Real-time Risk for the Operations Environment

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8 April 2011

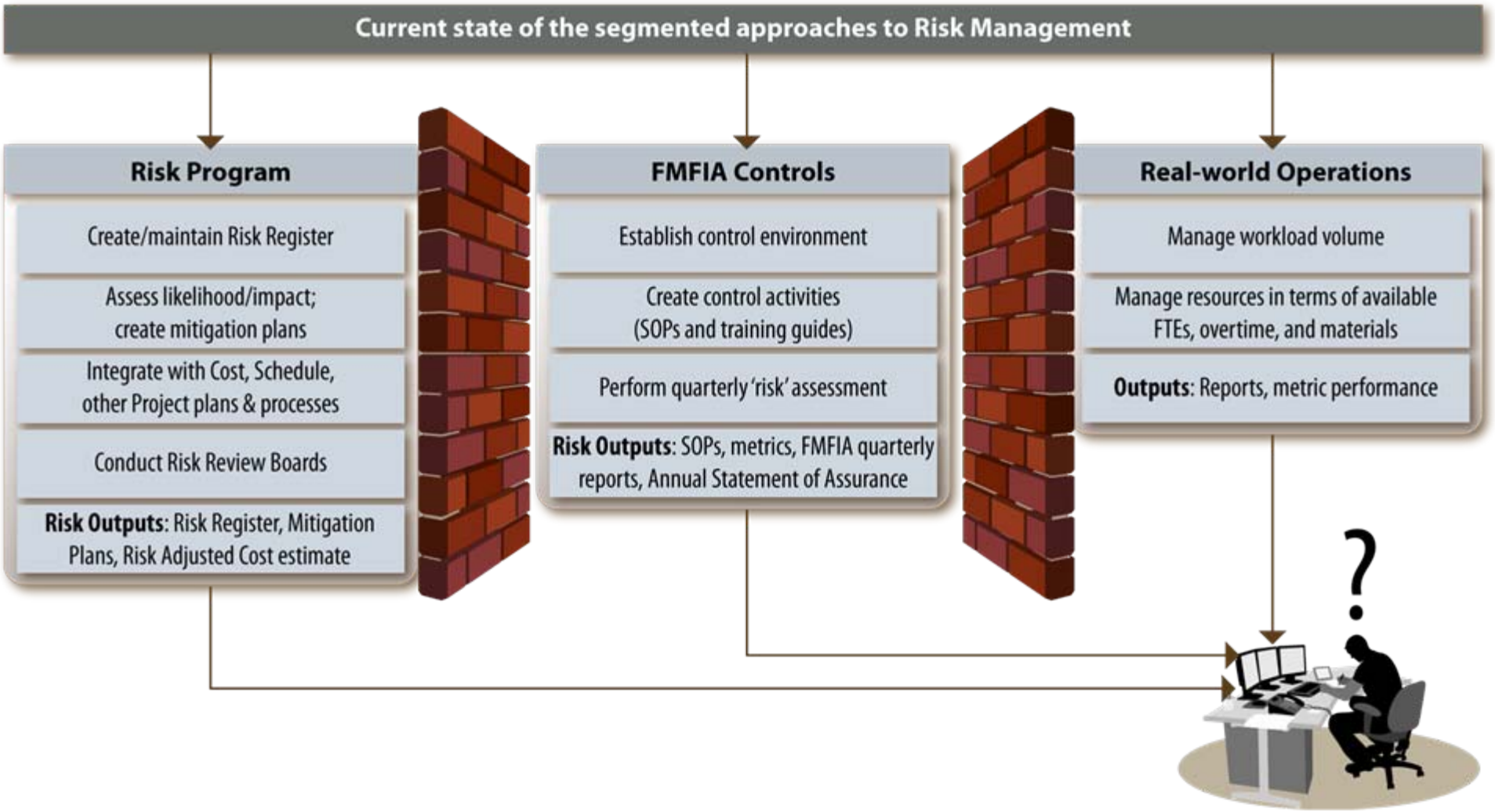
Today's Presentation

- Context
- Need for Real-time Risk
- Business modeling as a solution
- How to do Real-time Risk– propose a dashboard view
- Leading Indicators
- Real world example
- Proper environment

Context

- Managers in the Defense environment, particularly in Operations, focus on what did happen rather than what will happen; the focus is on daily issues rather than future planning
- Last year Booz Allen present the topic "Business Modeling: Cost Analysis in the Operations Environment," developed after several years of work with a particular defense client
  - Proposed a new role for Cost Estimators who are not supporting acquisition programs
  - Recommended the use of performance metrics to manage cost, measure fiscal efficiency, and provide a quantitative assessment of Operational health
  - Integrate quantitative measures into dashboards that display status
- This year, we propose the same of quantitative dashboards can provide real-time indicators of risk
  - Concepts such as dashboards, metrics and alerts are common in some industries – how can this be adapted for DoD cost risk?

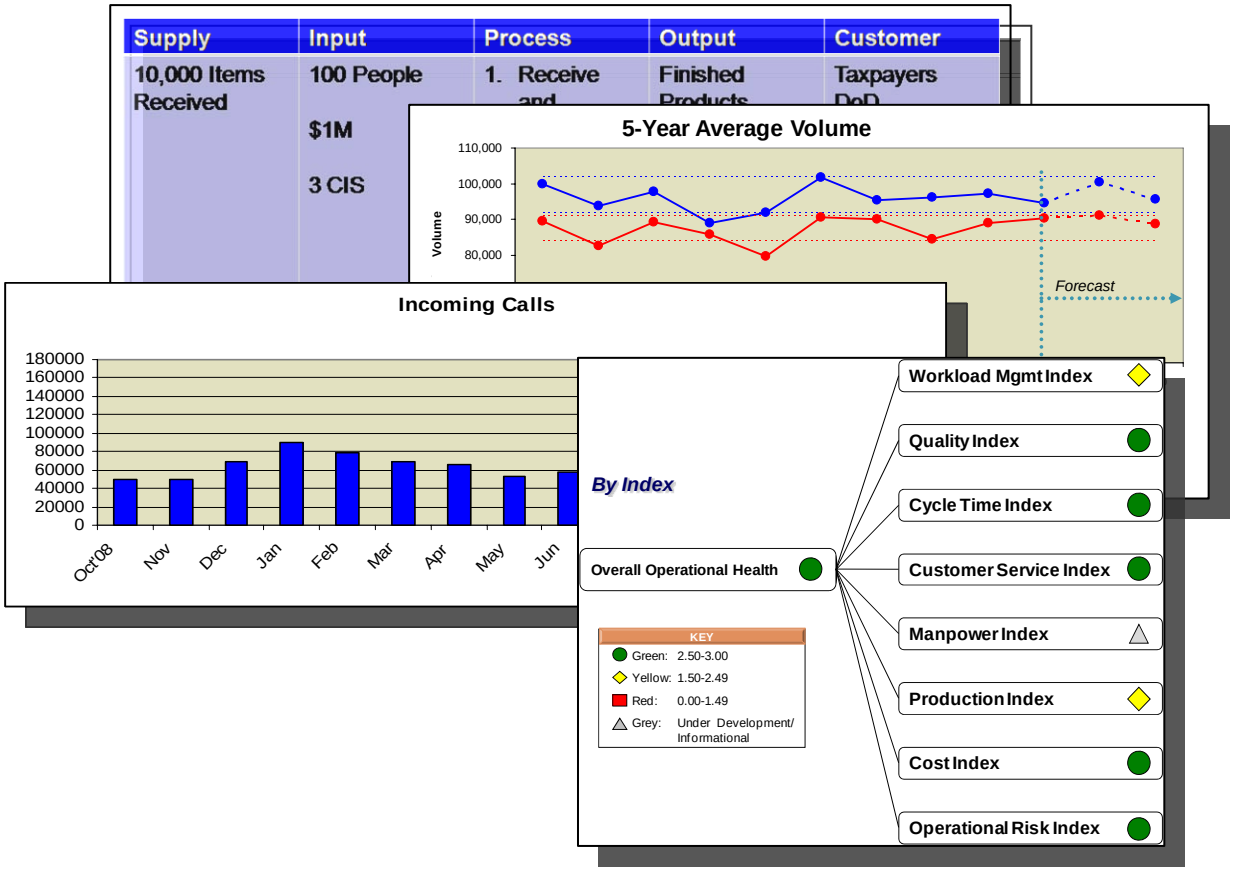
Why is real-time risk needed – discuss current segmentation



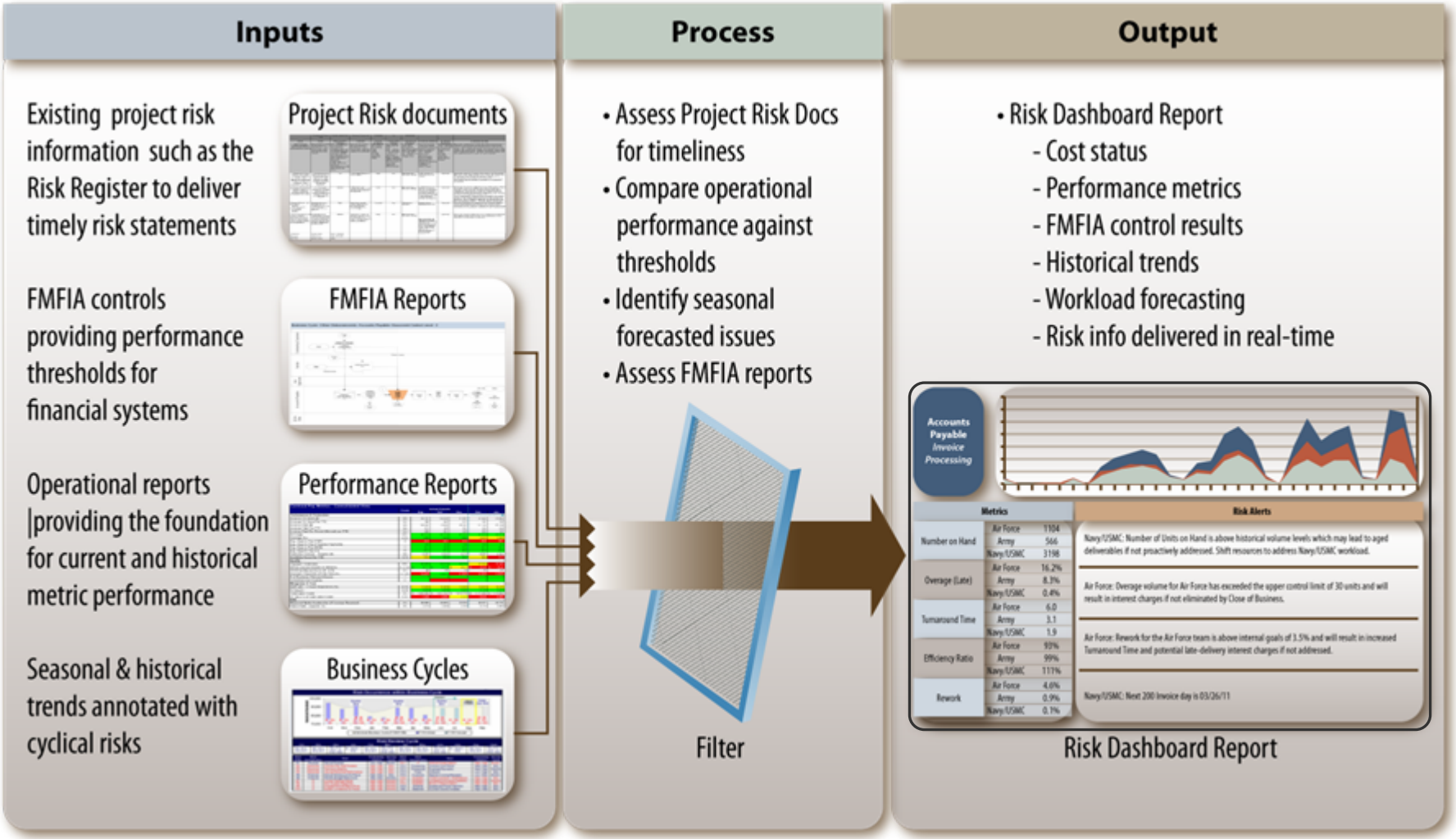
Business Modeling as a solution

To add value in a timely matter, analysts can apply quantitative skills to generate innovative models for operations divisions used to monitor leading risk indicators

Operations divisions need ***objective, data-driven models*** *to illustrate normal operating modes, satisfy service-level objectives,* ***efficiently use resources & minimize spending****, and proactively mitigate risks*



Dashboards provide an automated method of aggregating risk

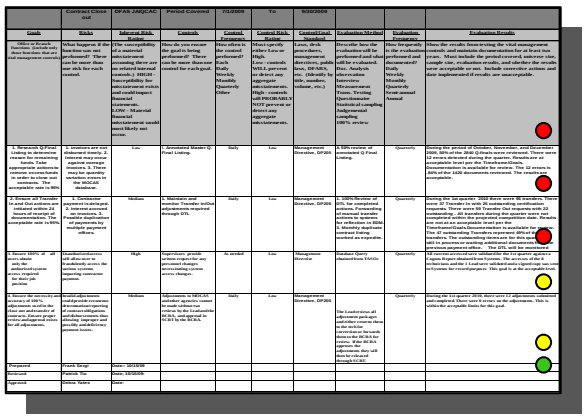


Different processes for different environments

Acquisition planning

Traditional methods of risk management are still applicable

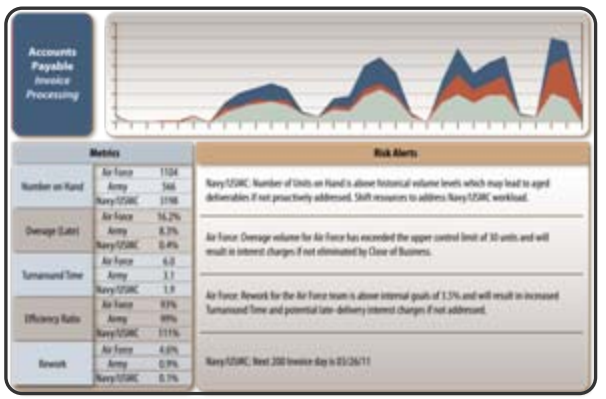
- *Risk Matrix*
- *Mitigation plans*
- *Waterfall/burndown charts*



Production and Operations

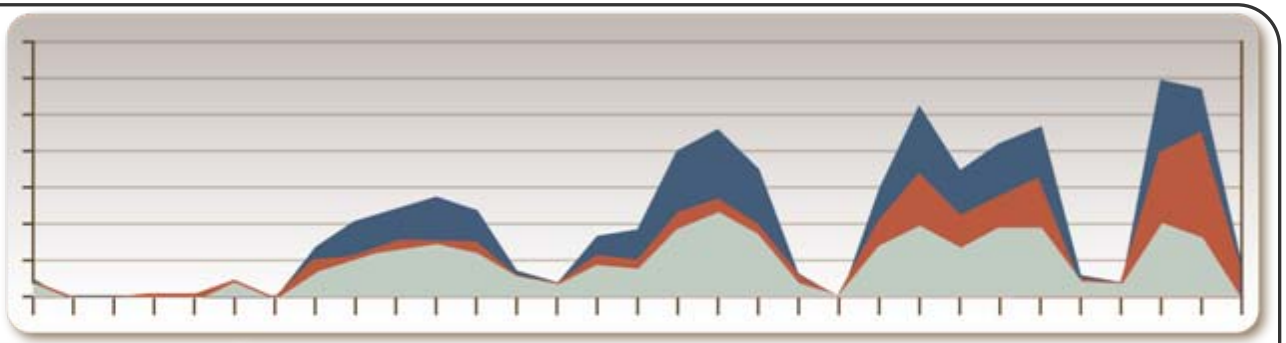
Operational data sets and relative lack of Federal mandates allows for more flexibility

- *Dashboard approach*
- *Near real-time delivery of risk status*
- *Less structure (e.g. no Risk Review Boards)*



How to do Real-time Risk– a proposed dashboard view

Accounts Payable *Invoice Processing*



Metrics		
Number on Hand	Air Force	1104
	Army	566
	Navy/USMC	3198
Overage (Late)	Air Force	16.2%
	Army	8.3%
	Navy/USMC	0.4%
Turnaround Time	Air Force	6.0
	Army	3.1
	Navy/USMC	1.9
Efficiency Ratio	Air Force	93%
	Army	99%
	Navy/USMC	111%
Rework	Air Force	4.6%
	Army	0.9%
	Navy/USMC	0.1%

Risk Alerts

Navy/USMC: Number of Units on Hand is above historical volume levels which may lead to aged deliverables if not proactively addressed. Shift resources to address Navy/USMC workload.

Air Force: Overage volume for Air Force has exceeded the upper control limit of 30 units and will result in interest charges if not eliminated by Close of Business.

Air Force: Rework for the Air Force team is above internal goals of 3.5% and will result in increased Turnaround Time and potential late-delivery interest charges if not addressed.

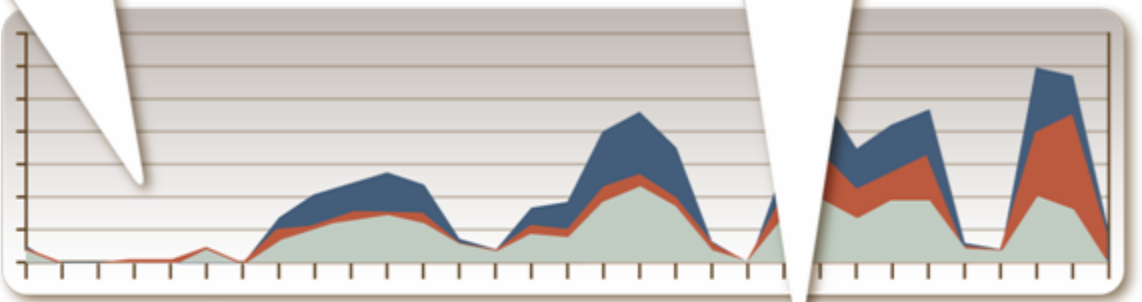
Navy/USMC: Next 200 Invoice day is 03/26/11

Dashboard elements

30 day forecast of workload volume

Auto-generated risk alerts, triggered by metric thresholds

Accounts Payable *Invoice Processing*



Quantitative metric data provided by automated information systems

- Volume
- Quality
- Timeliness
- Productivity
- Accuracy

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Risk matrix to support dashboard on previous slide

Metric	Relation to Cost	Sample risk statement	Risk threshold calculation method
Volume of units of work on hand	Measure of potential revenue; quantity impacts variable costs	The volume of work has significantly exceeded (or fallen below) historical levels, which is likely to result in a mis-alignment between personnel and work on hand. If resources are not shifted to support (or shifted away from), this team is not likely to meet performance goals.	+/- 2 standard deviations of 60-day historical levels
Overage (late)	FMFIA control; Estimates impact of performance on interest charges	The volume of late items is above/below historical norms. All resources must focus on eliminating overage or interest charge will occur.	Late items / Total > 2%
Turnaround Time	Measures the efficiency of resources with direct impact on variable costs	TAT has exceeded normal thresholds and cost per unit will increase if not addressed immediately.	< 90% of units cleared within 5 days
Efficiency Ratio	Measures the efficiency of resources with direct impact on variable costs	Efficiency Ratio is below threshold	Below 90% for three days
Rework	Rework has a direct impact on variable costs (rework is a manpower cost driver)	Rework has increased above the 3.5% threshold and will result in increased unit costs if not addressed.	Above 3.5%
Invoice Pipeline	Measure of potential revenue; quantity impacts variable costs	Next 500 unit day is 3/31	Count of units required per day

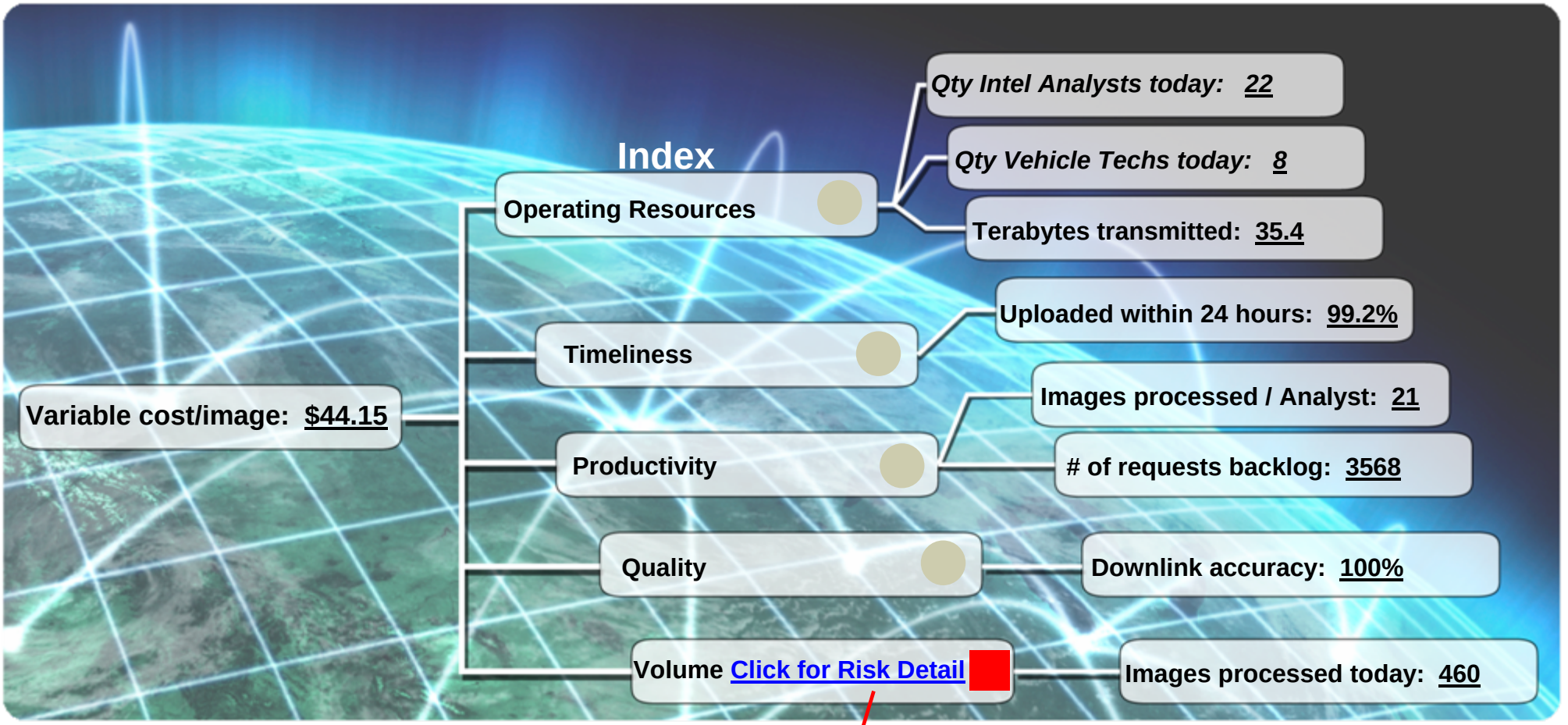
Measure potential risk items by identifying Leading Indicators

- Most daily operational data related to volume of the work on hand and the current performance of the team can serve as a Leading Indicator

- In economics, a Leading Indicator is a measurable factor that changes before the economy starts to follow a particular pattern or trend.
  - Risk managers can examine internal and external operations for indicators of potential risk
  - Business Intelligence systems can provide quantitative risk data and measure against defined criteria automatically

- Production and Operational environments are full of leading indicators.
  - Season: year-end results in a volume surge
  - Personnel: Low experience levels result in rework
  - Volume: quantity on of work units on hand affects entire system
  - *These indicators are not always accurate, but are useful in predicting changes.*

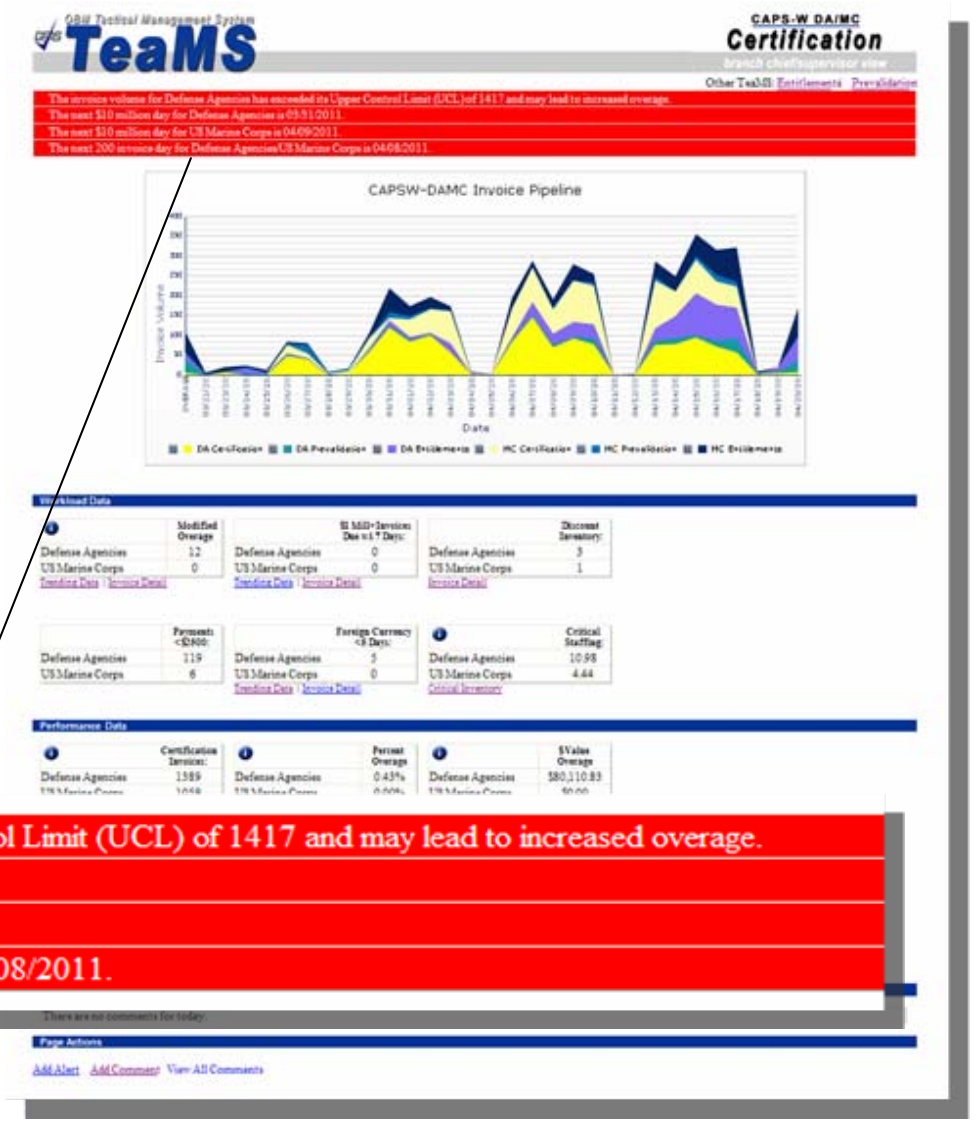
Application: Satellite Operations Example



Risk Statement If the team does not process 700 units today, the cost per image is likely to be above target of $30.00.

Real-world example

- This dashboard measures small team operations for an invoice certification team
- IBM Cognos browser-based software directly queries the legacy system 4x per day and displays metric data via an internal web page
- Supervisors review dashboard status daily on an internal web page.
  - Risk statements appear in an automated Alert Bar
  - Leading indicators help supervisors identify risk before cost impacts occur



The Right Environment: Where is it applicable?

- **Business intelligence software:**
  - Tech advances present risk managers an increased ability to identify and quantify risks to control cost growth
  - Enterprise Resource Planning systems and Business Intelligence tools are risk information sources, but use is not widespread across DoD
  - Toolsets provide cost and risk analysts with real-time status of operational processes, and careful tracking of leading indicators puts the risk analyst in a data-rich position
  - Risk managers should use these tools to measure and report on the status of leading indicators that measure cost, timeliness, workload, quality, and productions levels within operations

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