	93	0	1,160
	C	301	2,248	2,714	1,680	0	6,943
	D	6,662	79	363	1,834	0	8,938
	Total	**6,987**	**3,657**	**3,655**	**3,657**	**0**	**17,956**

Current MOQs do not appear to be a major driver of excess inventory; Nearly 80% of forecasted demand can be purchased at quantities of <30 days' supply

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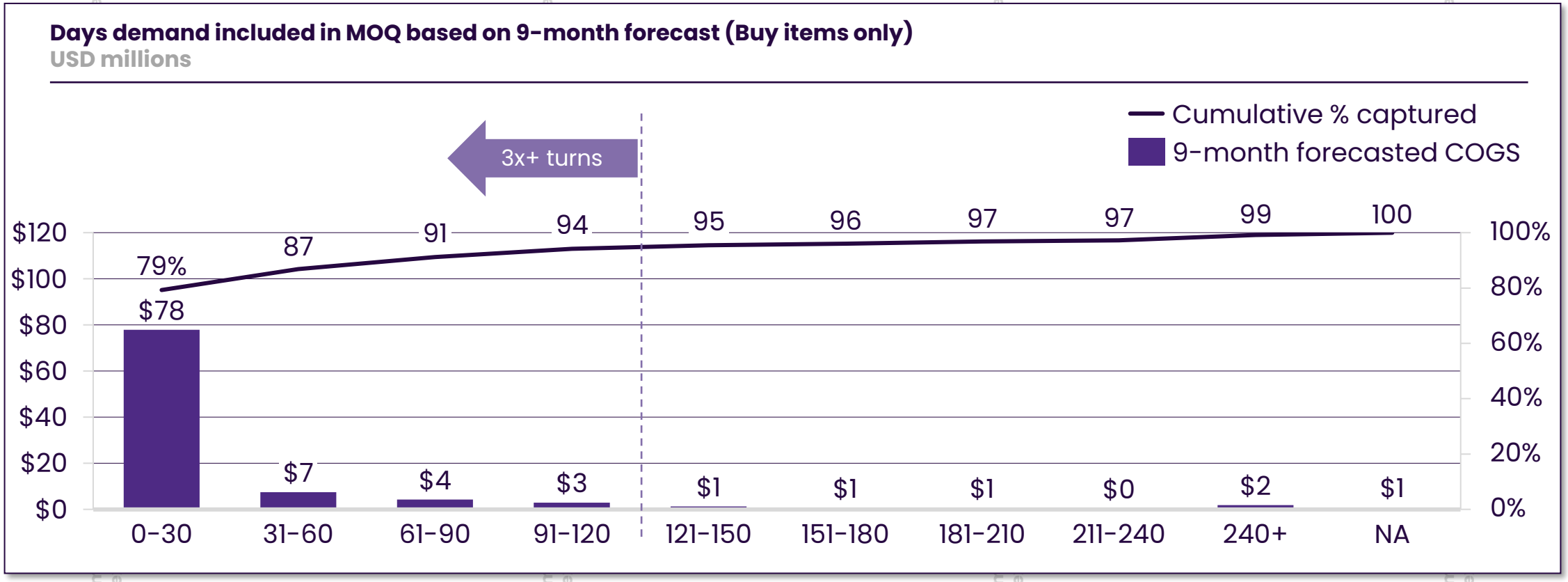

94% of forecasted demand can be purchased at MOQs supporting 3x+ turns

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Overseas supply chain drives significant lead times. Half of current inventory value has a lead time of 80 days+

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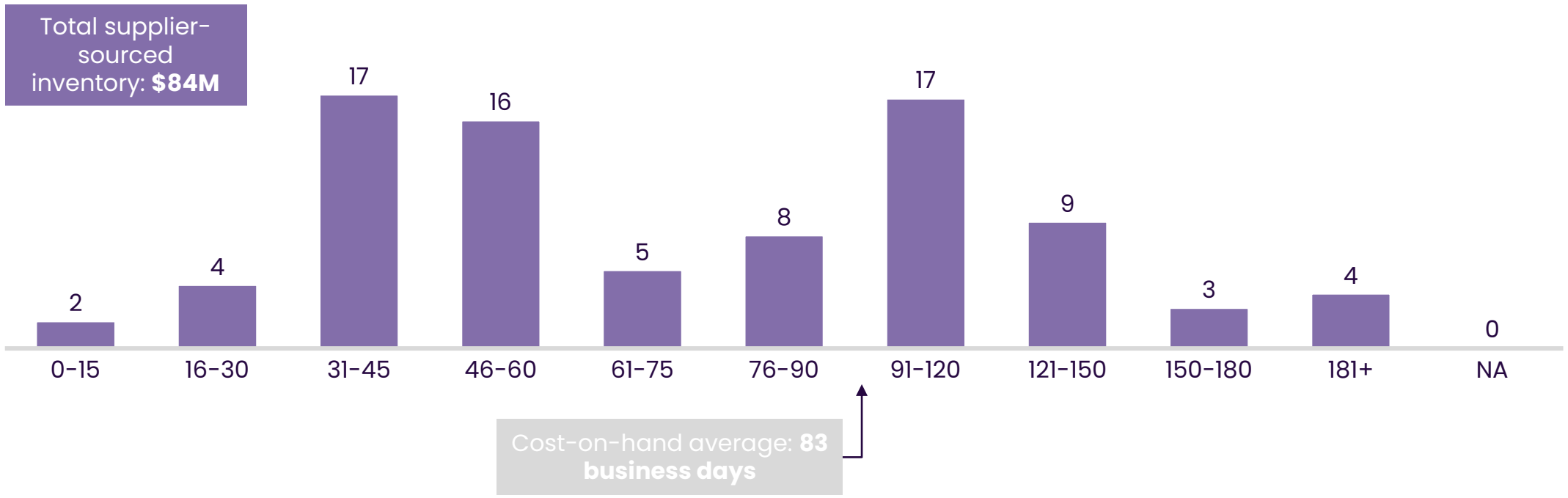
Cost-on-hand vs. lead time (measured in business days, "buy" SKUs only)
USD millions



Long lead times drive increased safety stock levels and low flexibility to fluctuations in demand

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Approach to develop robust supply chain strategy

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	Description	Core activities	Owner

A Align on conceptual strategy	• Align on supply chain architecture and Develop a Mutually Exclusive, Collectively Exhaustive **segmentation** for items held in inventory:
	  • ABC
	  • XYZ
		• **Define a conceptual architecture** that meets the needs of the broader org	• Owner 1, Owner 2, Owner 3

B Define the strategy with analytics	• Set a stocking strategy for each segment of inventory:
	  • Order-to-stock
	  • Order-to-job
	• Identify opportunities to transition away from order-to-stock (e.g. VMI, order-to-job)
		• **Desktop inventory segments:**
		  • Finalize ABC analysis
		  • Finalize XYZ analysis
		• **Define a strategy** for each segment of inventory
		• Identify candidate SKUs for **VMI and order-to-job**
			• Owner 1
			• Owner 3, Owner 4, Owner 5

C Execute the strategy	• Take steps required to roll out strategy:
	  • Update ERP to reflect agreed upon changes
	  • Launch negotiations with vendors to manage inventory
	  • Track progress using KPIs
		• **ERP system updates**
		  • Update ERP to reflect new ABC/XYZ classification and code SCM choices into decision logic
		• **Develop RFPs** to transition to vendor-managed inventory
		• **Program management**
			• Owner 6, Owner 7, Owner 8
			• Owner 7
			• Owner 9

A Current state mapping

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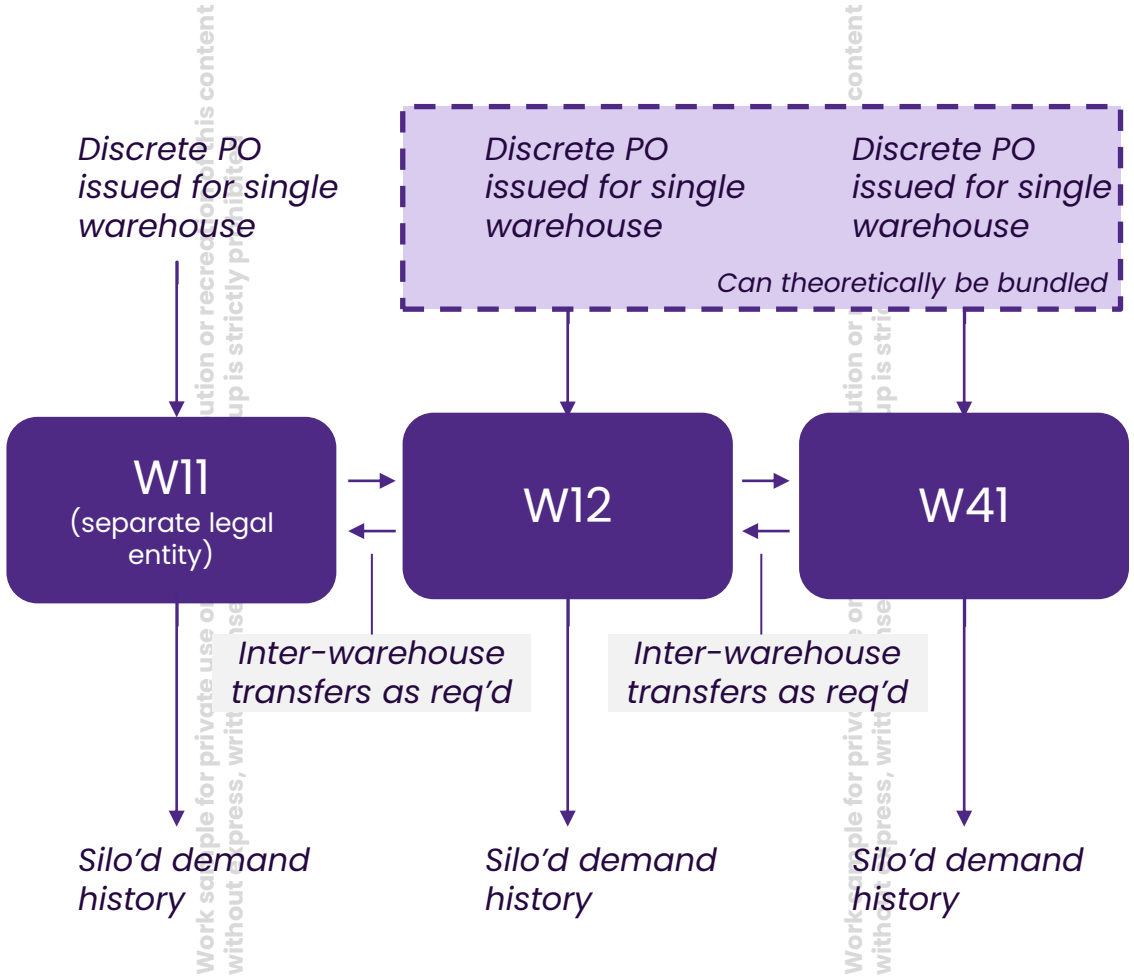


Advantages

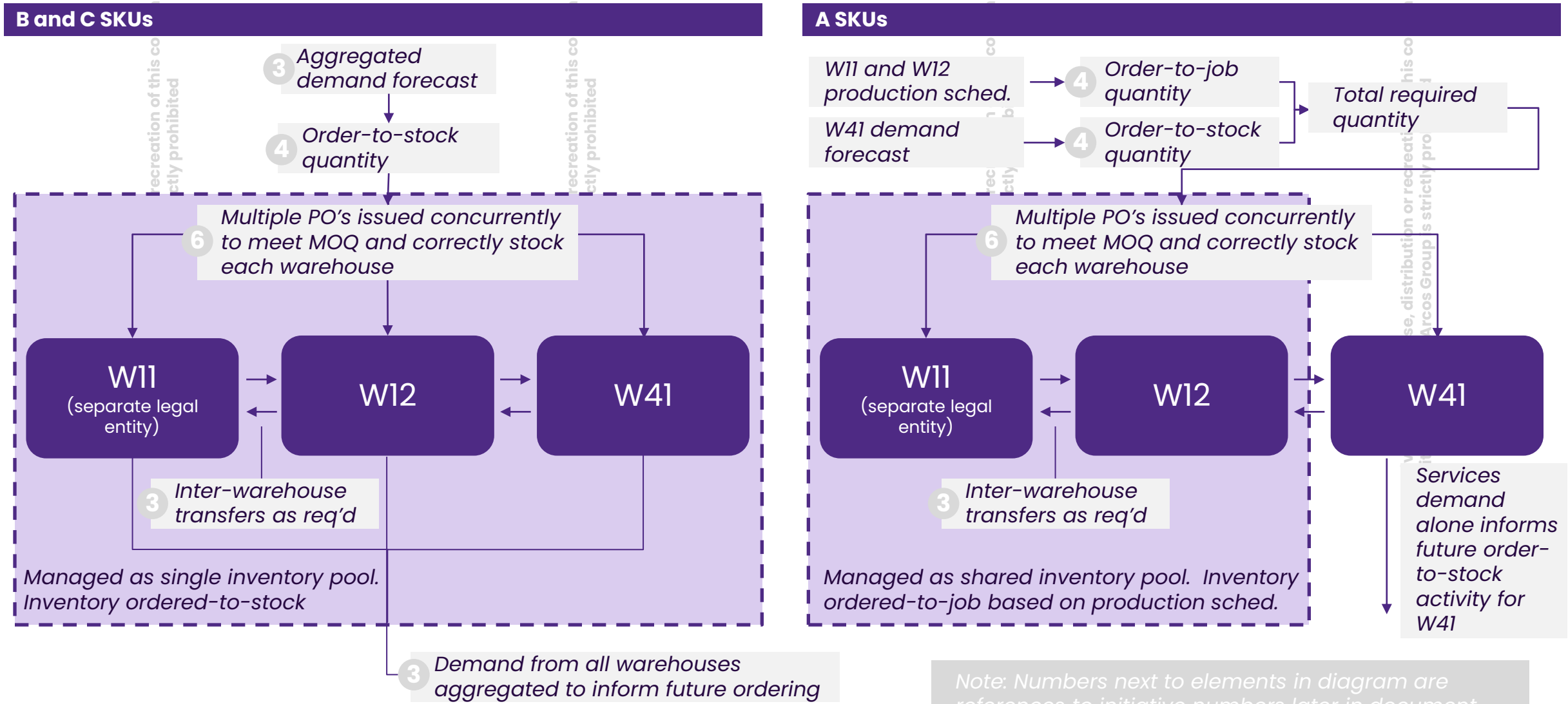
- Silo'd view of each inventory levels relative to separate management of each warehouse
- Intra-company transfers are already happening, so no add'l freight cost
- Nodes are 1-2 days by truck, meaning inventory can be efficiently transferred in event of stock-outs

Disadvantages

- Requires discrete management of each SKU in each warehouse
  - ABC classification
  - XYZ classification
  - Demand forecast
  - Usage/ordering history

A Desired future state: B and C SKUs managed as single pool; A SKUs ordered-to-stock for services and ordered-to-job for production

ILLUSTRATIVE



Note: Numbers next to elements in diagram are references to initiative numbers later in document

B Quantifying the strategy for each consumption and variability group

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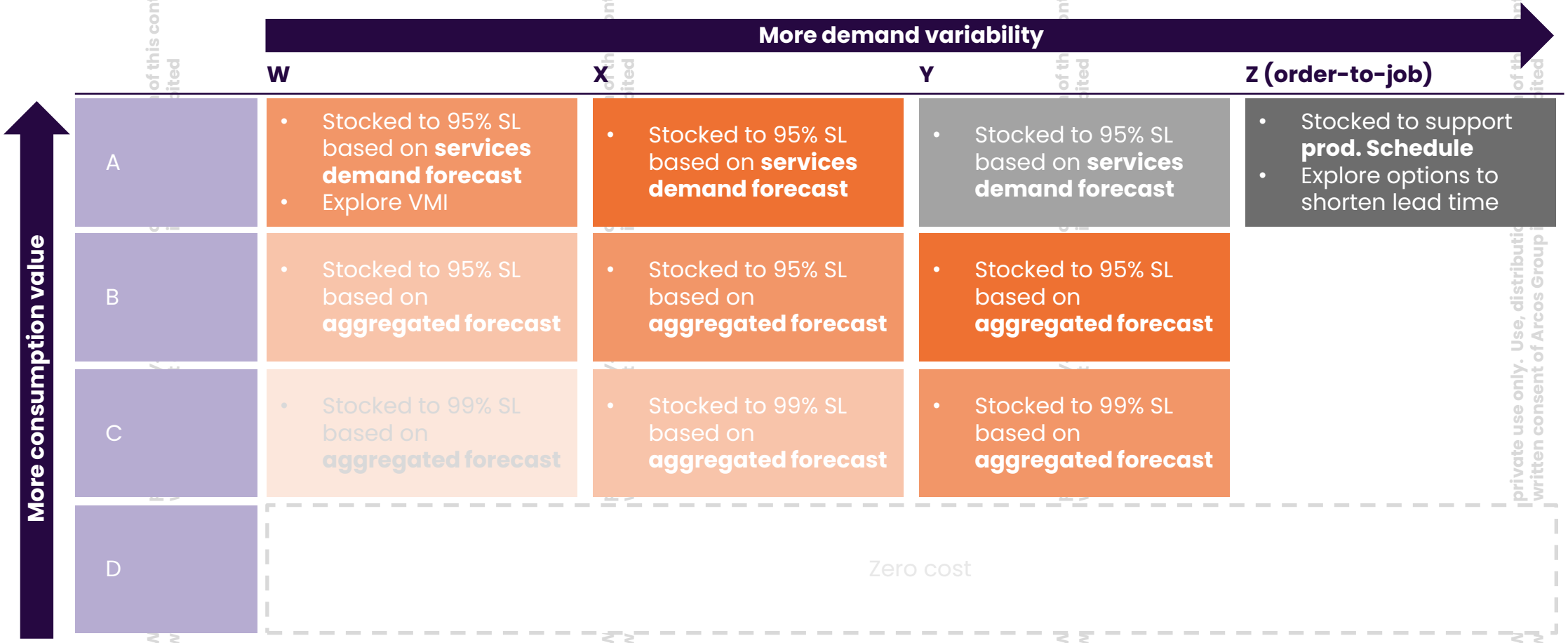

C Initiatives Overview

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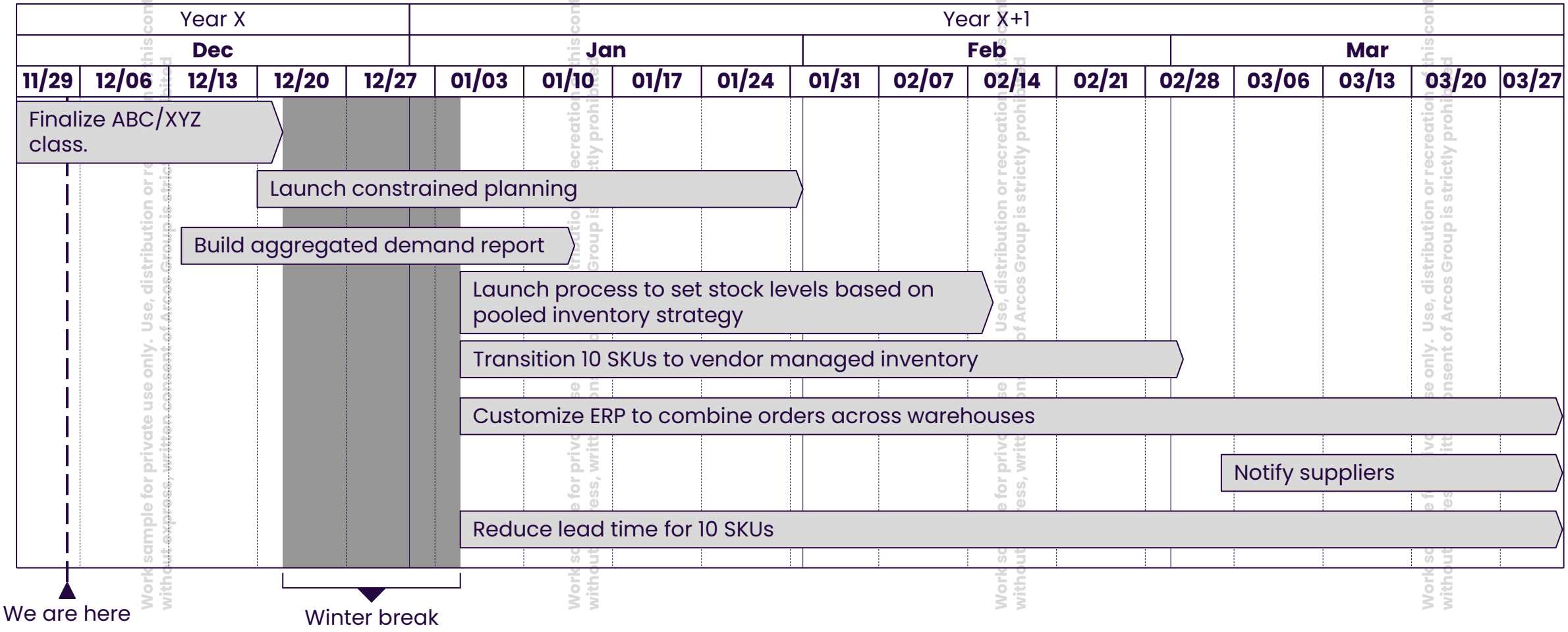
	Owner	Initiative name	Est. impact	Target completion	Status	Comments
1	Owner X	Finalize ABC and XYZ classification. Upload classifications into ERP	Enabler	[Date]	R/Y/G/NA	▪ …
2	Owner X	Launch constrained planning module in ERP	Enabler	[Date]	R/Y/G/NA	▪ Uses native functionality in ERP. Should not drive significant dev. cost
3	Owner X	Create ERP report to aggregate demand across all orgs	Enabler	[Date]	R/Y/G/NA	▪ …
4	Owner X	Launch manual process to set target stock levels based on ABC classifications ▪ B and C items: safety stock levels determined by target service level across all warehouses (W11, W12, W41) ▪ A items: target stock level determined by production schedule (W11 and W12) + target service level for W41	Enabler	[Date]	R/Y/G/NA	▪ This can be done outside of ERP using report identified in initiative #7 ▪ Performing calculations within ERP environment would make process more sustainable long-term
5	Owner X	Transition at least 10 SKUs from AW category to vendor managed inventory	TBD	[Date]	R/Y/G/NA	▪ …
6	Owner X	Update ERP architecture to combine quantities required across warehouses when generating PO's	Enabler	[Date]	R/Y/G/NA	▪ Potentially costly but appears necessary to prevent distribution out of facilities. Need to be discussed further
7	Owner X	Notify suppliers of "single pool" re-order process	Enabler	[Date]	R/Y/G/NA	▪ Depends on whether initiative to combine quantities when generating POs
8	Owner X	Reduce average lead time for 10 category SKUs by 50%	TBD	[Date]	R/Y/G/NA	▪ …

C Project timeline

ILLUSTRATIVE



C Example project charter: Finalize ABC/XYZ classification and upload into ERP

Initiative details

Project owner:	Owner 1
Run rate impact:	$...
Completion date:	[Date]
Status	On track

Initiative description

- Align on ABC/XYZ evaluation criteria
- Analyze SKUs, identifying category for all active items in organization
- Manually upload classifications into ERP
- Automate ABC/XYZ classification in ERP to enable future sustainability

Progress notes

- ...

Issues encountered / help needed

- ...

Implementation plan and status (major milestones only)

Step #	Description	Target date	Status
1.	...	[Date]	Not started
2.	...	[Date]	Not started
3.	...	[Date]	Not started
4.	...	[Date]	Not started
5.	...	[Date]	Not started
6.	...	[Date]	Not started
7.	...	[Date]	Not started
8.	...	[Date]	Not started
9.	...	[Date]	Not started
10.	...	[Date]	Not started