Optimizing Cycle Stock and Lot Sizes:
Balancing the Costs of Changeovers with Inventory

The Webinar will begin shortly.

Your phone has been muted, so please submit any questions via the Webex chat window.

Introducing Our Speaker

Invistics Company Overview

- **Software & Services to Optimize Cycle Stock and Lot Sizes**

- **Proven results with numerous customers:**
  - **Reducing inventory 25-40%**
  - **Improving customer service by 10-15% points**
  - **Maximize use of capacity**

- **Quick, low-risk fix for lot sizing problems**
  - **Lot Size Optimization in both high-volume and high-mix facilities**
  - **Lot Size Optimization using web-based software and existing data**

Tom Knight
Founder and CEO

Poll Question 1

Question 1: What is your Primary Improvement Objective for attending this Webinar?

- a.) Reduce Changeover costs
- b.) Reduce Inventory Holding costs
- c.) Improve Customer Service
- d.) All of the Above
- e.) Personal Education

Agenda

- Urgent Supply Chain Challenges
- Beyond EOQ: Best Practices for Lot Size Optimization
  - Case Study
- Sequencing Issues: Best Practices for Rhythm Wheels
  - Case Study
- Questions & Discussion

Urgent Supply Chain Challenges

- Complex global supply networks
- Fierce offshore competition
- More product variants and SKUs
- Shorter product life cycles
- More complexity within each plant and across the global supply chain

Product Proliferation is Hitting Every Industry

Increased demands by customers:

Consumer Products adding 20% more SKUs each year

Chemicals experiencing 60% volatility in some SKUs

invistics

Every Company Is Being Forced to Change

Then	Now
• Stable demand • Repetitive • Long runs • High utilization • Dedicated equipment	• Highly variable demand • Responsiveness • Short runs • Faster changeovers • Shared equipment
High-volume	**High-mix**

Poll Question 2

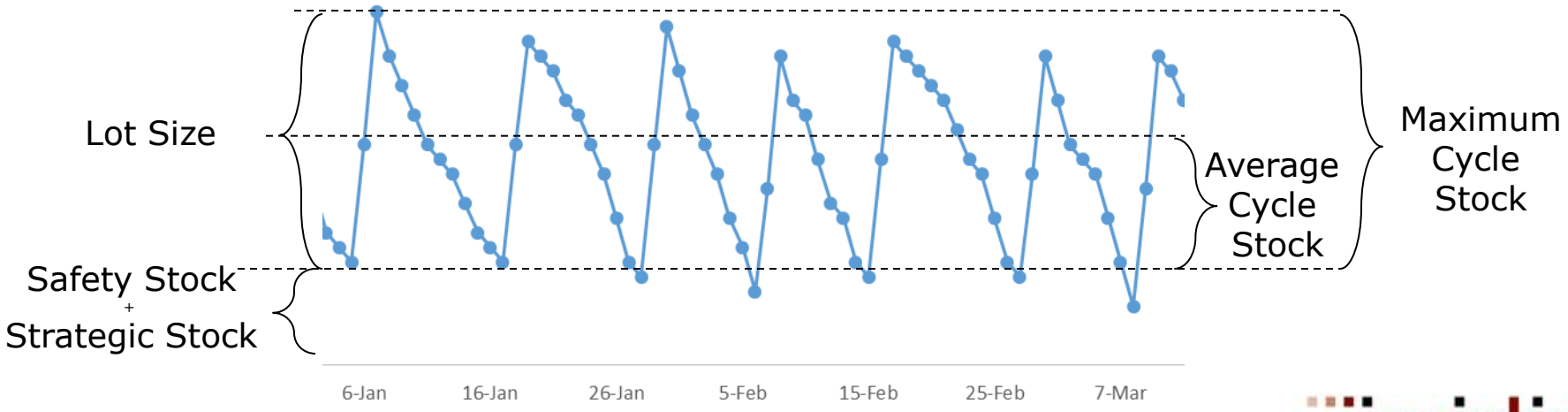
Question 2: Question 2: What Best Describes Your Product Mix?

- a.) High Volume, High Mix
- b.) High Volume, Low Mix
- c.) Low Volume, High Mix
- d.) Low Volume, Low Mix

Quick Notes on Terminology

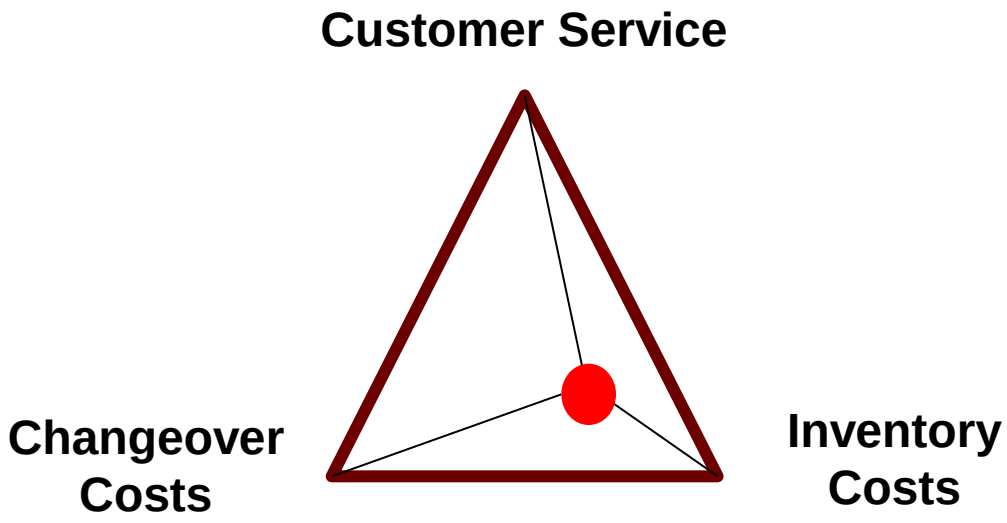
Three similar terms that we will collectively refer to as 'Lot Sizes':

- Lot Size: Generally used in discrete industries to signify how many units of a product to make before changing of to a different product
- Batch Size: Common term in chemicals, food, beverage and other process industries to denote the amount of product made at one time (often related to vessel or tank sizes)
- Campaign Size: Used by metals, pharmaceutical, and other industries, this indicates the number of individual lots or batches to produce before changing over to another product



The Basic Lot Sizing Challenge

Find the "sweet-spot" between 3 objectives:



Agenda

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- Beyond EOQ: Best Practices for Lot Size Optimization
- Best Practices for Implementing Rhythm Wheels
- Case Study
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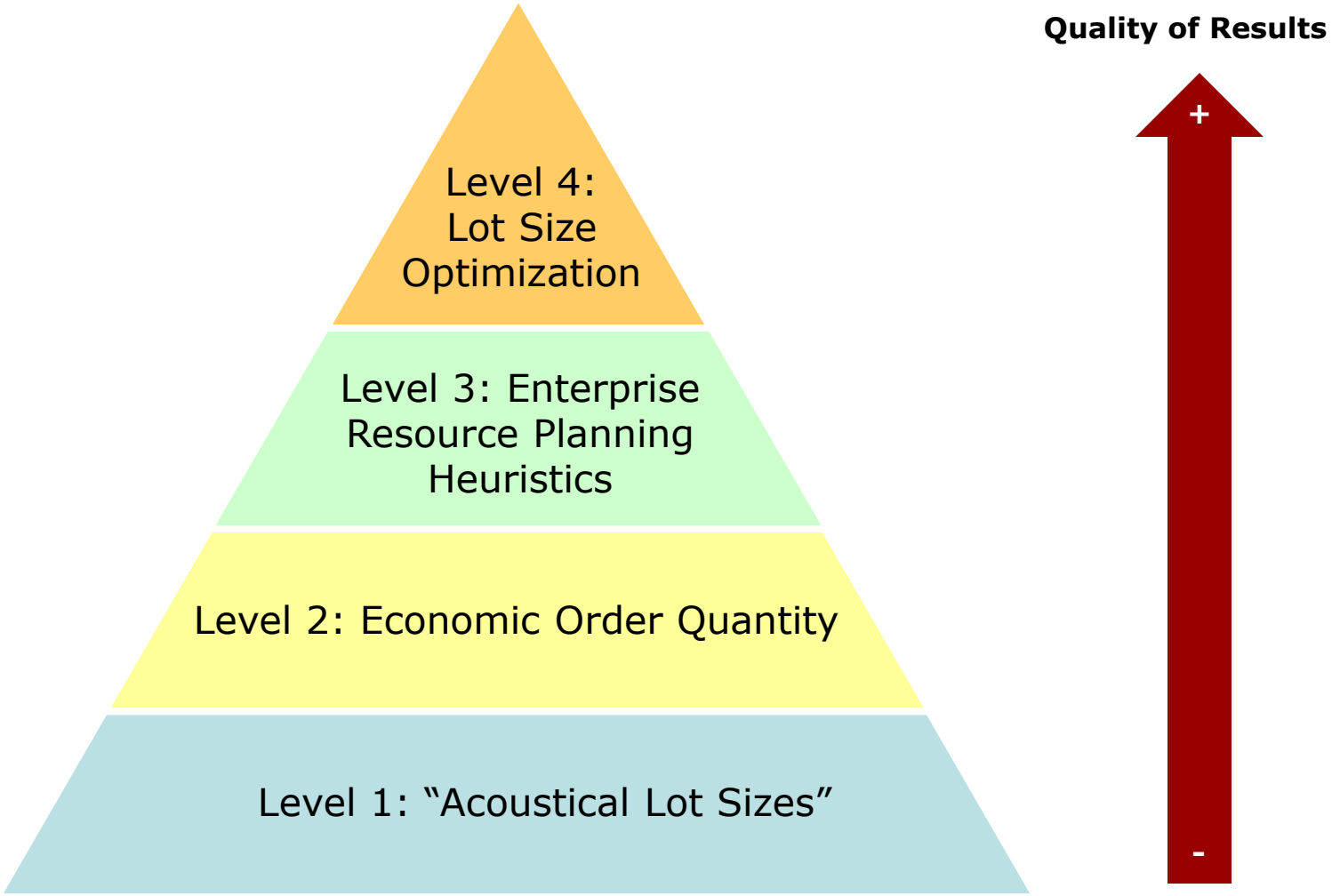
Four Levels of Maturity for Lot Size Optimization

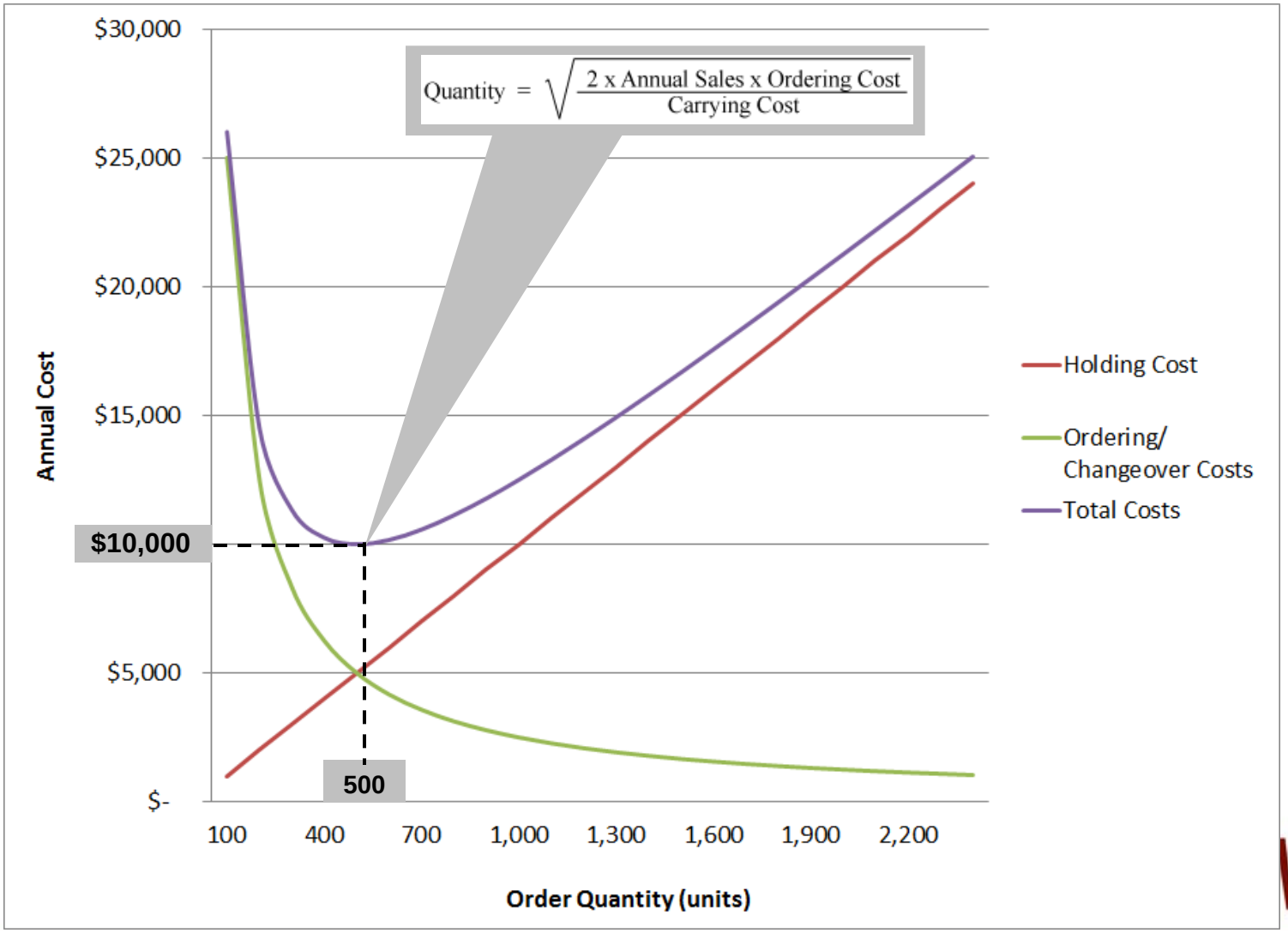


Maturity Level 1: Acoustical Lot Sizes

Increase lot sizes until the yelling stops

- Never allows root causes of manufacturing or supply chain performance to be addressed
- Risks significant excess inventory and increased cycle times
- May result in infeasible capacity plan
- Stressful for all involved
- Enables endless loop of 'firefighting'

Maturity Level 2: Economic Order Quantity (EOQ)

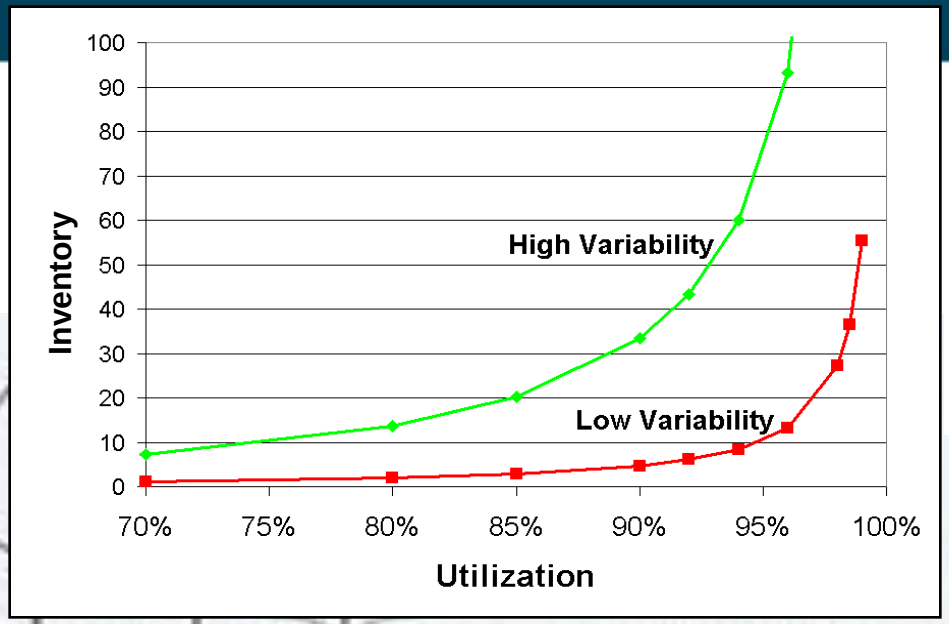


Where EOQ falls short

$$\text{Quantity} = \sqrt{\frac{2 \times \text{Annual Sales} \times \text{Ordering Cost}}{\text{Carrying Cost}}}$$

- EOQ drowns in high mix environments. It assumes:
  - Single Product- no product mix
  - No variability in Demand
  - Replenishment is Instantaneous
  - Infinite Capacity
  - No notion of customer service level

The effect of variability and high utilization



$$CT_q \approx V \times U \times t$$

$$\approx \left(\frac{c_a^2 + c_e^2}{2} \right) \left(\frac{u^{\sqrt{2(m+1)}-1}}{m(1-u)} \right) t_e$$

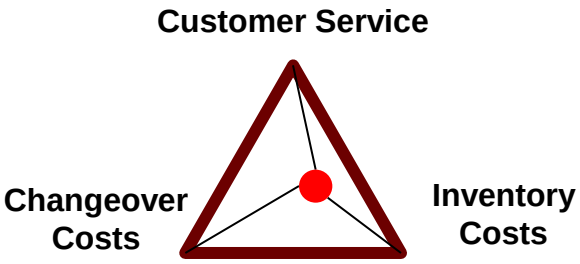
In a high mix plant, a line with utilizations above ~90% begins to require infinitely large lot sizes and infinite inventory

Maturity Level 3: Enterprise Resource Planning Heuristics

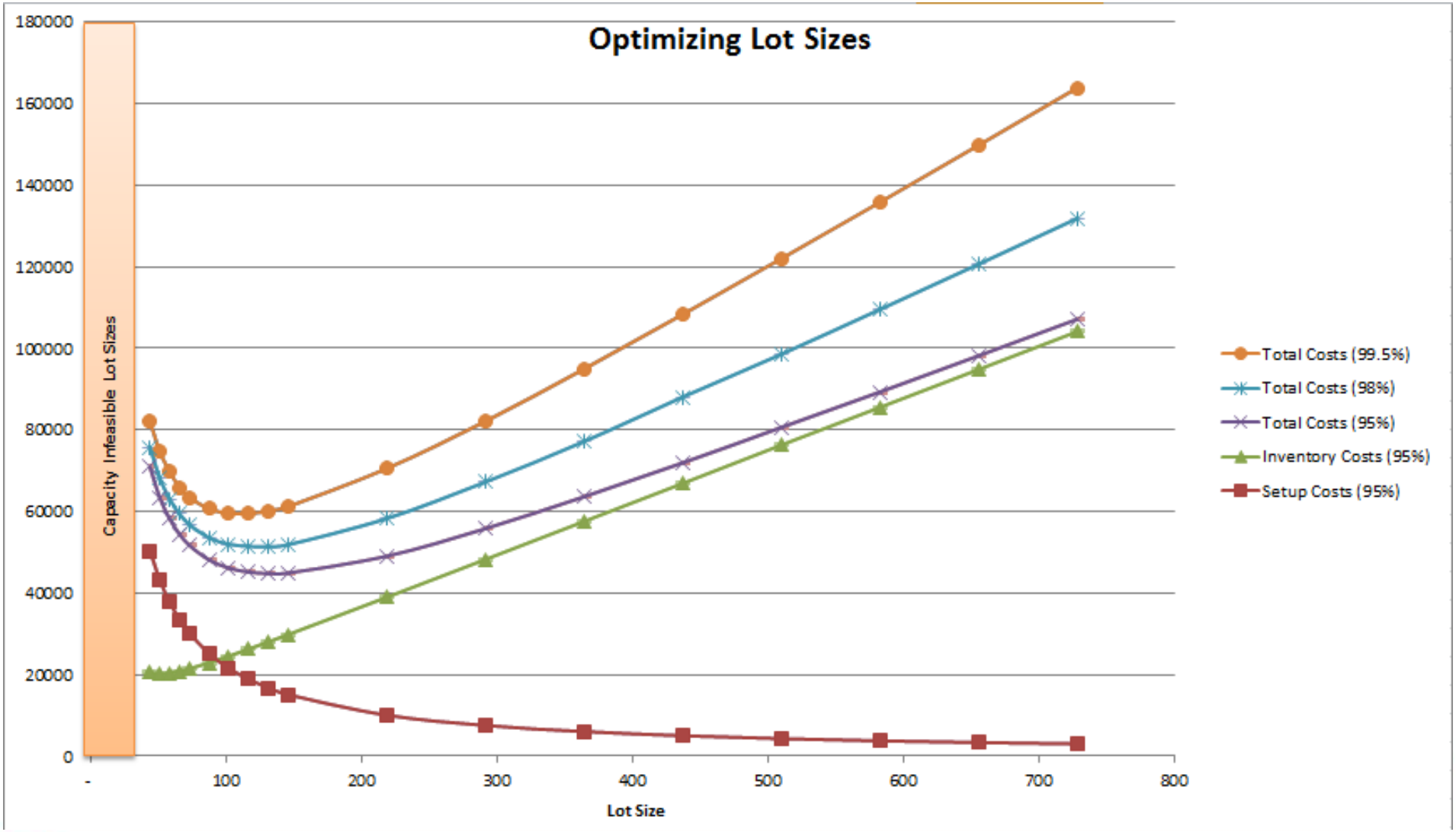
- Deterministic approaches (aka 'Dynamic' in SAP)
  - Assumes demand is known
  - Most ERP systems have multiple deterministic lot size approaches (Part-Period Balancing, Lot-for-Lot, Groff, etc.)
  - These are easy to understand and implement, but fail in the presence of any appreciable variability
- Stochastic approaches in ERP typically have one or more of the following issues
  - Lack consideration of both supply and demand variability
  - No way to visibly analyze results in a way that makes sense to the user
  - Often ignore capacity
  - Require inputs that are confusing to the user
- In both cases, the largest advantage is that these approaches are built right into existing ERP systems

Maturity Level 4: Lot Size Optimization

- Best-of-breed lot sizing approaches allow the following
  - Include both supply and demand variability
  - As a required step, conduct capacity analysis of the process
  - Analyze entire product mix concurrently
  - Require minimal special-expertise
  - Present results in an easy-to-visualize format
  - Use data already in ERP when at all possible
  - As an option: Include analysis of stocking levels as well



Total Cost Curve
Tradeoff of Holding Costs and Setup Costs



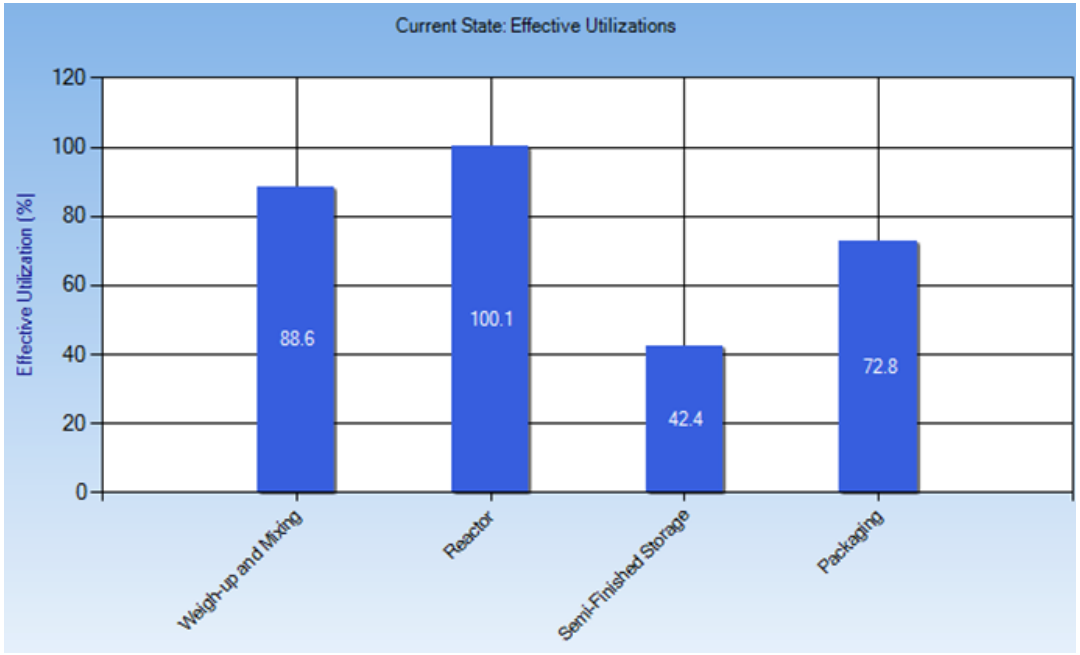
Poll Question 3

Question 3: Which Maturity Level for Lot Sizing is Your Company using?

- a.) Level 1: "Acoustical" Lot Sizes
- b.) Level 2: Economic Order Quantity
- c.) Level 3: Enterprise Resource Planning Heuristics
- d.) Level 4: Lot Size Optimization

Invistics Lot Sizer

Optimizes lot sizes, batch sizes, and/or campaign sizes



	Total Cost (Inv + Setups)
Current Conditions	$26,816.66
Optimized Value	$14,980.64
Improvement	$11,836.02

Current State | Results | Recommendations | Text Output

Recommendations

Material Number	Material Description	Number of Setups	Setup Cost	Lead Time	Lot Size	Reorder Point	Target Service	Avg. Inventory Level	Avg. Inventory Cost	Total Cost
538845	VARIANT BL 3175A 0215.00 KG D009	0.39	211.32	1.47	23953.00	36106.37	0.95	34625.77	386.95	598.26
928716	VARIANT B 302 0225.00 KG DR09	0.04	19.76	13.65	8800.00	3996.72	0.95	3971.09	39.42	59.18
2450953	VARIANT N 100 0225.00 KG B01	0.54	286.45	1.15	48514.00	53264.63	0.95	48113.99	466.77	753.21

Lot Size Optimization
Typical Inputs and Outputs

Inputs

Product Data

- Demand (mean and std dev.)
- Holding Cost
- Unit Cost

Routing Data

- Process Times (mean and std dev)
- Setup Times (mean and std dev)
- Changeover cost
- Min/Max allowable Lot Sizes

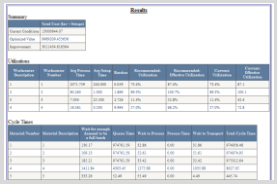
Work Center Data

- Reliability (MTTF/MTTR)
- Crewed Hours

Target Performance

- Customer Service
- Inventory

Lot Sizer



Outputs

- Lot Sizes
- Inventory Targets

Projected Performance

- Setups Per Week
- Inventory
- Setup costs

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Case Study: Lot Size Optimization Best Practices

Company	Details
	**Products:** High-Mix Specialty chemicals **Characteristics:** Few raw materials transformed into many finished products Excessive working capital Suboptimal lot sizes contributed to Excessive cycle times due to too-large lot sizes for many SKUs Too frequent changeovers due to small lot sizes for some SKUs Capacity Concerns due to high utilizations Lot Sizing: Using Part-Period-Balancing (SAP Heuristic)

Approach Taken

1. Gathered needed data- *Not as intimidating as it appeared*
2. Performed lot size analysis- *Used Invistics software*
3. Analyzed results- *Big projected improvements*
4. Entered results into ERP- *Continued running their supply chain as usual, but with optimized lot sizes*
5. Measured the Results – *reduced change-over costs and inventory significantly*

Lot Sizer Overall Summary

Upload File: Browse... Analyze

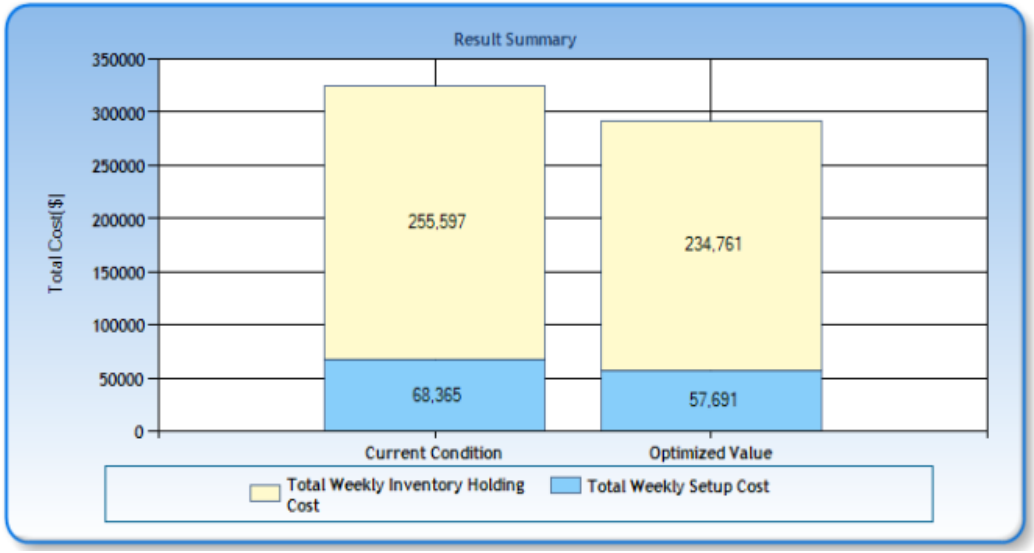
Current State | Recommended Case | Text Output

Summary | Utilizations | Cycle Times | Cost Analysis

Results: Summary

	Current Conditions	Optimized Value	Improvement
Total Cycle Time (days)	203	166	37.02
Total Avg Inventory (Qty)	28,628,767	26,145,884	2,482,883
Total Avg Inventory ($)	$ 75,957,506	$ 69,765,615	$ 6,191,891
Total Weekly Setup Cost	$ 68,365	$ 57,691	$ 10,673
Total Weekly Inventory Holding Cost	$ 255,597	$ 234,761	$ 20,836
Total Weekly Cost (Inv Holding + Setups)	**$ 323,962**	**$ 292,453**	**$ 31,509**

Select Chart: Cost Summary Show Point Labels: Show X Axis Margins: Show as 3D:



LotSizer Overall Utilizations

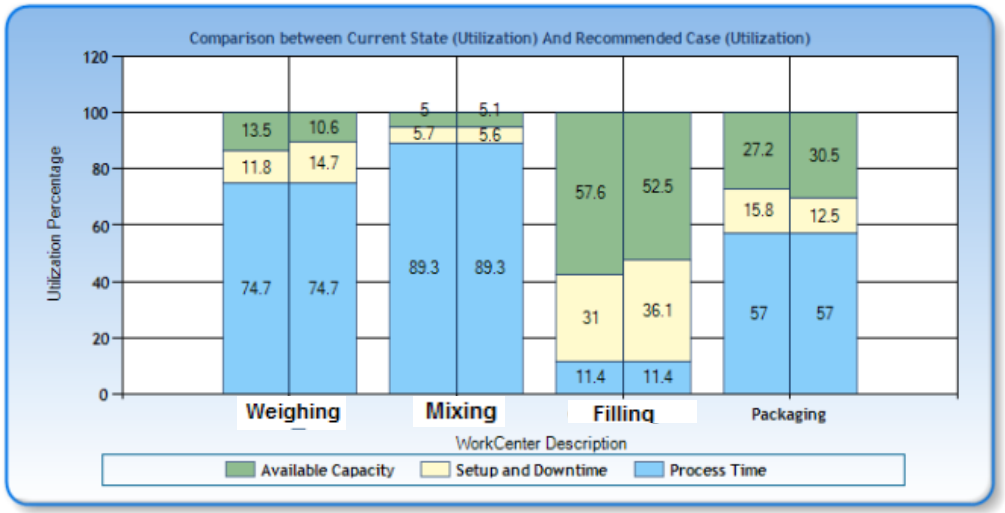
Current State | Recommended Case | Text Output

Summary | Utilizations | Cycle Times | Cost Analysis

Results: Utilizations

Workcenter Description	Workcenter Number	Availability (%)	Time to Process a Batch (hrs)	Avg Setup Time (hrs)	# of Batches per Week	Calendar Hours	Crewed Hours	Uncrewed Hours	Setup Hours	Percentage in Setup	Processing Time (Hours)	Remaining Hours Available	Current Case: Process Time	Case: Setup and Downtime	Cur Cas Ava Cap
Weighing	1.0	93	1,494	180	0.084	168	168.0	0.0	15	0.1	126	-1506.0	74.7	11.8	1
Mixing	2.0	95	169	1.0	0.888	168	168.0	0.0	0.9	0.0	150	-2.0	89.3	5.7	5
Filling	3.0	100	8.1	26	2.381	168	168.0	0.0	61	0.4	19.2	133.9	11.4	31.0	5
Packaging	4.0	85	10	0.5	17.885	168	161.0	7.0	8.9	0.1	184	150.5	57.0	15.8	2

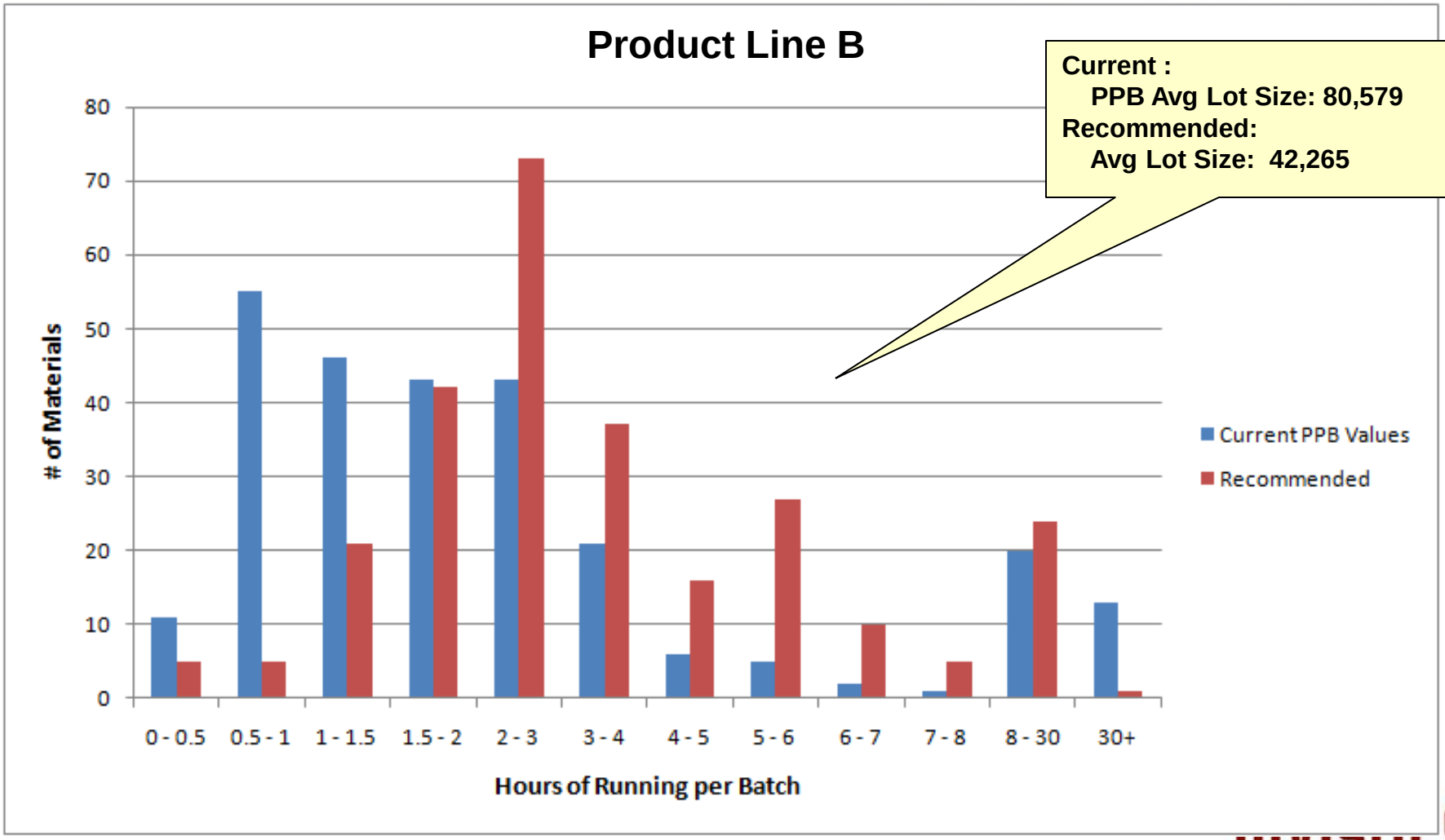
Chart Type: StackedColumn Show Point Labels: Show X Axis Margins: Show as 3D:



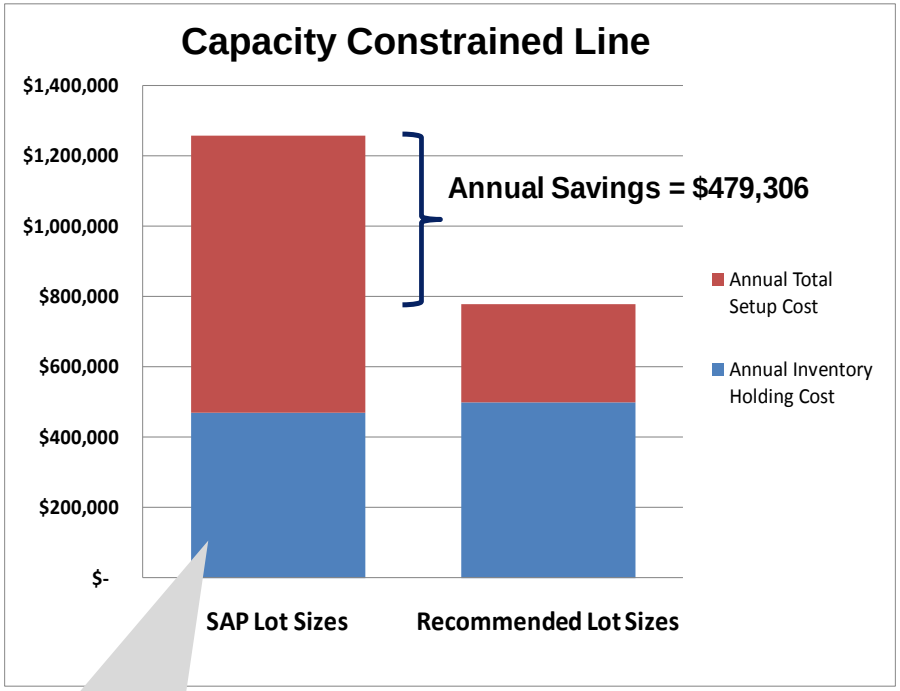
Sample Output from Lot Sizer

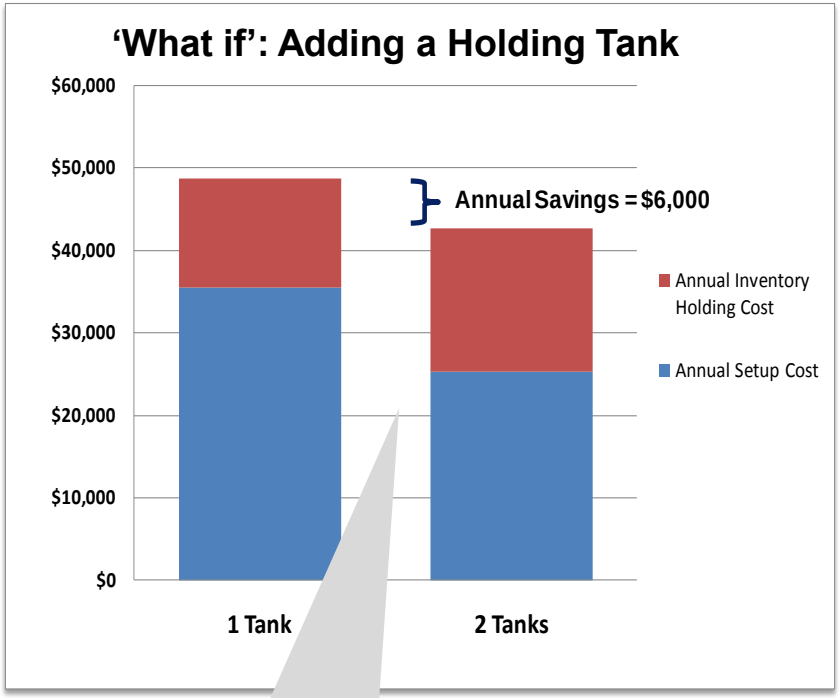
Material Number	Material Description	Recommended Lot Size	Current Lot Sizes (PPB)	Difference Between Recommended and Current Lot Sizes
		51,482	36,288	-15,194
		85,280	81,375	-3,905
		6,393	2,616	-3,777
		115,023	169,529	54,506
		108,330	105,808	-2,522
		95,659	135,124	39,465
		86,337	95,436	9,099
		88,545	84,719	-3,826
		79,953	72,714	-7,239
		47,510	97,716	50,206
		84,880	122,255	37,375
		71,646	65,976	-5,670
		54,039	71,412	17,373
		98,874	108,331	9,457
		6,209	6,660	451
		5,912	8,960	3,048
		6,076	6,192	116
		5,921	7,252	1,331
		6,153	6,504	351
		62,566	35,490	-27,076
		41,301	34,537	-6,764
		25,658	8,035	-17,623
		33,461	13,635	-19,826
		26,763	31,656	4,893
		27,532	23,322	-4,210
		29,455	23,348	-6,107
		22,437	23,520	1,083
		21,109	26,838	5,729
		33,491	26,148	-7,343
		34,699	22,591	-12,108
		60,652	135,180	74,528
		17,914	14,726	-3,188
		59,211	55,339	-3,872
		89,287	99,290	10,003

Optimized Lot Sizes:
Fewer very short runs, Fewer very long runs



Analysis Summary





Recommendations show fewer changeovers for the less expensive materials. This frees up capacity, and ends up saving money overall (even though the qty of less expensive material on hand actually *increases*).

The additional tank allows less changeovers, but more material will be held. The overall cost impact using optimal lot sizes (sometimes less than a full tankful) allows for cost savings.

Results

- Within the next 12 months, the inventory levels decrease by $4.5 million without any sacrifice to customer service.
- These improvements were all realized by simply changing the lot size values in SAP to the values calculated by Lot Sizer.
- In addition, overall costs were decreased by $500k annually. This improvement was due to a combination of the improved lot sizes and reconfiguring of the tank farm as recommended during the project.

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Poll Question 4

- Question 4: What software, if any, are you using to manage Cycle Stock and Lot Sizing?
- a.) ERP System (SAP, Oracle, JDE, etc.)
- b.) Homegrown Company Software
- c.) Third Party Software
- d.) No Software

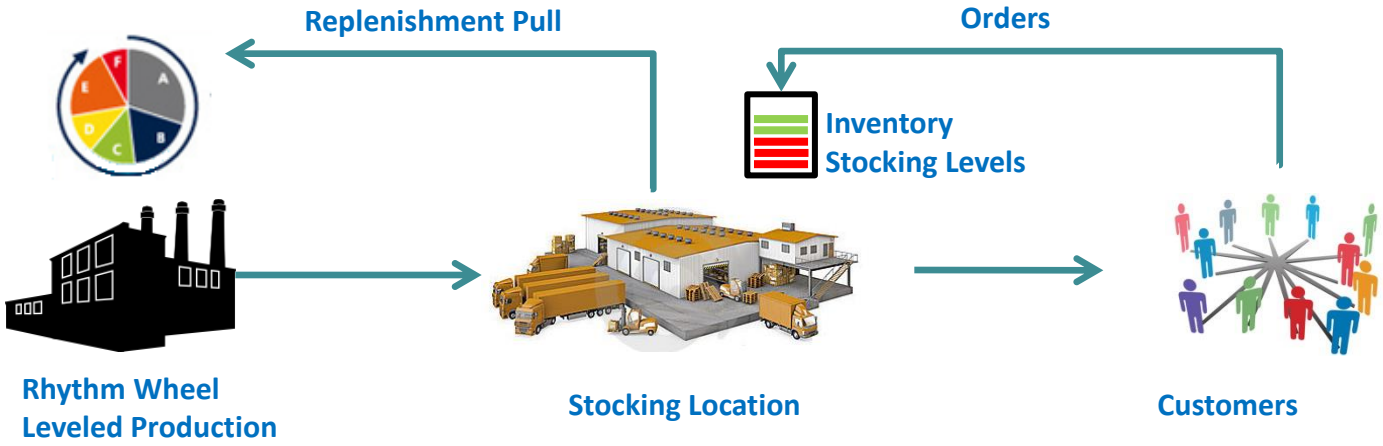
Sequencing Issues

- Some manufacturing plants have "sequence-dependent" change-over costs/times. Examples:

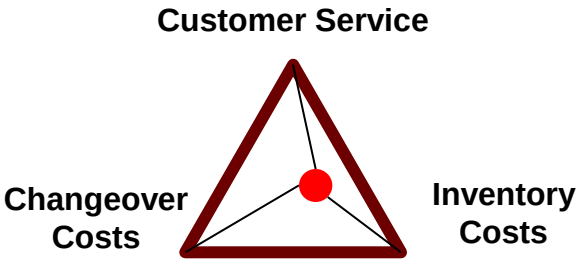
Industry	Sequence-Dependent Changeover Examples
Food & Beverage	Label changes are faster than flavor changes
Consumer Packaged Goods	Label changes are faster than container changes
Discrete Part Fabrication	Group similar sized parts together to avoid lengthy setups
Electronic Assembly	Group similar board sizes together to avoid lengthy setups

- These plants need to optimize both lot sizes and production sequences

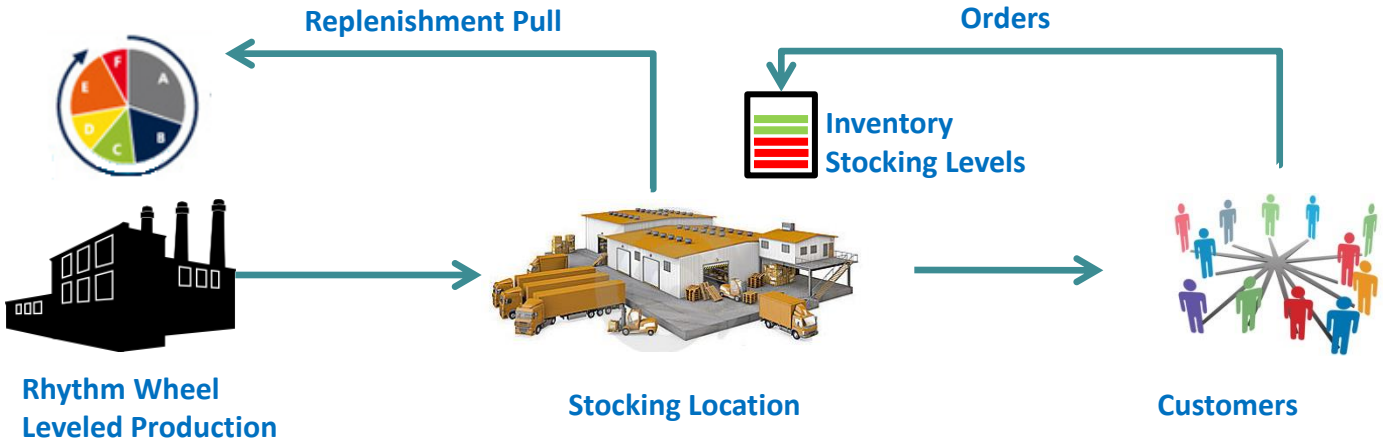
Introduction to Rhythm Wheels



- Sequences products on a repeating pattern or “wheel” to minimize changeovers times/costs
- Levels production and lowers demand volatility, while encouraging rapid wheel “frequency”
- Allows the plant to run optimized lot sizes while replenishing inventory stocking levels
- Enables the supply chain to find the sweet-spot that minimizes total costs



Best Practices for Designing a Rhythm Wheel



1. **Establish initial policies and conditions:**

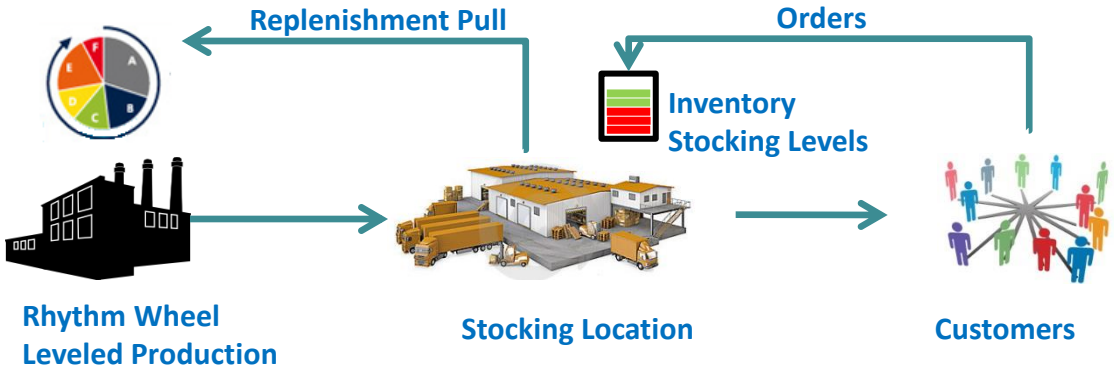
   A) Decide minimum production quantities by SKU family (sometimes called min. campaign size)
   B) Determine initial sequence (assuming every part every interval (EPEI) to start)
   C) Optional: Estimate initial (non-sequence dependent) lot sizes

2. **Optimize Cycle Stock - Design Rhythm Wheel by balancing load across time periods to minimize overall cost:**

   A) Select a potential Rhythm Wheel Run Frequency (aka Cycle Length or Cadence)
   B) Group low volume SKU families into selected time periods (not EPIE => skip in some periods)
   C) Optional: Fine-tune sequence within each time period
   D) Recalculate load in each time period. If not balanced/acceptable: return to step 1A, 2A or 2B

3. **Optimize Safety Stock - Right-size inventory levels by SKU**

Best Practices for Implementing a Rhythm Wheel



1. **Update Materials Requirements Planning (MRP) with these parameters:**
   - A) Minimum/expected lot sizes
   - B) Inventory min/max/safety stocks
2. **Streamline implementation and Measure success & conformance:**
   - A) Automate replenishment using optimized inventory stocking levels
   - B) Measure/reduce days Between production
   - C) Celebrate success, and look for ways to further accelerate Rhythm Wheel Run Frequency
3. **Refresh the parameters regularly, at least quarterly**

Cadence Advisor

Designs Rhythm Wheels and Expected Benefits & Costs

invistics *Cadence Advisor: Weekly Workbench*

Recommended Cadence Cycle (week 12

Overall Cadence Cycle (weeks) 12

Totals		Totals	1		2		3		4	
Totals		Shift Hours	Units	Shift Hrs	Units	Shift Hrs	Units	Shift Hrs	Units	Shift Hrs
Atlas	Total Capacity	960		80		80		80		80
	Current Plan	591	62,164	34.5	52,461	76.3	84,022	67.7	12,179	18.4
	Remaining Capacity	369		45.5		3.7		12.3		61.6
Zeus	Total Capacity	960		80		80		80		80
	Current Plan	366	30,283	17.6	136,331	74.2	26,303	15.7	75,546	38.9
	Remaining Capacity	594		62.4		5.8		64.3		41.1
	Combined Shift-Hrs	963		52.13		150.48		83.40		57.23

SKU	Material	Workcenter	Secondary Workcenter (override)	Weeks between run	Production Per Run Freq. (Cases)	First Week	Totals: Total Units per Cadence Cycle	Totals: Total shift-hrs per Cadence Cycle	1 Units	1 Shift Hrs	2 Units	2 Shift Hrs	3 Units	3 Shift Hrs	4 Units	4 Shift Hrs
5	Product 1	Atlas		2	50,774	1	304,645	167.4	50,774	27.9		0.0	50,774	27.9		0.0
6	Product 2	Zeus		2	40,433	2	242,598	121.4		0.0	40,433	20.2		0.0	40,433	20.2
88	Product 3	Zeus		4	10,053	2	30,159	17.5		0.0	10,053	5.8		0.0		0.0
197	Product 4	Zeus		4	24,251	1	72,752	39.0	24,251	13.0		0.0		0.0		0.0
501	Product 5	Atlas		4	22,181	3	66,543	77.7		0.0		0.0	22,181	25.9		0.0
7400	Product 6	Zeus		2	4,831	2	28,986	16.3		0.0	4,831	2.7		0.0	4,831	2.7
7829	Product 7	Atlas		4	5,001	3	15,003	11.8		0.0		0.0	5,001	3.9		0.0
10977	Product 8	Zeus		6	4,887	2	9,774	6.1		0.0	4,887	3.0		0.0		0.0
11098	Product 9	Zeus		4	17,204	2	51,612	26.9		0.0	17,204	9.0		0.0		0.0
11141	Product 10	Atlas		4	11,390	1	34,170	19.9	11,390	6.6		0.0		0.0		0.0
11324	Product 11	Atlas		4	5,167	2	15,502	23.8		0.0	5,167	7.9		0.0		0.0
13501	Product 12	Zeus		6	7,431	2	14,861	8.7		0.0	7,431	4.4		0.0		0.0
13701	Product 13	Atlas		4	32,372	2	97,117	144.2		0.0	32,372	48.1		0.0		0.0
13747	Product 14	Zeus		6	12,895	2	25,789	14.6		0.0	12,895	7.3		0.0		0.0
14135	Product 15	Atlas		4	6,066	3	18,197	30.1		0.0		0.0	6,066	10.0		0.0
14320	Product 16	Zeus		6	3,671	2	7,343	4.1		0.0	3,671	2.1		0.0		0.0
14345	Product 17	Zeus		6	22,203	4	44,405	23.5		0.0		0.0		0.0	22,203	11.8
14355	Product 18	Zeus		6	5,735	3	11,471	6.2		0.0		0.0	5,735	3.1		0.0
14441	Product 19	Atlas		4	7,522	2	22,565	34.9		0.0	7,522	11.6		0.0		0.0
14516	Product 20	Atlas		4	3,031	4	9,093	13.8		0.0		0.0		0.0	3,031	4.6
14588	Product 21	Atlas		4	2,373	4	7,119	14.9		0.0		0.0		0.0	2,373	5.0
15540	Product 22	Zeus		6	7,588	3	15,176	9.9		0.0		0.0	7,588	4.9		0.0
15541	Product 23	Zeus		6	11,322	3	22,645	12.2		0.0		0.0	11,322	6.1		0.0
15542	Product 24	Zeus		6	5,526	2	11,052	5.7		0.0	5,526	2.9		0.0		0.0
15847	Product 25	Atlas		4	3,417	4	10,250	18.9		0.0		0.0		0.0	3,417	6.3

Cadence Advisor Software to Design Rhythm Wheels

Inputs and Outputs

Inputs

Product Data

- Demand (mean)
- Holding Cost
- Unit Cost
- Sequencing attributes (for setups)

Routing Data

- Process Times (mean)
- Setup Times (mean)
- Setup costs and time (mean)
- Primary/Secondary work centers

Work Center Data

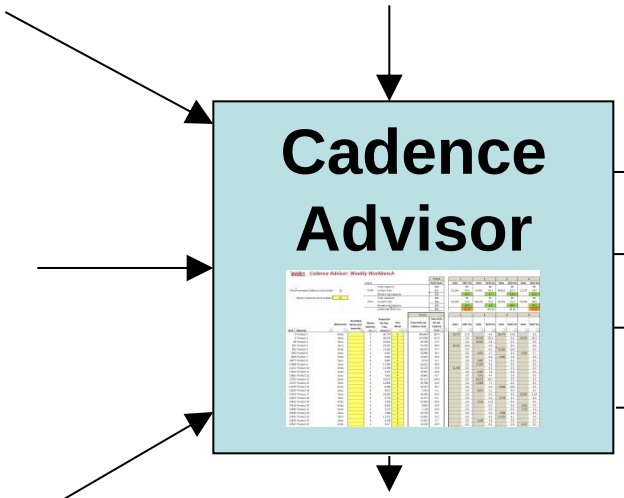
- Crewed Hours
- Minimum production times/quantities

Historical Data

- Historical Orders/Production Qtys and sequences by date

Current Performance

- Current Cadence (Frequency & Sequencing)
- Current Lot/Campaign Sizes by SKU
- Current Min. Production times & quantities



Outputs

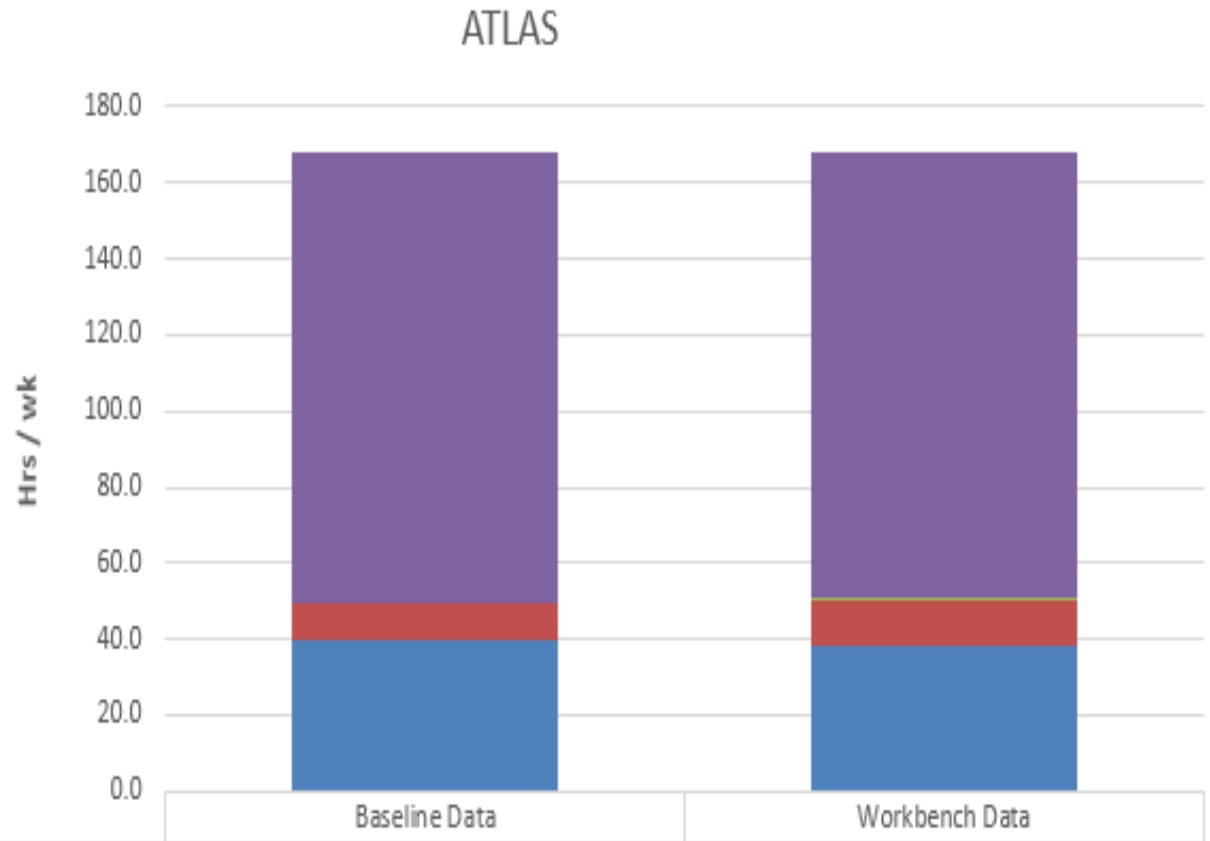
- Updated Rhythm Wheel (Frequency & Sequencing)
- Updated Lot Sizes by SKU
- Updated Min. Production times & quantities
- Projected costs (cycle stocks + changeovers)

Projected Performance

- Projected Utilization by Line & Time Period
- Projected Setups Per Week & Setup Costs
- Projected Inventory & Inventory Costs

Cadence Advisor

Compare past change-overs/utilizations to expected future benefits, by Line



	Baseline Data	Workbench Data
Unutilized Hours	118.3	117.2
Unplanned Downtime Hours	0.5	0.5
Changeover Hours	9.6	11.9
Production Hours	39.6	38.4

Cadence Advisor

Helps Plants Update Their Rhythm Wheels & Sustain the Benefits Long-Term

invistics *Cadence Advisor: Sequencer*

ATLAS

		# of Changeovers	CO Cost	CO Hrs	Approx Run Hrs	Approx Cases	
	Totals	29	$ 31,938	80	359.8	369,814	

Wk #	Req'd	Seq #	SKU	Case Size	Bottle Size	Flavor	CO Type	CO Cost	CO Hrs	Approx Run Hrs	Approx Cases	Remaining Capacity
1	5	1	5	6	24fo	OR	SKU (label)	$ 93	0.5	27.9	50,774	45.5
	11141	2	11141	6	24fo	LT OR	Flavor - WF	$ 1,224	0.75	6.6	11,390	
		3										
		4										
		5										
		6										
		7										
		8										
2	11324	1	17842	6	52fo	LT OR	Size	$ 616	3.5	6.1	4,042	3.7
	13701	2	13701	12	40fo	HSR	Size+Flavor+Case - WF	$ 1,828	3.5	48.1	32,372	
	14441	3	18139	6	24fo	OR	Size+Flavor+Case - WF	$ 1,828	3.5	2.5	3,358	
	17842	4	14441	12	36fo	OR	Size+Case	$ 618	3.5	11.6	7,522	
	18139	5	11324	12	40fo	OR	Size	$ 616	3.5	7.9	5,167	
		6										
		7										
		8										
3	5	1	501	9	52fo	OR	Size+Case	$ 618	3.5	25.9	22,181	50.2
	501	2	7829	6	24fo	BMOR	Size+Flavor+Case - PF	$ 1,028	3.5	3.9	5,001	
	7829	3										
	14135	4										
		5										
		6										
		7										
		8										

Agenda

- Urgent Challenges
- Beyond EOQ: Best Practices for Lot Size Optimization
  - Case Study
- Sequencing Issues: Best Practices for Rhythm Wheels
  - Case Study
- Questions & Discussion

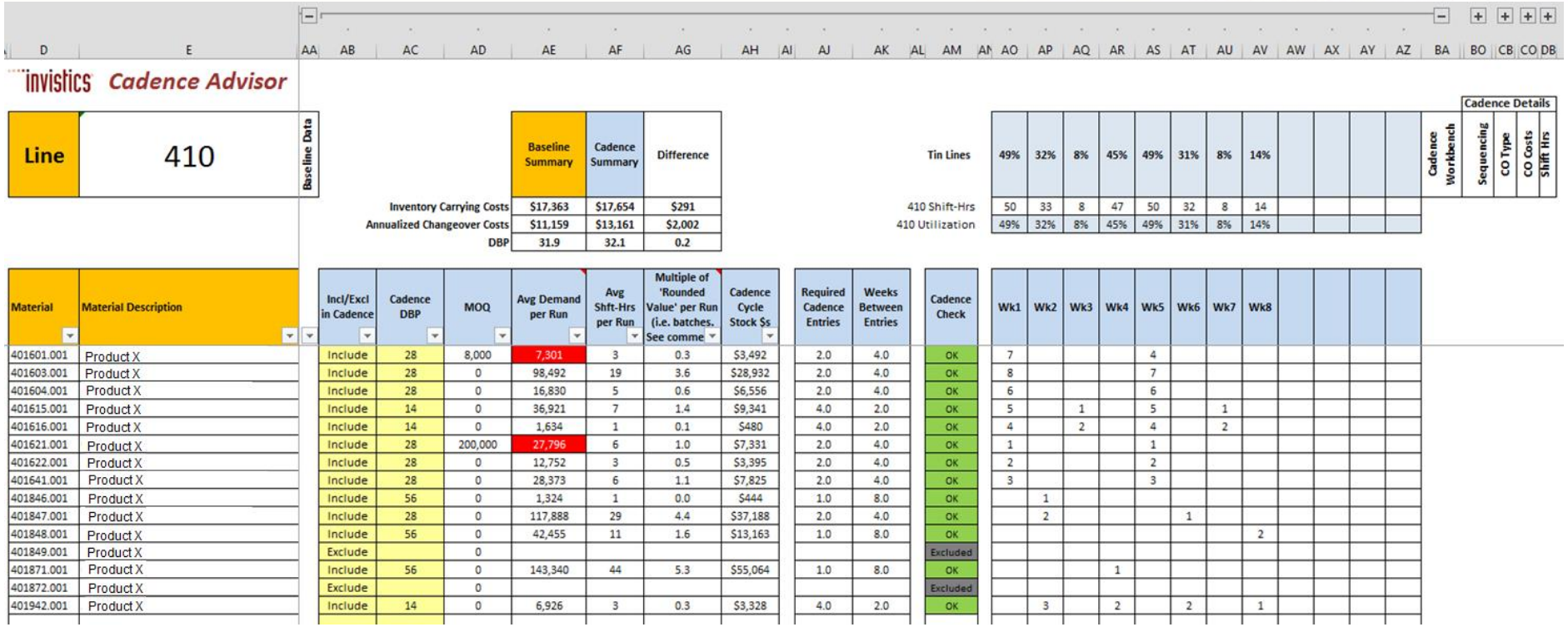
Case Study: Best Practices for Rhythm Wheels

Company	Details
	**Products:** Consumer Packaged Goods **Characteristics:** - Many finished goods SKUs running on a few shared production work centers - Sequence dependent setups require thoughtful production sequencing **Challenges** - Create a more level, repeatable production "cadence" - Minimize overall costs (cycle stock carrying costs + changeover costs) - Avoiding over-utilized lines - When possible, shift production from one work center to another to balance utilization

Using Cadence Advisor

1. Create ‘from-to’ Changeover matrix, classifying each changeover by code
2. Determine overall Cadence Cycle
3. Create estimate of lot sizes for each SKU
4. Fill up capacity of each week in Cadence Cycle by allocating SKUs to acceptable periods
5. Sequence within each week to minimize changeover costs
6. Iterate as needed to arrive at cadence with minimal overall costs

Cadence Advisor: Recommendations



invistics Cadence Advisor

Line	410

	Baseline Summary	Cadence Summary	Difference
Inventory Carrying Costs	$17,363	$17,654	$291
Annualized Changeover Costs	$11,159	$13,161	$2,002
DBP	31.9	32.1	0.2

Tin Lines	49%	32%	8%	45%	49%	31%	8%	14%
410 Shift-Hrs	50	33	8	47	50	32	8	14
410 Utilization	49%	32%	8%	45%	49%	31%	8%	14%

Cadence Details: Cadence Workbench | Sequencing | CO Type | CO Costs | Shift Hrs

Material	Material Description	Incl/Excl in Cadence	Cadence DBP	MOQ	Avg Demand per Run	Avg Shft-Hrs per Run	Multiple of 'Rounded Value' per Run (i.e. batches. See comme	Cadence Cycle Stock $s	Required Cadence Entries	Weeks Between Entries	Cadence Check	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8
401601.001	Product X	Include	28	8,000	7,301	3	0.3	$3,492	2.0	4.0	OK	7				4			
401603.001	Product X	Include	28	0	98,492	19	3.6	$28,932	2.0	4.0	OK	8				7			
401604.001	Product X	Include	28	0	16,830	5	0.6	$6,556	2.0	4.0	OK	6				6			
401615.001	Product X	Include	14	0	36,921	7	1.4	$9,341	4.0	2.0	OK	5		1		5		1	
401616.001	Product X	Include	14	0	1,634	1	0.1	$480	4.0	2.0	OK	4		2		4		2	
401621.001	Product X	Include	28	200,000	27,796	6	1.0	$7,331	2.0	4.0	OK	1				1			
401622.001	Product X	Include	28	0	12,752	3	0.5	$3,395	2.0	4.0	OK	2				2			
401641.001	Product X	Include	28	0	28,373	6	1.1	$7,825	2.0	4.0	OK	3				3			
401846.001	Product X	Include	56	0	1,324	1	0.0	$444	1.0	8.0	OK		1						
401847.001	Product X	Include	28	0	117,888	29	4.4	$37,188	2.0	4.0	OK		2				1		
401848.001	Product X	Include	56	0	42,455	11	1.6	$13,163	1.0	8.0	OK								2
401849.001	Product X	Exclude		0							Excluded								
401871.001	Product X	Include	56	0	143,340	44	5.3	$55,064	1.0	8.0	OK				1				
401872.001	Product X	Exclude		0							Excluded								
401942.001	Product X	Include	14	0	6,926	3	0.3	$3,328	4.0	2.0	OK		3		2		2		1

Single view allows users to allocate products to a given week while sequencing on the fly

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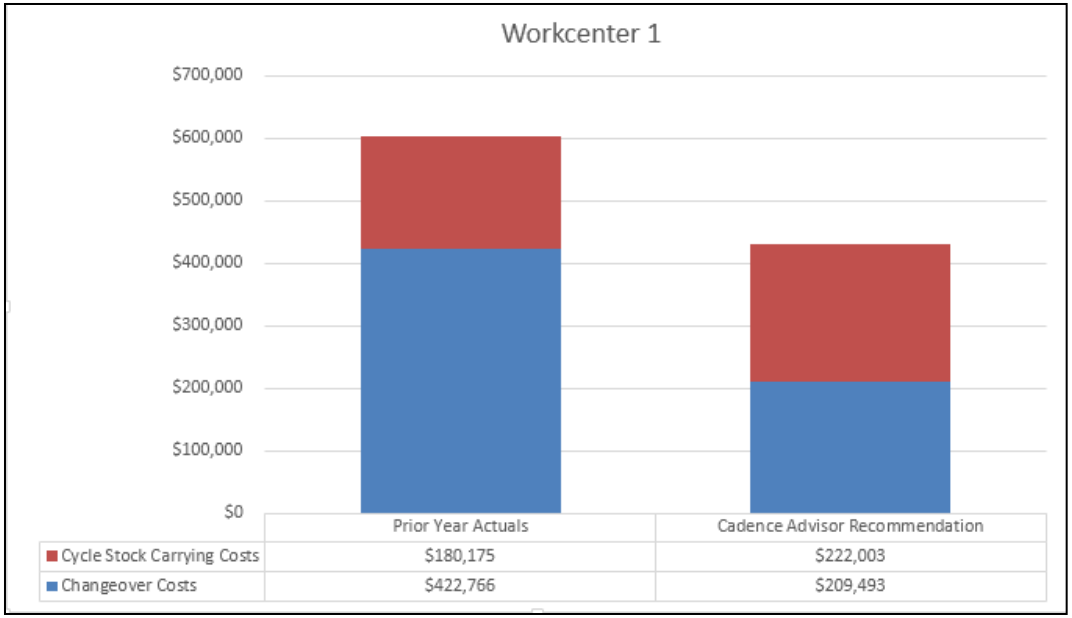
Cadence Advisor: Recommendations



- In the case above, there were many extremely expensive setups, resulting in a recommendation for longer runs overall and fewer setups, with slightly higher cycle stock

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Poll Question 5

Question 5: What was the most relevant part of this Webinar for you?

- a.) Best Practices
- b.) Case Study
- c.) Introduction to Software Tools
- d.) Q&A

Thank You! Questions?

To learn more:

visit www.invistics.com

or call 800-601-3456

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