BUILDING OPERATING MANAGEMENT'S

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FM Metrics for Dashboards and Scorecards

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FM Metrics for Dashboards and Scorecards

Metrics and data are increasingly available to, and used by, Facilities Managers as part of dashboards and scorecards.

This session will identify different types of metrics, review which are most useful for different purposes, and explore the differences between dashboards and scorecards.

WHY THE INTEREST IN METRICS AND DASHBOARDS?

Background...

Why Metrics ?
To Help with Information Overload

Every day, facilities managers get information from a multitude of systems:

- Corporate finance systems
- Corporate HR systems
- Facility work order/CMMS systems
- CAFM/CADD/BIM systems
- Project plans
- Equipment sensors
- Occupancy sensors
- Security systems
- Cameras
- Meter readings
- Spreadsheets
- Building Audits
- Equipment Alarms
- Building Automation systems
- Energy Management systems
- Email
- Text messages
- Online data services
- Industry publications
- Benchmarking reports
- Commissioning reports
- Social media
- Photographs
- Technical/design reports
- Regulations & standards
- Industry cost guides
- And more...

Metrics can help us cut thru the noise, identify actions needed, and detect things of interest

Shane Parrish

"What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention, and a need to allocate that attention efficiently among the overabundance of information sources that might consume it."

Why You Should Stop Reading News
farnamstreetblog.com

Why Metrics ?
To Help Us Stay on Track

Goal

- ➞Objective
  - ➞Metric
    - ➞Performance
      - ➞Attention

Image source: https://memegenerator.net/instance/24622407/the-most-interesting-man-in-the-world-i-dont-usually-get-distracted-but-omg-something-shiny

Why Metrics ?
To Help Us Measure Progress

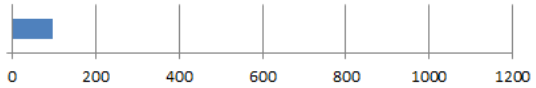
- Towards defined goals…

TYPES OF METRICS

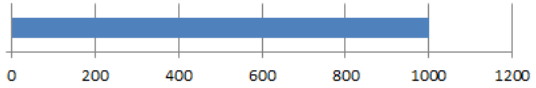
From Whitepaper "Facility Management Metrics that Matter”

Metrics - Measurements

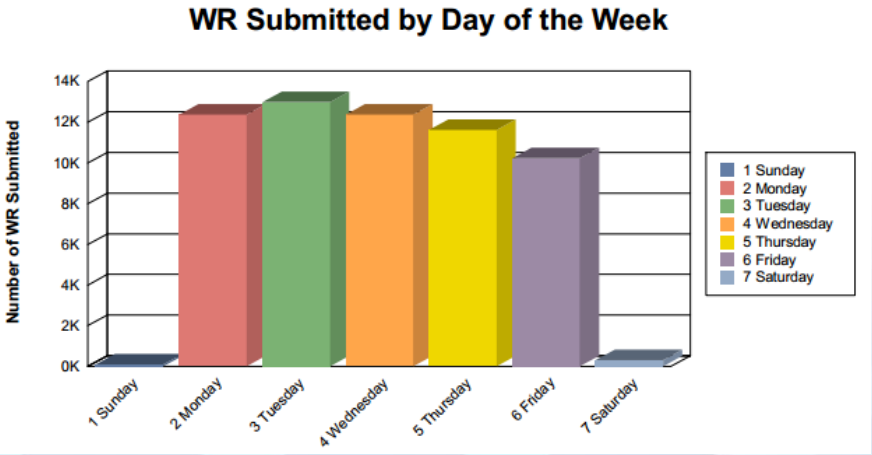
- Measurements are just data:
  - Cost
  - Size
  - Quantity
  - Temperature
  - Status
  - Yes/No
  - Time/Date stamp



Emergency work orders wrench time last month



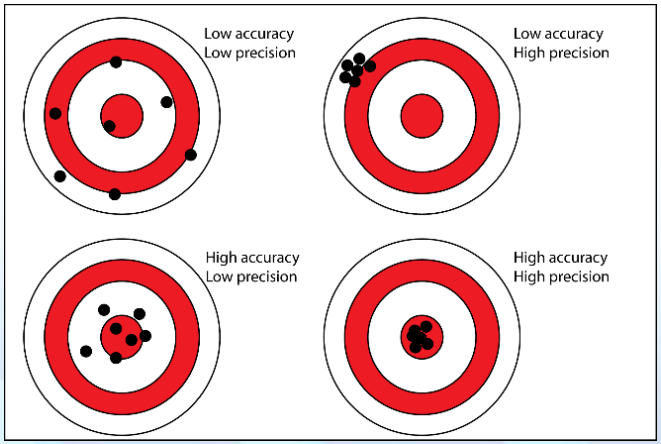
Total wrench time worked last month



What is Measurement

*For all practical purposed, the scientific crowd treats measurement as a set of observations that reduce uncertainty where the result is expressed as a quantity.**

- Measurement = quantifying an existing state to reduce uncertainty about it
  - About 300 yards (visual guess)
  - About 280 yards (pacing the distance)
  - 272.1 yards (surveyor measurement)
- Accuracy vs. Precision

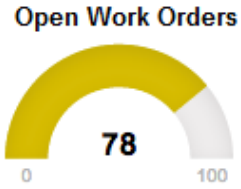


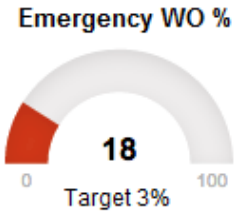
* Source: How to measure anything: finding the value of intangibles in business, by Douglas W. Hubbard, John Wiley & Sons, Inc., 2007, p. 21.

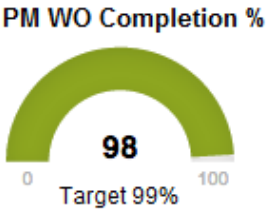
Image source: https://sites.google.com/a/apaches.k12.in.us/mr-evans-science-website/accuracy-vs-precision

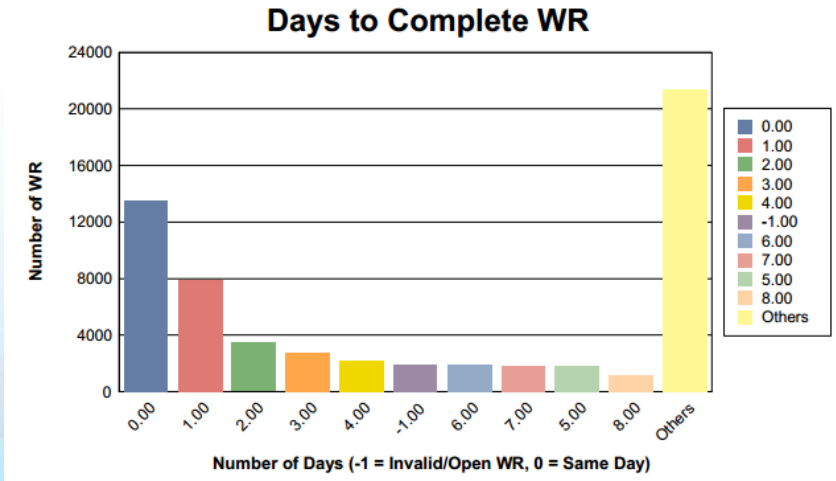
Metrics - Indicators

- Indicators are typically Measurements ”with math”
  - Total (sum) daily work orders
  - Average and median work orders per month
  - Ratio such as cost per work order
- Key Indicators are relationships between Indicators:
  - % work orders completed by month
- Key Performance Indicators usually have a “target” range









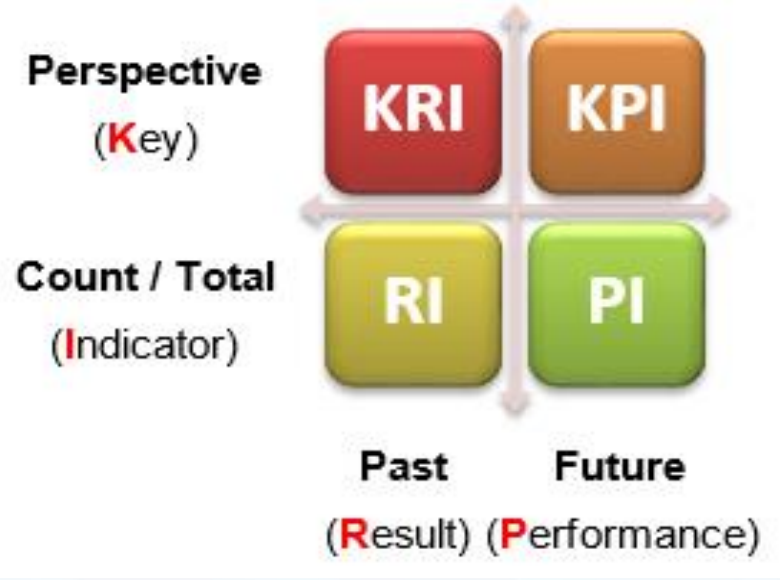
Lagging Metrics = Results

- Some metrics report past results
- Best used to report actual performance and historical trends
  - Number of emergency repairs as % of total equipment work orders
  - Hot/cold calls per building occupant
  - Energy use by building by month

Leading Metrics ~ Predictive

- Some indicators suggest likely future performance; best used to guide actions
  - We cannot measure the future
    - A future measurement is a forecast
  - Equipment needing service based on condition such as vibration or temperature out of range
  - Projected energy use by building based on weather forecast
- Some "real time" indicators used as proxy for leading indicators
  - Increase in pressure differential identifying need to change HVAC filters

Can Organize Types in 2x2 Matrix



Results Indicator

RI

Tells you what you have done

Performance Indicator

PI

Tells you what is likely to come

Key Results Indicator

KRI

Provides perspective on past performance

Key Performance Indicator

KPI

Suggest how to increase performance

Establish KPI's using KPQ's

- Often we start with the data we have and then figure out how to use it.
- It is better to start with the questions that need to be answered to accomplish our strategic objectives
  - Our KPIs will be the answers
  - Start with your organization's objectives

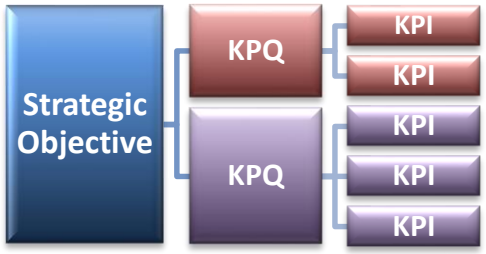
Example KPQ's

- Do our facilities provide a safe and productive environment for customers and employees?
- How well do we react to spikes in service requests?
- Is our facility cost as low as it can be without jeopardizing the building condition?
- Do we have qualified staff ready and willing to fill vacancies when needed?
- Do our buildings perform (energy) as well as they should?
- What sustainability investments would provide the largest benefit per cost?

Design KPI's To Answer The KPQ's

A good KPI....

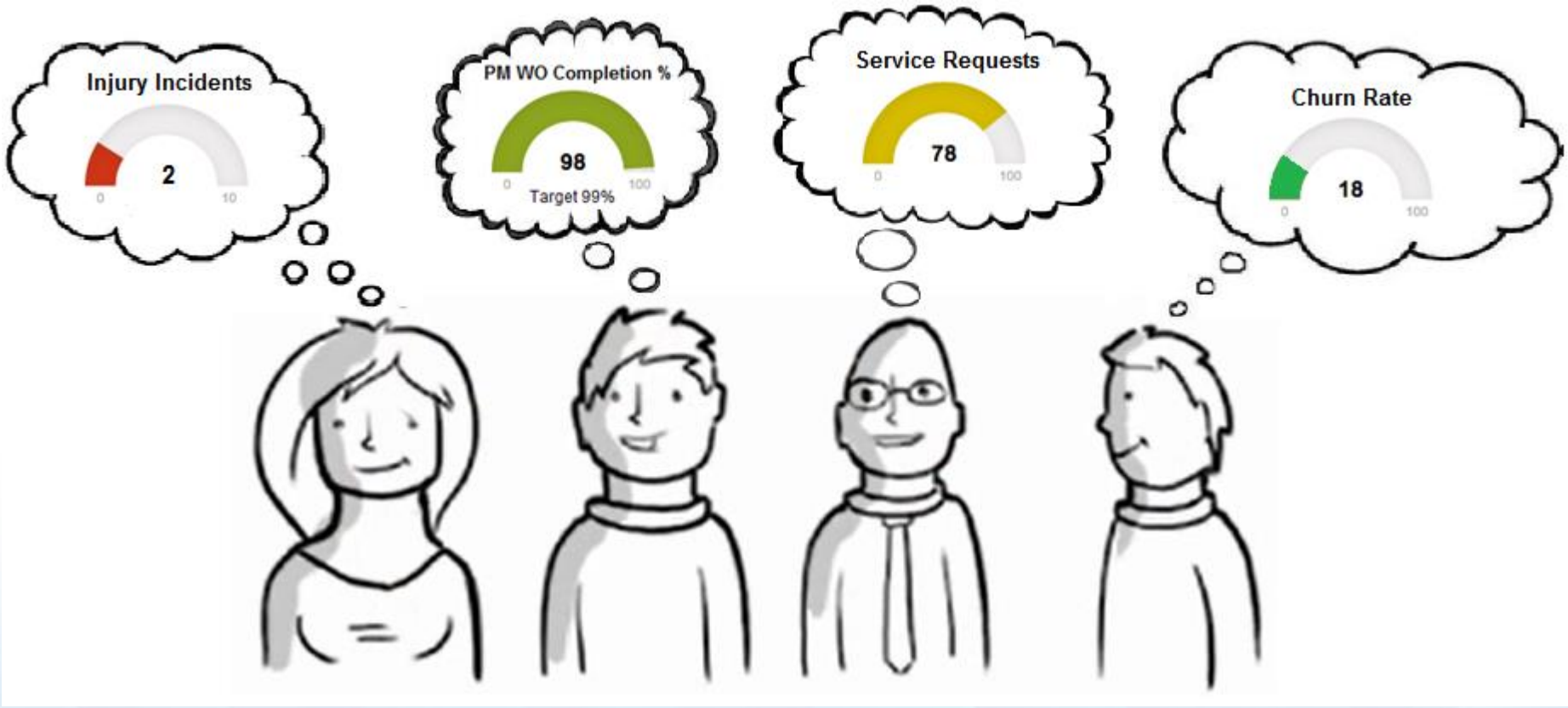
- Helps to answer one or more KPQ.
- Is based on relevant, available data.
- Provides actionable information for the intended user.
- Is available on the required frequency.



KPI Design Considerations:

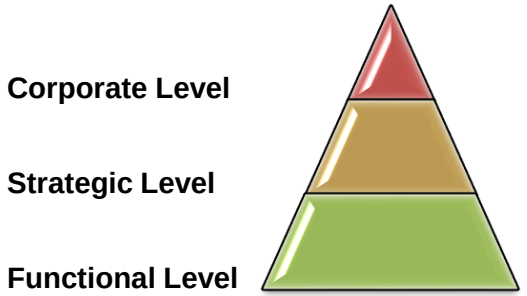
1. Link to Strategy
2. Definition
3. Calculation
4. Purpose
5. Data Sources
6. Future Targets

Useful Metrics Are Situational By Function …

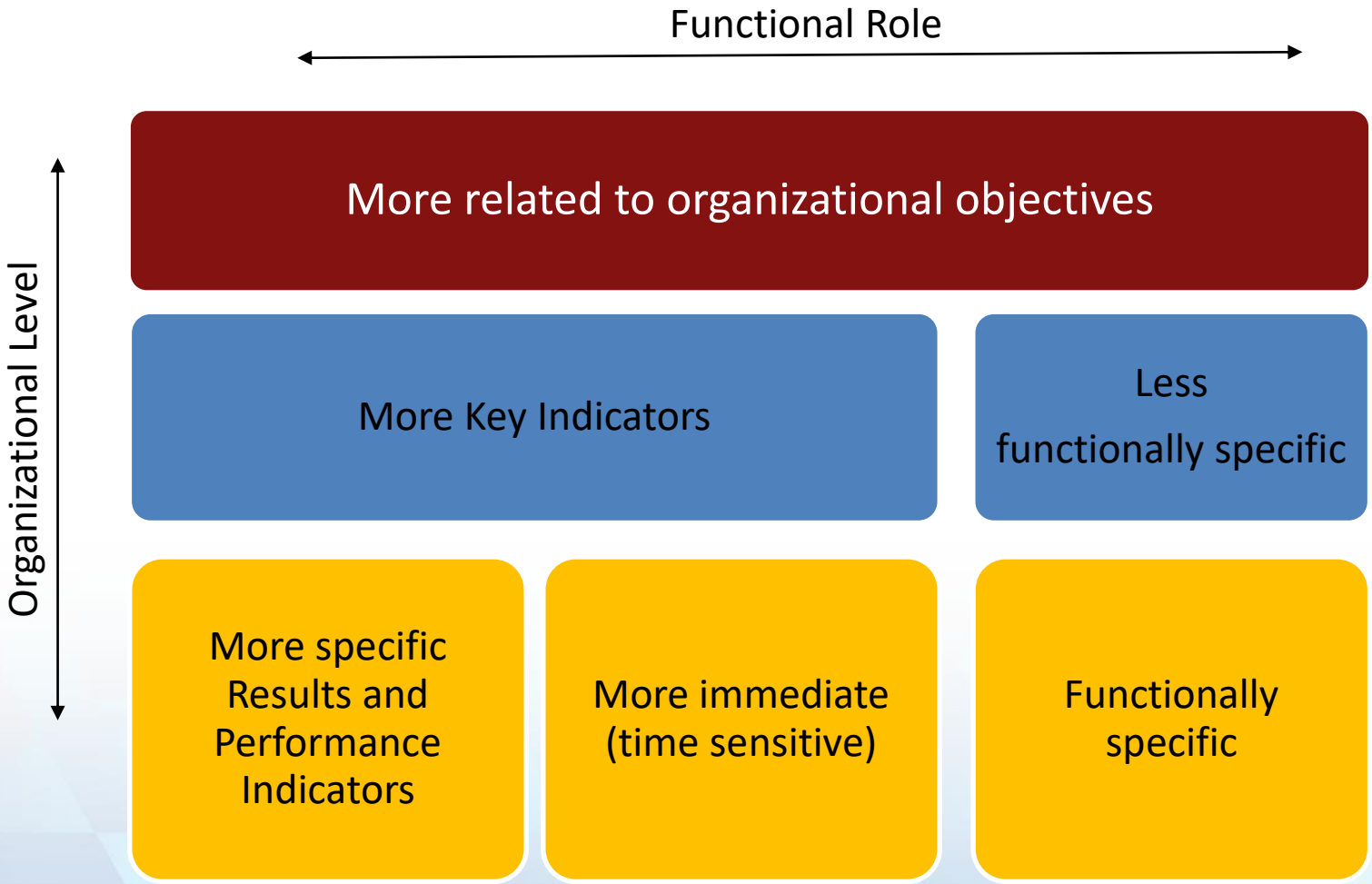


… and Situational By Role

- CFO
  - Facility Cost as Earnings per Share
- Facilities Director
  - Operating Cost per Square Foot
- Building Manager
  - Cost per Scheduled Work Order
- Building Engineer
  - How long should WO take?



This Leads US to a Matrix of Metrics



This Matrix of Metrics Becomes the Dashboard and/or Scorecard!

			Strategic Facility Assessment										Action Plan
ears	SF	Staff	Location Rating		Design Suitability	Condition Rating		Utilization	OpEX Rating	Observed Risk	Notes	Recommended Action
2016?	8,000	33	Good	✔	Fair	Fair		Crowded	Unknown	No	No yard or truck parking	**Relocate nearby to more suitable facility**
2018	3,975	6	Good	✔	Fair	Fair		Adequate	Unknown	No	Used for MD training?	Refresh office area; evaluate training space
2019	12,910	49	Good	✔	Fair	Good		Crowded	Unknown	No		**Restack/expand office or relocate to more suitable facility**
2020	5,500	4	Good	✔	Good	Good		Adequate	Unknown	No		Maintain & Operate
2035	21,262	41	Good	✔	Good	Good		Adequate	Unknown	No	Nice prefab facility	Maintain & Operate
Owned	5,400	6	Good	✔	Good	Fair		Adequate	Unknown	No		Refresh
Owned	8,350	11	Good	✔	Fair	Fair		Adequate	Unknown	No		**Major refresh needed; consider consolidation**
Owned	2,222	10	Good	✔	Good	Fair		Adequate	Unknown	No		Maintain & Operate
Owned	7,000	22	Good	✔	Good	Good		Adequate	Unknown	No		Maintain & Operate
Owned	2,554	10	Good	✔	Fair	Poor		Crowded	Unknown	No	Site not secured	**Major refresh needed; consider consolidation**
Owned	6,000	15	Good	✔	Good	Good		Adequate	Unknown	No		Maintain & Operate
Owned	2,060	8	Good	✔	Good	Good		Adequate	Unknown	No		Refresh
Office	5,000	21	Good	✔	Fair	Fair		Crowded	Unknown	No		**Relocate nearby to larger, more suitable facility & add ramp**
2017?	7,082	25	Good	✔	Good	Fair		Underutilized	Unknown	No		Refresh
2027	20,719	81	Fair	✔	Good	Good		Adequate	Unknown	No		Maintain & Operate; shift ramp crew to Bethel Park
2029	####	115	Good	✔	Good	Good		Adequate	Unknown	No	Drive thru storeroom	Maintain & Operate
2036	31,500	66	Good	✔	Good	Good		Adequate	Unknown	No		Maintain & Operate
Owned	12,710	50	Good	✔	Fair	Poor		Crowded	Unknown	Yes	Neighborhood concern	**Redevelop site or relocate to larger, more suitable facility**
2036	####	2	NA		Good	Good		Adequate	Unknown	No		Maintain & Operate
2017?	5,140		Unknown		Unknown	Unknown		Unknown	Unknown	Unknown		Need to be assessed
2019	2,160	19	Unknown		Unknown	Unknown		Unknown	Unknown	Unknown		Need to be assessed

Dashboards vs. Scorecards

Dashboards

- Real Time
- Used for operational decisions:
  - Energy
  - Equipment operation
  - Safety
- Need to be situation specific
- Should be as simple as possible

Scorecards

- Latency is ok
- Used for managerial decisions:
  - Budgeting
  - Process changes
  - Performance tracking
- More general to industry
- As comprehensive as possible (balanced scorecard)

Dashboards vs. Scorecards

Dashboards vs. Scorecards Example FM Metrics

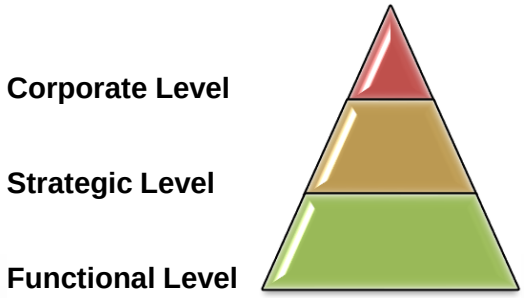
Dashboards  **Scorecards**

- Vacant workstations
- Equipment temperature
- Fuel level
- Freezing pavement
- Open Priority WO

- Vacancy Rate
- Equipment efficiency
- Fuel usage
- Slips, Trips, Falls
- % Priority WO completed within SLA

Creating the Metric Framework

- Director FM
  - Scorecard of corporate KPIs & results metrics
- FM Section Leads
  - Scorecard of strategic KPIs & performance metrics
- FM Staff
  - Dashboard of real time metrics & functional KPIs



EXAMPLE FM METRICS

So What Might This Look Like for an FM Department?

Example Sources of Metrics

- Data Experts
  - Bernard Marr (bernardmarr.com)
- Strategy Experts/Consultants/Systems
  - Cascade (executestrategy.net) & all CMMS…
- Industry Associations
  - Society for Maintenance & Reliability Professionals
- Your organization's performance group

What to Measure?

What to Report?

Example Metrics

Download an Excel file with some example FM metrics from:

https://facilityissues.com/main/example-fm-metrics/

Facility Issues provides these examples as a service to its customers and the facility management community, to be used for informational purposes only. Use at your own risk. We welcome constructive criticism, and suggestions on how to improve this information can be submitted via the contact page.

A Balance of Metrics is Needed

Financial

- The cost of FM operations, maintenance, and related services

Strategic

- How FM function grows, adapts and supports the organizational mission

Cost ⟷ Value

Efficiency

- How efficient the various FM functions operate.

Effectiveness

- How well the FM function perform designated functions.

Clearly Define Each Metric

Goal/ Objective	Critical Success Factor (CSF)	Key Performance Indicator (KPI)	Description	Desired Range	Responsibility	Calculation
Reduce Overall Facility Cost	Fully utilize existing space	Space utilization rate	Ratio of net floor area assigned to user groups	85-95%	Space Manager	NSF assigned / NSF Total, By Floor, Aggregated
	Use equipment warrantees	Warrantee utilization	Amount of qualified warrantee repairs used	100%	Maintenance Manager	# Repairs done under warrantee / # Repairs eligible
	Reduce Utilities - Turn off lights not in use	Percent of scheduled lighting hours	How many hours lights were on vs. how many expected	100-110% Tracking only	Maintenance Manager	Run hours from lighting control system / forecast business hours

But Wait, There's More...

SOME POTENTIALLY HELPFUL RELATED TIPS ...

Display / Format Suggestions

- Use graphics to help the user quickly assess the information
- Limit information presented:
  - Eliminate extraneous graphics
  - Use drill-down when possible
- Help user focus on the items needing attention:
  - "Normalize" to identify outliers
  - Use Pareto 80/20 principle

Creating Better Metrics

Start by avoiding bad solutions - ***avoiding stupidity is easier than seeking brilliance***.

http://www.flickr.com/photos/circasassy/7858155676/

Avoiding Bad Metrics

1. Is it Understandable?
2. Does it Reward the Wrong Behavior?
3. Is it Available When Useful?
4. Does It Matter/Can User Influence It?
5. Does it Show Significant Changes?
6. Does it Use Good Data?
7. Does it Need to Be Measured?

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