

# IBM MRO IO

Reduce Costs

Free Up Working Capital



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# Agenda

**How MRO IO Can Reduce Costs and  
Free Up Working Capital**

Introduction to MRO IO

The Problem

Striking a Balance

Continuous Optimization (data flow)

Key Benefits

The Solution

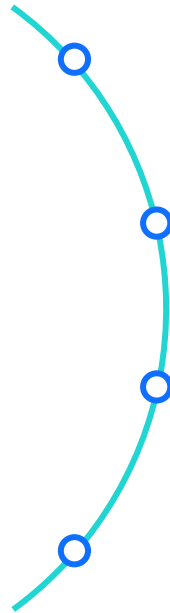
Customer Success

Q&A

# IBM MRO Inventory Optimization (MRO IO)

World's best inventory platform combining:

- Statistical Analyses
- Prescriptive Analytics
- Optimization Algorithms



Continuous optimization with automation



Sustainably planning and balancing inventory levels



Ensures *correct* parts are on hand, while improving service through optimized supply chains



Reduces inventory 15-40% while synchronizing supply with demand to get more from less!

# The Critical Spares Problem



00010039 GEAR, SPUR	
Price	\$112.50
Annual Usage	12
Lead Time	32 days
Criticality Code	B
Minimum	?
Maximum	?

00010039 GEAR, SPUR	
<ul style="list-style-type: none"><li>• Average (book value)</li><li>• Replacement value (last price)</li><li>• Repair price</li><li>• Pack sizes</li></ul>	
<ul style="list-style-type: none"><li>• Variable usage</li><li>• Infrequent demand (MTBF)</li><li>• Variable sizes</li><li>• Set sizes</li><li>• Planned &amp; unplanned demand</li></ul>	
<ul style="list-style-type: none"><li>• Long lead times</li><li>• Lead time variability</li><li>• Ability to expedite</li><li>• Alternate suppliers</li><li>• Internal lead time</li></ul>	
<ul style="list-style-type: none"><li>• Criticality (business impact)</li><li>• Equipment linkages (BOMs)</li><li>• Work-around options</li><li>• Stock-out costs</li></ul>	

**x100K**

# The Cost of Poor MRO Inventory Optimization



Bloated Inventory



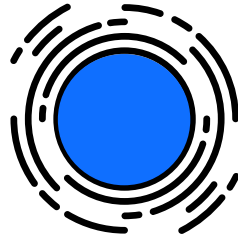
Equipment Downtime



Parts Become Obsolete  
on Shelf



Endless spend on inventory reduction  
projects



**End result: A margin sinkhole and inventory on  
balance sheet growing 2-10% per year\***



Bloated headcount

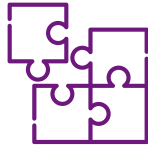
# Continuous Optimization

Business is not static – neither is optimization



## Growth

- New projects and capital
- Production capacity increase
- Procurement ramp-up
- Inventory ramp-up
- MRO Optimization



## Consolidation

- Production capacity stable
- Improve service levels
- Reduce holding costs
- Zero-in on highest impact issues
- Spend and Risk consolidation
- MRO Optimization



## Decline

- Production capacity reducing
- Service levels reviewed and appropriately decreased
- Reduce working capital
- MRO Optimization

### Other parameters that are subject to variability & require ongoing optimization

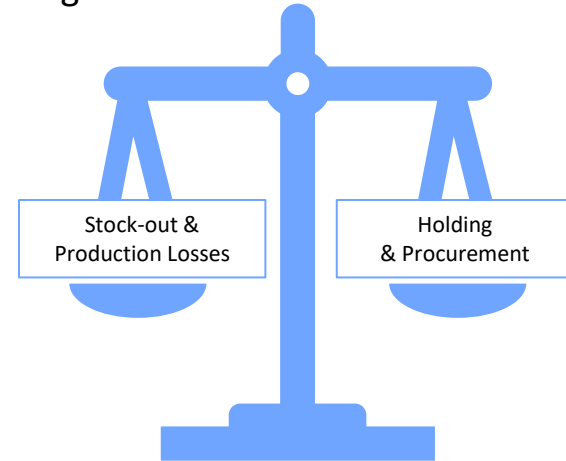
- Operating context
- Aging assets
- Reliability initiatives & other maintenance strategies
- PM adherence
- Where items are used (changing item criticality)
- Variable lead times
- Material price
- Average issue size
- Vendor availability (single source or multiple)

MRO IO aligns to your business processes and provides analytical insights across your organization's strategy

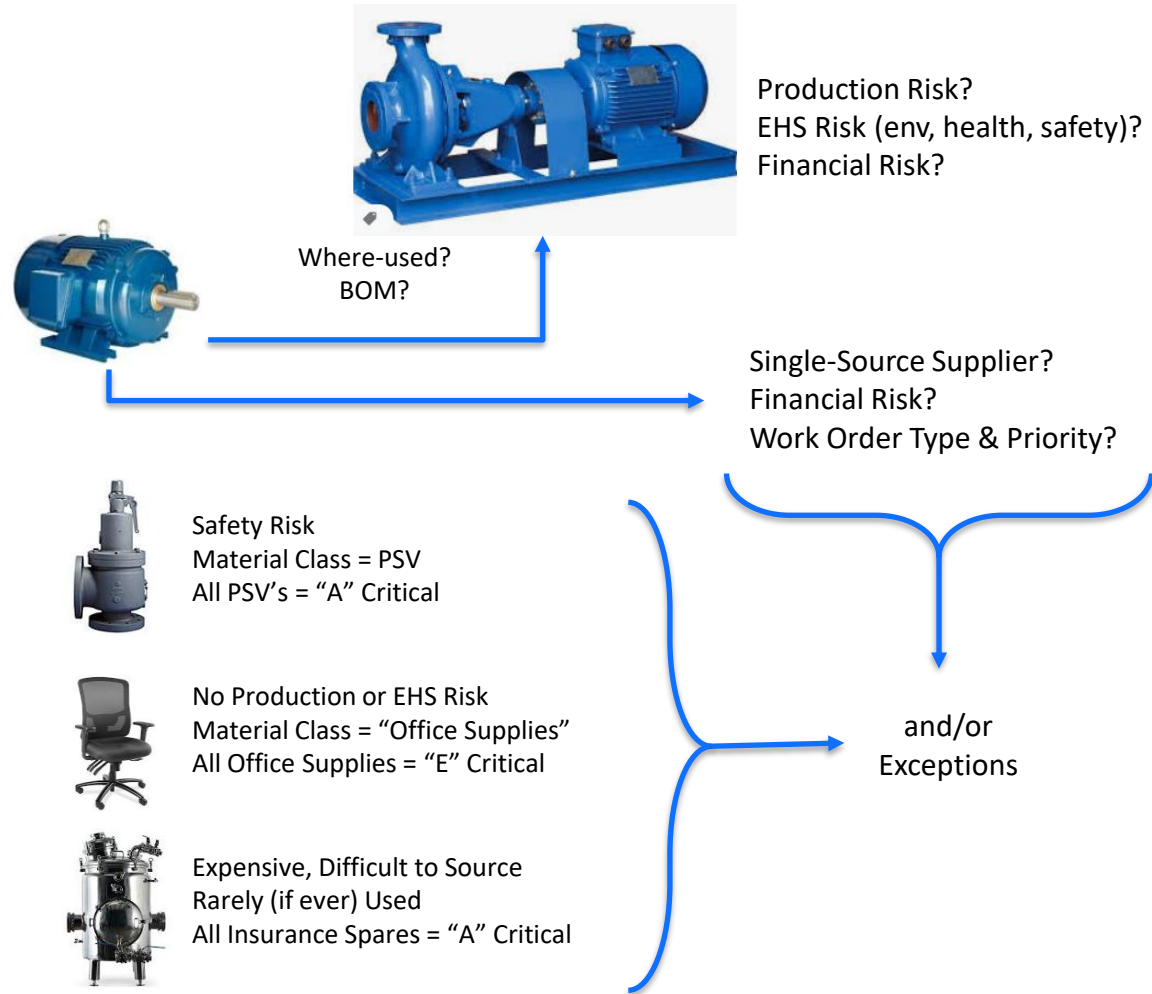
**GROWTH, CONSOLIDATION or DECLINE**

# Striking a balance between risk and cost

- **Holding Costs**
  - Cost per annum in holding stock
  - Warehousing, foregone capital, risk of obsolescence
- **Purchase Order (PO) Costs**
  - Cost per purchase order
  - Purchasing administration, transporting, receiving inventory
- **Stockout Costs**
  - Cost per Missed Issue (demand)
  - Disrupted operations, expedited inventory



# Automated process to assess Spares Criticality





# Business Impact – Assignment Policy

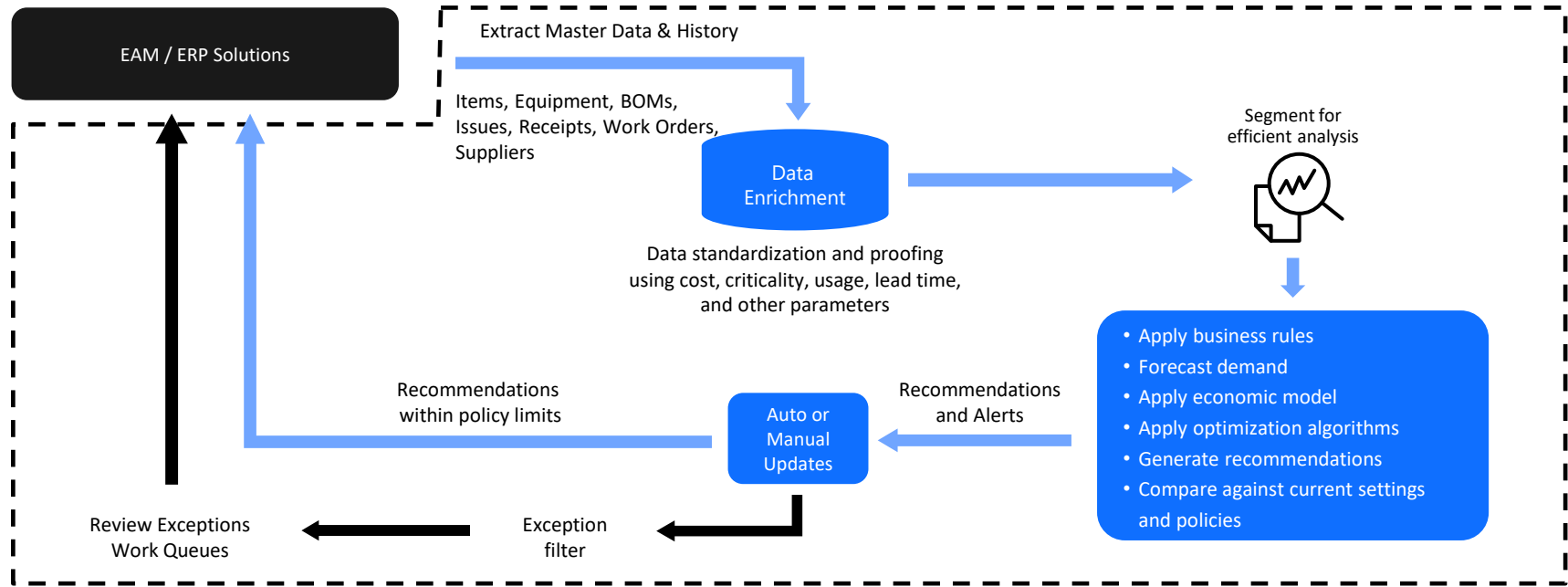
## Customer Example

IF/AND				THEN
Where-Used (Equipment or BOM Criticality)	Work Order Priority	Material Group Rating	OEM (Y/N)	MRO IO Spares Business Impact Stratification
A or B	1 or 2	High	Yes	A – production or safety critical
A or B	1 or 2	High	No	B – production essential
A or B	1 or 2	Medium or Low	Yes	B – production redundancy
C	3	Any	Yes	C – important essential
D or Null	4 or 5	Any	No	D – essential
Null	Null	Null		E – non-essential

Assign **Business Impact** by assessing other known ratings/parameters

- Item is Business Impact “A”
  - **IF** it has been issued to **equipment** with “A” or “B” Criticality
  - **OR** on a **BOM** with “A” or “B” Criticality
  - **OR** if item has been used on **Work Orders** with Priority “1” or “2” (high)
  - **AND** if **Material Group Rating** is “High”
  - **AND** the item is only available from **OEM**

# Value Realization through Continuous, Automated Optimization










# MRO Inventory Optimization “Smarts”

Provides *continuous*, sustainable, consistent optimization by combining:

- + **Client Data** (Items, Equipment, Suppliers, BOMs, Issues, Receipts, Work Orders)
- + **Prescriptive Analytics & Algorithms**
- + **Client-Based Logic Configuration**



Uniquely packaged in one solution to improve spares availability, increase equipment uptime and reduce costs

 <b>Data Enrichment</b>	 <b>Item Characteristics</b>	 <b>Demand Forecasting</b>	 <b>Availability/Lead Time</b>	 <b>Item Criticality</b>	 <b>Risk-Based Cost Model</b>	 <b>Workload Prioritization/Efficiency</b>
Lead Time	Automated Segmentation	Historical Demand	Internal PR-to-PO	5 Levels of Business Impact	Stockout Risk	Prioritized Work Queues
Criticality	Movement Stratification	Planned Demand	Weighted Average PO-to-Receipt	Equipment Linkage	Holding Cost	Item-Level Scoring
Potential Duplicates	Bin Constraints	14 Forecasting Methods	Receipt-to-Put Away	Material Type & Class	Expediting Cost	Work Flows
Average Issue Size	Set/Pack Size	Forecast Scoring/Selection	Outlier Clipping	Supplier	Replenishment/PO Line Cost	Fully Automated Recommendation Process
Data Anomaly Alerts	Average Issue Size	Historical & Future Durations	Variance Factoring	Cost	Economic Order Quantity	Excel Import / Export
Missing Data Alerts	Shelf Life	Automated Clipping	Supplier Performance	Description	Safety Stock	On-Line Grid Format Drill Down
Where-Used Issues/BOMs		Forecast Factoring	What-If Overrides	Availability		User-Specific Filters and Views
			ERP Stated	Movement		

# Key MRO Inventory Optimization benefits



Up to 50% reduction in unplanned asset  
downtime<sup>1</sup>



Up to 40% reduction  
in inventory costs<sup>2</sup>



Up to 35% savings  
in maintenance budgets<sup>2</sup>



Up to 25% increase  
in service levels<sup>2</sup>

## The operational impact is significant

- Typical implementation is 3-6 months
- Payback period typically <1 year

<sup>1</sup>2015 Aberdeen Group Report - *The Importance of Inventory Optimization and MRO*  
<https://www.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=72022672USEN&dd=yes&>

<sup>2</sup> Based on IBM internal analysis of client data. Individual client results will vary.

# Customer Success

One of World's Largest  
Aluminum Manufacturers

Inventory Rebalanced by

**\$37M (33%)**

In One Year

- \$23B in revenue
- Maintenance driven initiative to reduce inventory
- **\$23M net inventory reduction in first 12 months, including \$30M reduction in inventory with a \$7M inventory spend increase to minimize downtime**
- Improved asset uptime and service levels in the first 12 months

Major  
Mining Company

Inventory Reduced By

**\$52M (71%)**

Over Six Years

- Operating 7 mine sites, 1 terminal
- **MRO inventory value decreased from \$73M to \$21M over 6-year period**
- Achieved 50% year over year reduction in inventory spend for 6 years
- Improved asset uptime

Large Electric  
Utility

Inventory Rebalanced by

**\$33M (25%)**

In One Year

- Reduced 10% inventory growth rate to 0% growth
- **Net inventory rebalance by \$33M, \$18M reduction after \$15M new stock spend**
- Improved asset uptime
- Net \$77.8M spend avoidance over 5 years
- Critical spares service level for generation improved to 99.7%

One of World's Largest  
O&G Companies

Reduced working capital by

**10%**

In Six Months

- Maintenance driven initiative to reduce inventory
- Lowered inventory levels by at least 10% three years in a row
- Achieved over \$90M in savings through rebalancing in three years
- **Savings at Alaska site funded global implementation in year 1**

# Your data + Your business logic + MRO Inventory Optimization



Estimated time to implement:  
3-6 months



Primary resource (personnel) requirements: supply chain and operations SME's during the Design Workshop and Design Review phases (approximately 3-5 days each)

## Establish (1 month)



Project Definition & Planning



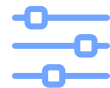
## Implement & Improve (3 to 5 months)



Initial Data Extract & Validation



Design Workshop



Configure & Test Solution



Final Design Review & User Acceptance and Translation



Training, Go-Live & Support



## Realize & Sustain (ongoing)



Rollout to other mines

## Rapid time-to-benefits

# Session Q&A

**For more information:  
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