Metric-Driven Project Management Driving Success by Design

How to Identify and Implement the Right KPIs for the Organization

Speaker Profile

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Program Management

Global Sales & Services

Siemens Product Lifecycle Management

Program Management leadership for large product lifecycle management (PLM) implementations in the Aerospace, Defense & Propulsion Industry sectors; driving planning, developing, executing large programs/plans and coordinating resources across multiple global organizations and locations using PMP, Lean Six Sigma, Total Quality Management (TQM), Organization Change Management (OCM), Voice of Customer (VoC) and similar quality disciplines

Education

- Doctorate*, Total Quality Management, KSMB
- Masters of Science, Software Design & Development, University of St. Thomas

* in process

Session Agenda

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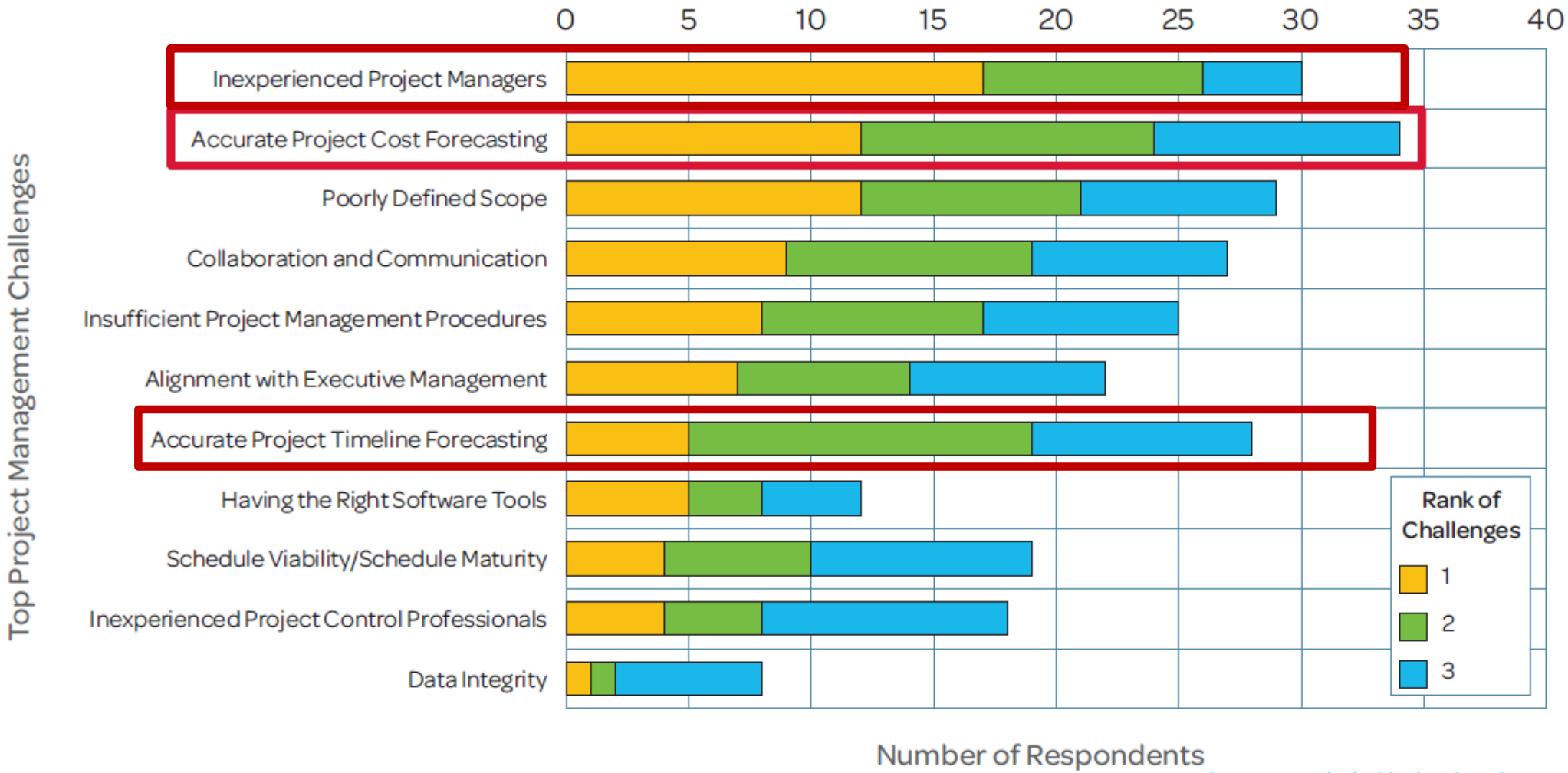
- PMO and Project Management Challenges
- Need for Measurements, Metrics and KPIs
- Measures, Metrics and KPI Selection
- KPI Usage
- Measures Library
- Summary & Takeaways

Top Project Management Challenges



Source: Deltek Clarity GovCon Industry Study 2014

Industry-Wide Project Statistics

18%
Fail to Complete or Implement

59%
Encounter Cost Overruns

74%
Encounter Time Overruns

43%
"Challenged" - Late or Over Budget

33%
Do Not Meet Business Goals

69%
Completed Scope/Feature / Req's

Source: Standish Group - CHAOS MANIFESTO 2015

Project Management Outcomes

Some additional findings…

- According to an IBM study, only 40% of projects meet schedule, budget and quality goals. Further, they found that the biggest barriers to success are **people factors**.
- Geneca, a software development company, noted from its studies that 'fuzzy business objectives, **out-of-sync stakeholders** and **excessive rework** mean that 75% of project participants lack confidence that their projects will succeed.'
- The Portland Business Journal found similarly depressing statistics: "Most analyses conclude that between **65 and 80% of IT projects fail to meet their objectives**, and also run significantly late or cost far more than planned."
- KPMG New Zealand found '…and incredible 70% of organizations have suffered at least **one project failure in the prior 12 months** and 50% of respondents indicated that their project failed to consistently achieve what they set out to achieve.'
- A Forrester Research study published in CRM magazine asked executives where they ran into trouble most often during CRM implementations. **User adoption** topped the list.

Changing Landscape
New Paradigm Shifts Impacting PMOs and Projects

Key Market Shifts

- IaaS…SaaS – Cloud-based
- Open Source
- Globalization
- Additive Manufacturing
- Lean…Agile practices
- Integrated Social Media

Lowering Entry Level Costs

Driving….

Accelerating Need Results

- Faster infrastructure readiness
- Shorter lead times
- Smaller teams
- Quick expansion and scale
- “Talent” expansion and availability
- Lower budget / Cost models

PMO Practices:
Focus on Innovation Delivery and Continuous Value Realization

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Need | Selection | Usage | Library | Action

Traditionally, PMO focus has been on "HOW" and "WHAT" Organization Strategic and "WHY"

- Improving Project Management
- Supporting Methodology, Defining Consistency, Controls, etc.

Goal:
Predictable and Measureable Results and Speed but more *importantly* Value and Contribution to Organizational Objectives

relevancy and Value (vs. Cost)

of key business strategy and needed *results*

initiatives

of Flexible "smart" Processes

OCM

t Enrichment

Evolving and Moving from

IT Operations to Business Improvement

Program Management (resource control) to Program Leadership (vision/direction)

If Not Challenged Enough….

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Need: Definition

Need for Measurements, Metrics and KPIs

Provides Insight to Project Performance

Assess if “hitting” Performance Targets

Provides Early Indication

Allows Earlier Mitigation

Provides Basis to Compare

Project Manager Responsibility

1. Understand what are the relevant measures
2. Measure assessment/evaluation against project success criteria
3. Selection of Key Performance Indicators (KPIs) for project success

What is a Key Performance Indicator (KPI)?

Simple Definition:

- Method of measuring how well a project, organization, business, etc. is performing against an **identified objective/goal**

Analogy: Driving from Minneapolis to Dallas

- Relevant Measures:
  - GPS location *
  - Heading/Direction
  - Average speed
  - Gasoline level
  - Fuel consumption rate
  - Weather information

Allows comparison to Baseline

- Key Performance Indicator Criteria
  - On track? E.g., Budget (e.g., gas, maintenance, food), Schedule (start, arrive)
  - Leading indicator: “Rumble strip” Lagging Indicator: In the ditch
- Actions
  - Course corrections needed?
  - Support needed ? (e.g., money, hotel, etc.)

KPI Organizational Value

Evolve Good Practices in Project Management

- Planning…Execution…Reporting…Closure
- Provide more forward-looking (e.g., leading indicators) orientation in reporting

Greater Transparency on Organizational Performance Targets

- How individual projects relate and contribute to establish targets…
- How management assesses project performance against the targets…
- How management assesses organization performance against the targets
- Establish an economic picture of the organization

Greater Understanding how Individual Projects Affect the Business

- What is the plan?
- What is the value?
- Identify impacts to future deliverables/value:
  How will it look at stages: ¼, ½, ¾ and Closure ?
- Predicted value to the organization and customer?

"…predicting the future by looking at the past (e.g., lagging indicators) is like driving a car looking in the rear-view mirror…"

Improvement Area
Reduction in administrative time
Reduce number of project meetings; status & coordination
Reduction in project failures
Reduce project cost overruns
Reduction in project cycle times
Improve project management
Improve project margin / project ROI
Improve resource utilization
Customer Satisfaction

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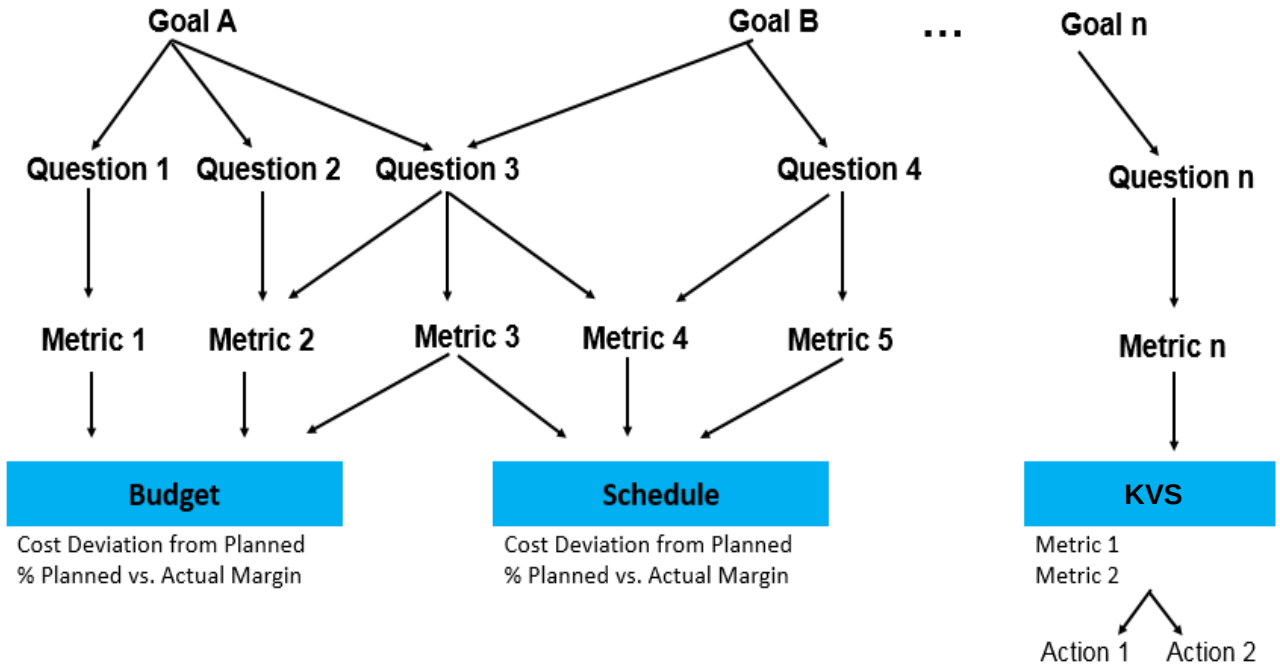
Measurement Selection

Key Value Segments
Defining Goals…Questions…Metrics…Actions

Measures Need to Align to Business Strategy, Objectives and Goals e.g, Value Areas

- Cost – Billing/Revenue, Margin, Discounts, etc.
- Utilization – Labor efficiency
- Quality – Customer Satisfaction



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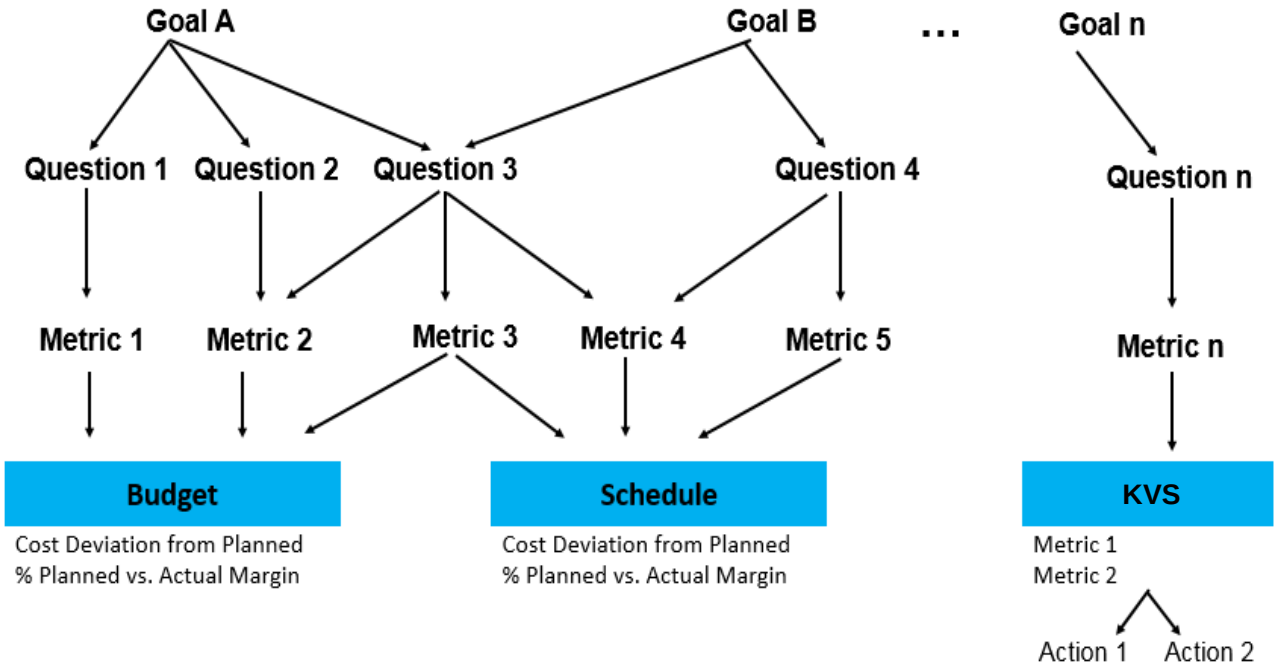
Questions: Driving Right Measures & KPIs

- Strategically
  - What do we value?
  - What do our customers value?
  - What will differentiate us?
  - What is our direction – today, tomorrow, future?
- Tactically
  - Will the project be delivered when we expect it?
  - Do we have the budget to complete the project?
  - Will it deliver what the users expect?
  - Will the quality of the final product be sufficient?



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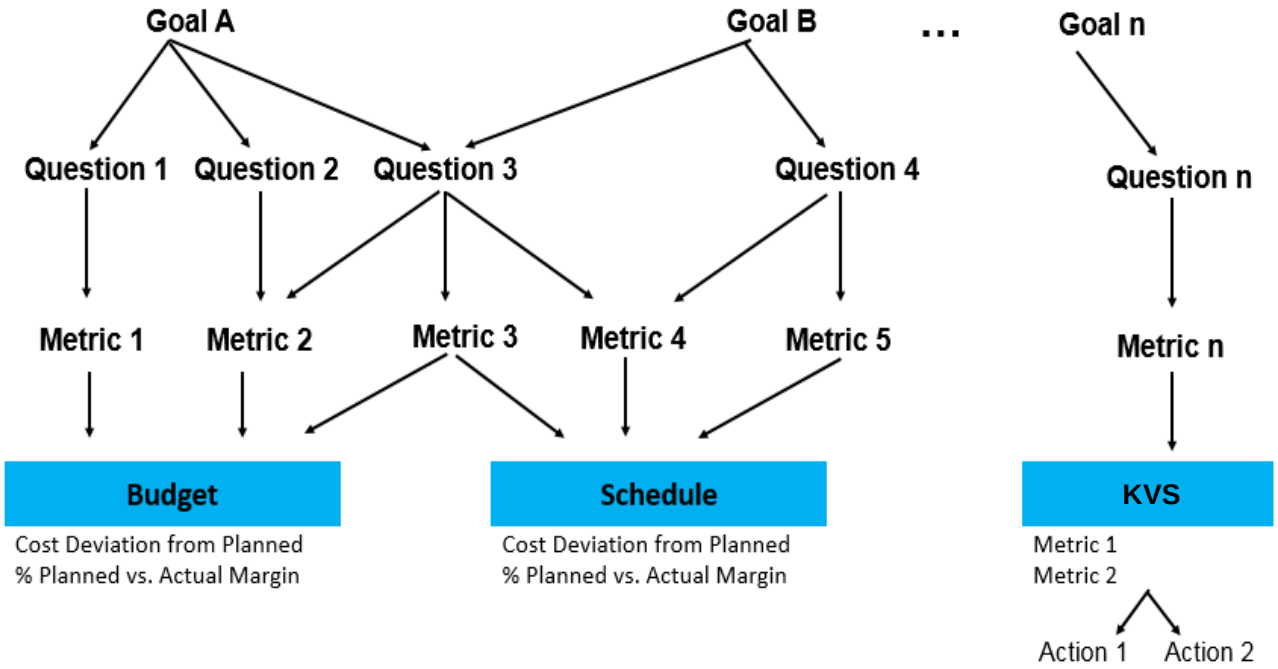


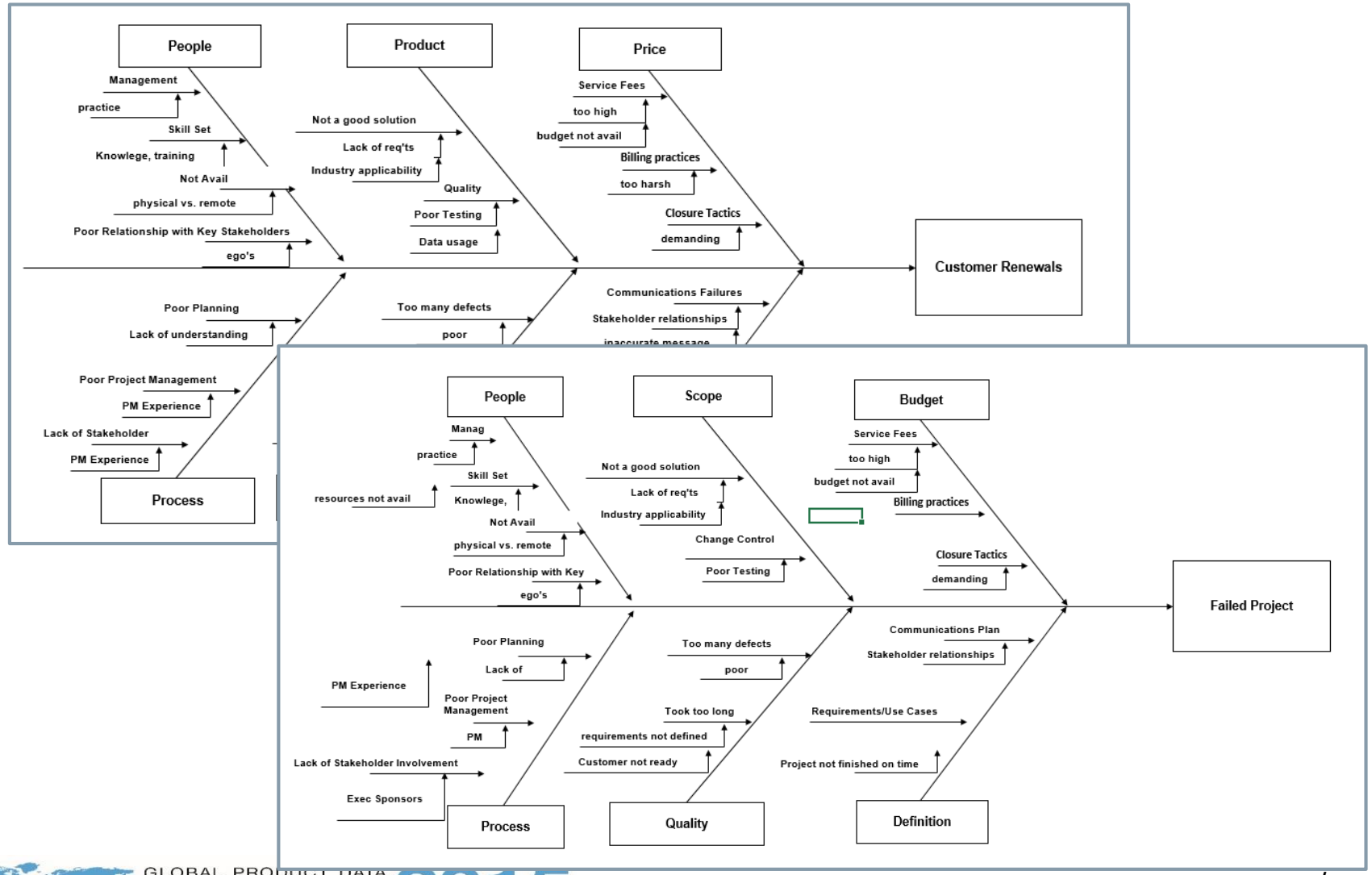
Identifying KPIs through Identifying Actionable Measures:

- How can we significantly affect ? i.e., multiplier
- How can we significantly improve it?
- Is the area is suffering, what is the diagnosis ? RCA?
- How can we measure progress/advancement to the goal?

Examples: Breaking Down Customer Renewals and Failed Projects

Driven by

- Customer Satisfaction
- Value Proposition
- Services Quality
  - Deliverables Quality
  - Trust
  - Timeliness
  - Accuracy
  - Solution Clarity
- Product Quality
- Support
- Closure
- Budget
- Competing Offering



Key Value Segmentation Scorecard
Value, Goals, Measures, Weights, and Ranges

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Make Project Selection and Decisions using Consistent, Objective Criteria

Following Clear Methodology Removes 'gaming' from the Prioritization Process

No Ambiguity which Programs are Strategically Important and of Value to the Organization

Strengthens Sponsorship and Stakeholder Relationships

Key Value Segments: Organization				Acceptable Range			Actual	N
Performance Metric	AIM/Objective	KPI Goals	Metric	Weightage	Range-L	Range-H	Performa	
Profit	Operating Margins	Maintain and Strengthen Margins	Gross/Net Margin	20%	1	5	4	
Budget	Expense Expenditures	keep resource expenditure at or below x% of revenue. Helps keep focus and frees up	Annual PS revenue growth Annual Revenue per	20%	1	5	5	
Schedule	Resource utilization	Achieve and maintain strong resource utilitization	Utilization Rate Unstaff hours	20%	70%	80%	75%	
Qualty	High Customer Satisfaction	Reduce ECOs Left-shift discovery	Nbr ECOs Defects in Prod w/I 90-Days	20%	98%	100%	95%	
Risk Avoidance	Low Risk Profile	reduce/mitigation risk-issues	Program Selection Skill set coverage	20%	92%	100%	98%	

Need to 1) align to Business Objectives 2) select key significant measures

Budget

- % Deviation Planned Vs. Actual Margin
- % Hours billed vs. project hours completed
- % of actual project hours completed / estimated Project hours
- % unplanned hours / total hours
- Cost Deviation From Planned Budget (VAC)
- Estimate to Complete (ETC) (cost)
- Value at Completion (VAC)
  Budget at Completion (BAC)
- Number Of CR's or ECO's

Schedule

- % Or Number Of Milestones Missed
- Deviation From Project / Program Time Schedule
- Planned Vs. Actual Project End Date
- Schedule Variance

Quality

- Number of Issues Found By Customers (During / After Project)

Governance/PMO

- % or Number Of Overdue Projects Tasks
- Project Close Review With Lessons Learned Documented And Shared
- % Milestones On Time
- Amount Of PM Time Vs. Overall Effort Hours
- % Of Understaffed Projects

Risk

- Number Of Identified Risk & Issues (With/Without Plans)

Resources

- % Or Number Of FTEs Working But Not Planned
- Deviation From Planned Hours Worked
- Project Resource Utilization

Process/Compliance

- Weekly Project Dashboard Updates Achieved Every Friday
- Monthly Health Check of Projects By Sr. Management

Questions in Determining KPIs

How many KPIs are Needed?

- Diminishing Returns
- Choose simplification over quantity

What is the Decision this KPI is to Support?

How often Measured?

Who will be accountable for the KPI – owner?

What Really is the Item being Measured by the KPI

Why/How does this item matter to the decision ?

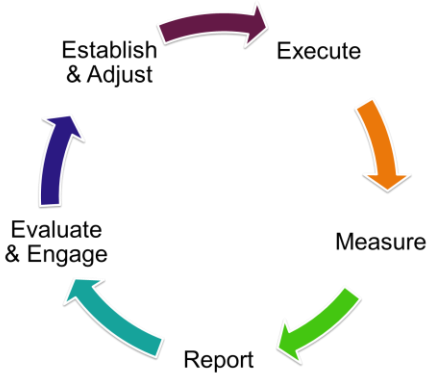
What is known now ? Will it change?

Will the KPI serve as a benchmark?

What is the value to measuring today ? Tomorrow ?

Metric	Complexity to Measure
Cost – profit, margin	Easy, quantifiable
Resource / Capacity Utilization	Easy, quantifiable
Schedule – tasks, deliverables, milestones	Easy, quantifiable
Requirements – inclusion, acceptance	Medium, quasi quantifiable
Quality	Medium, quasi-tangible
Process (in-process/end-of-process)	Medium, time & quasi quantifiable
Customer Satisfaction	Hard, intangible

Consider that metrics may need to change over the life of the project



Example KPI Selection Characteristics

Metric	Predictive	Quantifiable	Actionable	Relevant	Understandable	Automatable
Unstaffed hours (Number)	yes	yes	yes	yes	yes	yes
Missed Milestones (Number or %)		yes		yes	yes	yes
Management Support Hours % of Budget	yes	yes			yes	yes
% of work packages on budget		yes		yes	yes	yes
Scope changes (Number)	yes	yes		yes	yes	yes
Changes in the risk profile (trend)		yes	yes	yes	yes	yes
Assumptions changed (# or %)	yes	yes		yes	yes	
Customer loyalty/Satisfaction (Rating)		yes	yes	yes	yes	yes
Turnover of Key personnel (Nunmber or %)		yes		yes	yes	
Over allocated resources (Number or %)		yes	yes		yes	yes
Schedule Variance (SV)		yes			yes	yes
Cost Variance (CV)		yes			yes	yes
Schedule Performance Index (SPI)	yes	yes	yes	yes	yes	yes
Cost Performance Index (CPI)	yes	yes	yes	yes	yes	yes

Adapted from: Project Management Metrics, KPIs, and Dashboards: A Guide to Measuring By Harold R. Kerzner

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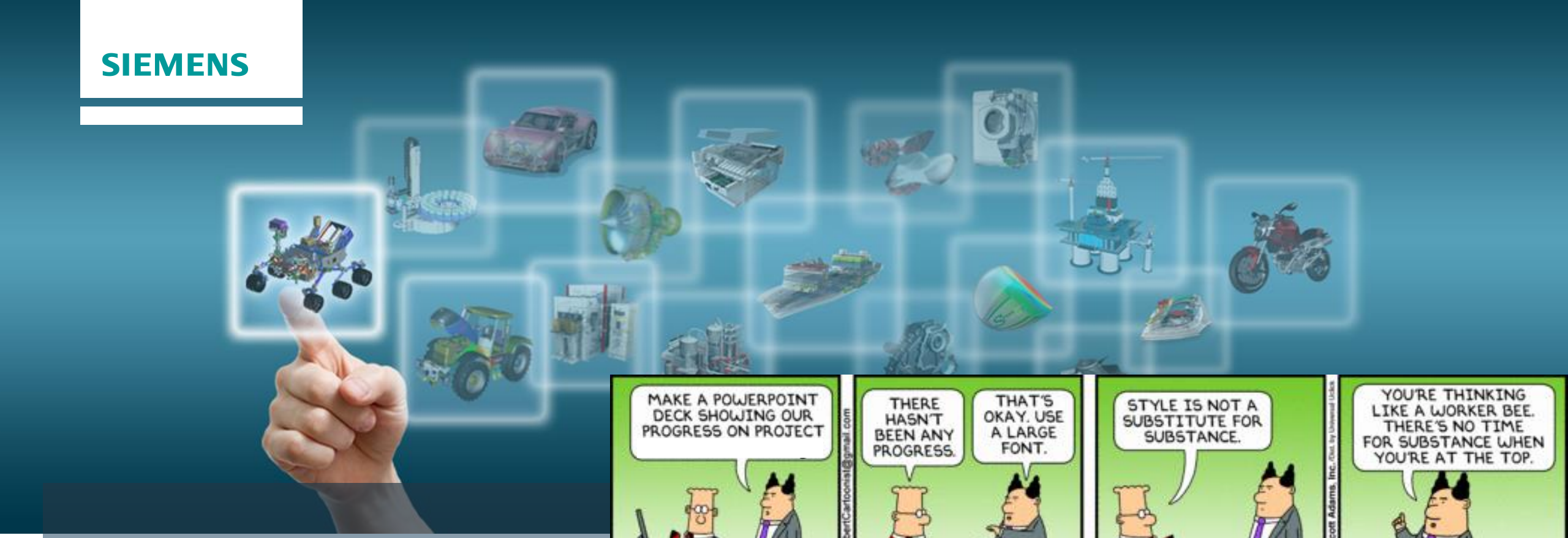
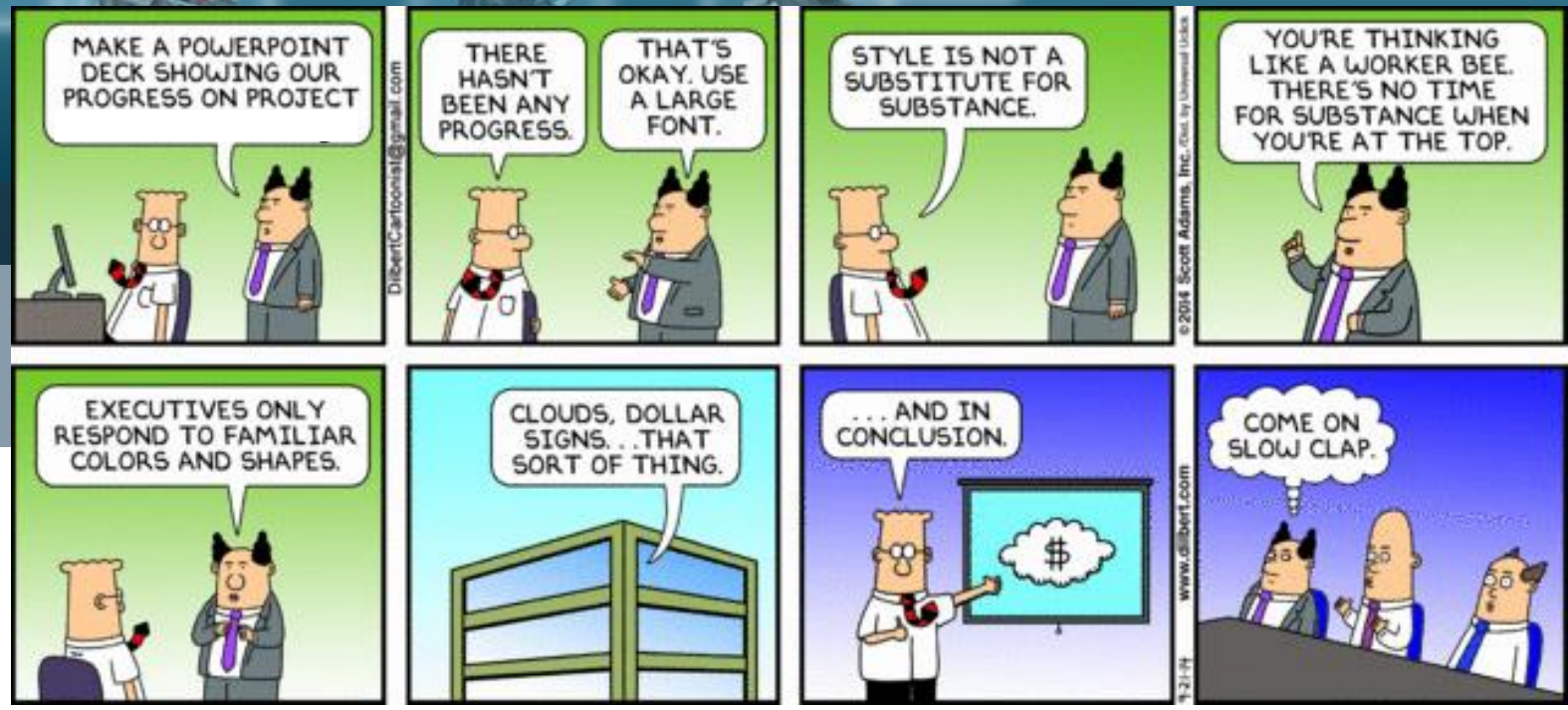


KPI Usage

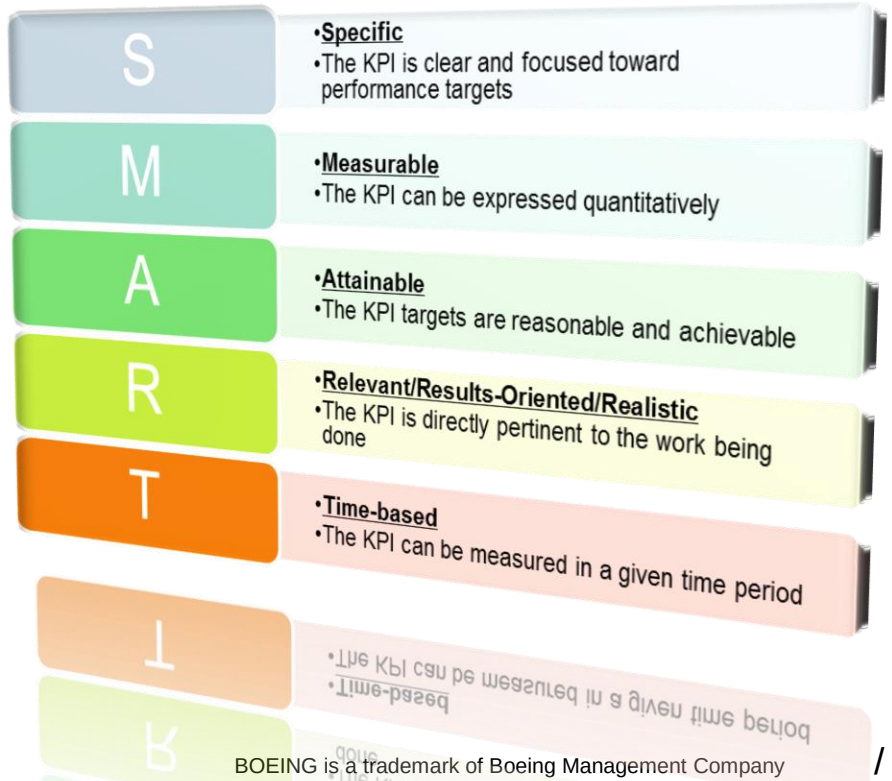


Measures, Metrics and KPIs

- Efficiency
  - Money saved
  - Process steps and touchpoints reduced
  - Element reuse
  - Resource onboarding (employee, contractor)
- Satisfaction (e.g., NPS)
  - Customer
  - Employee
- Quality
  - Errors reduced from previous i.e., Release
  - Errors found; comparing to benchmark / best in class
  - Errors discovered earlier in cycle
- Strategic
  - Time to Market/Customer (e.g., weeks/days)
  - Time saved/reduced

Tying KPIs Bonus

- Choosing the right incentive and best KPIs
- Not allowing “gaming”
- E.g., schedule SPI --- rebaselining prior to bonus “blackout” date



Execution KPIs

Measuring Effectiveness

- Hours Expended / Billed
- Schedule / Milestones met
- Quality / Defects
- Complaints / Escalations

Measuring Efficiency

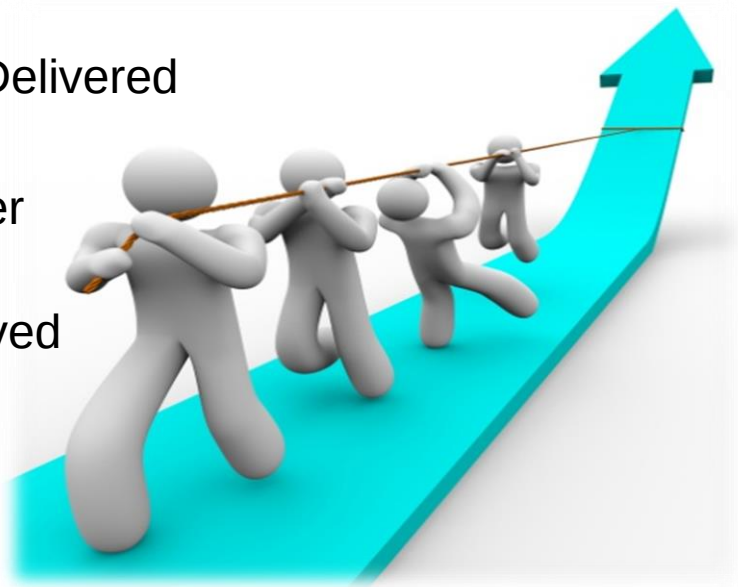
- Cost per deliverable / Project phase
- Time per project task / Phase
- Resources needed per project task / Phase
- Project costs

Non-quantifiable Measurements

- Feedback from Team and Client Satisfaction*

Quantifiable Measurements

- Deliverables planned Vs Actually Delivered
- On-time Project Completion
- Projected Vs Actual Man-hours (per week/month/Project)
- Number of Issues Raised & Resolved
- Project Cost Control vs. Estimates
- Multiple Projects Results

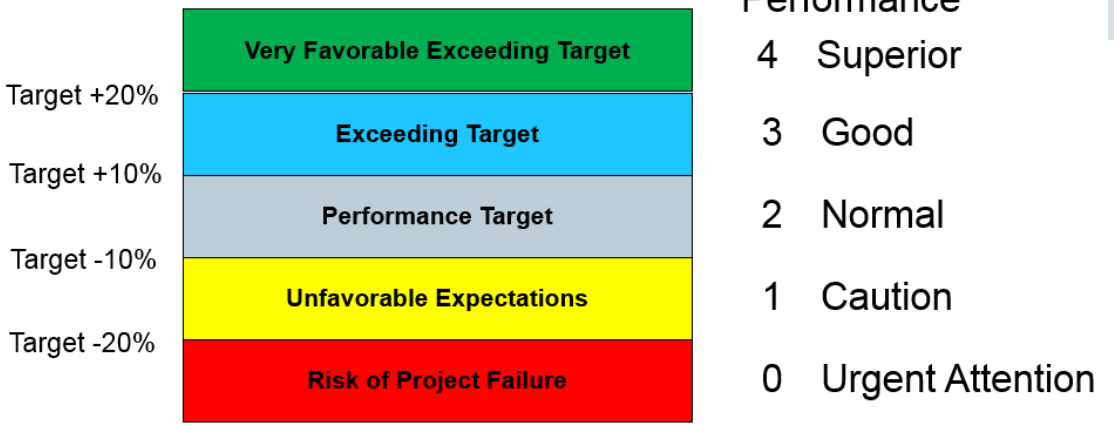


When collecting measurements for a KPI, it is not necessary to strive for perfection.

- ***"It is better to be approximately right that to be precisely wrong"*** **- Warren Buffett**

Value Metrics with Weight Focus

Measure	Measurement Difficulty	Normal	min	max	Improved Quality	Features Focus	Schedule Slippage	cost overrun	Measure Value
Quality	sampling, PV; Number of defects; accepted vs. rejected	20%	10%	40%	30%	10%	10%	10%	3
Cost	direct measurement; CPI; reserve used, remaining		10%	50%	10%	20%	20%	40%	2
Risk/Safety	simulation, accident count	20%	10%	40%	20%	20%	10%	10%	4
Scope/Features	direct observation, PV; number of CR/ECOs	30%	20%	40%	20%	30%	20%	20%	2
Time/Schedule	direct measurement; SPI, late vs. on-time	20%	10%						



Adapted from Harold Kerzner Project Management Metrics, KPIs, and Dashboards

Project KPI
Example: Earned Value

Method for Quantifying Project Performance

- Compares planned to actual for costs and schedule
- Estimates final project costs

Integrates

- Project scope, schedule, cost, resources and technical milestones
- Value of work performed = Percent complete x Total Budget

Provides

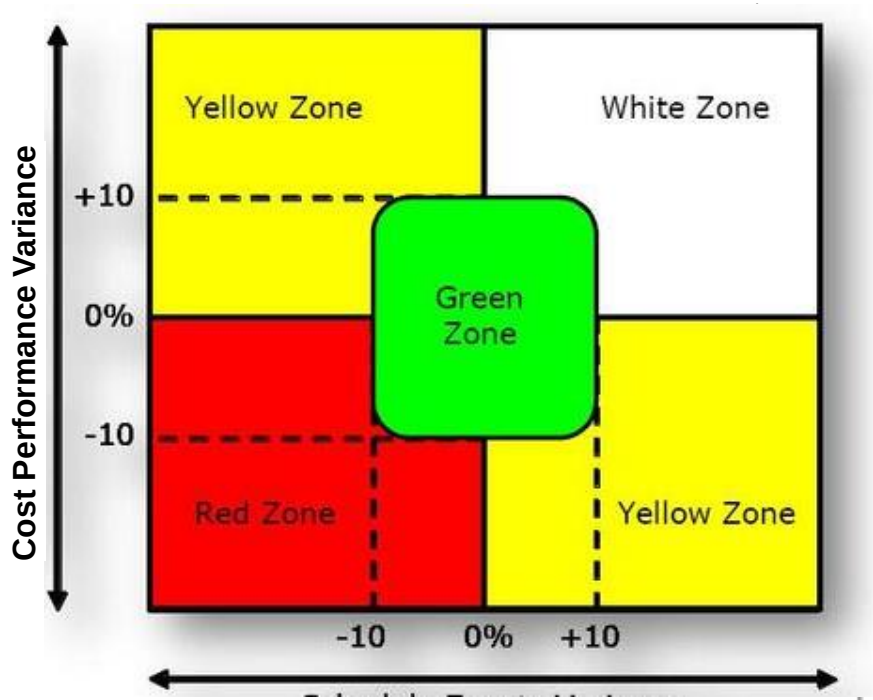
- Forecast of project cost at completion
- Forecast of project schedule at a future time
- Identification of projects execution efficiently
- Identification of project execution effectiveness
- Comparison of project performance

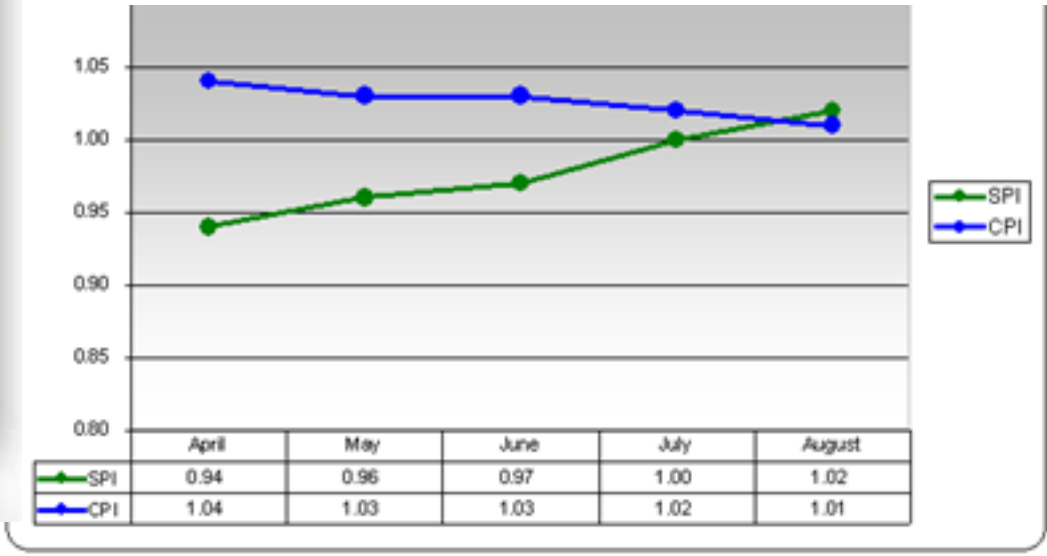
Earned Value Management

Key Elements

1. WBS time-phased budget (BAC or BC or PV)
2. Actual Costs by period e.g., monthly (AC)
3. Estimate complete by period e.g., monthly (Est%C)

Formula	Calculation
Earned Value	BAC*Est%C
CPI	EV/AC
SPI	EV/BC or EV/PV
CV	EV-AC
SV	EV-BC or EV-PV
CV%	CV/AC
SV%	SV/BC
EAC	BC/CPI
VAC	BC-EAC
VAC%	VAC/BC
ETC	BC-EV/CPI
TCPI	BC-EV/BC-AC
Duration	AD/Est%C





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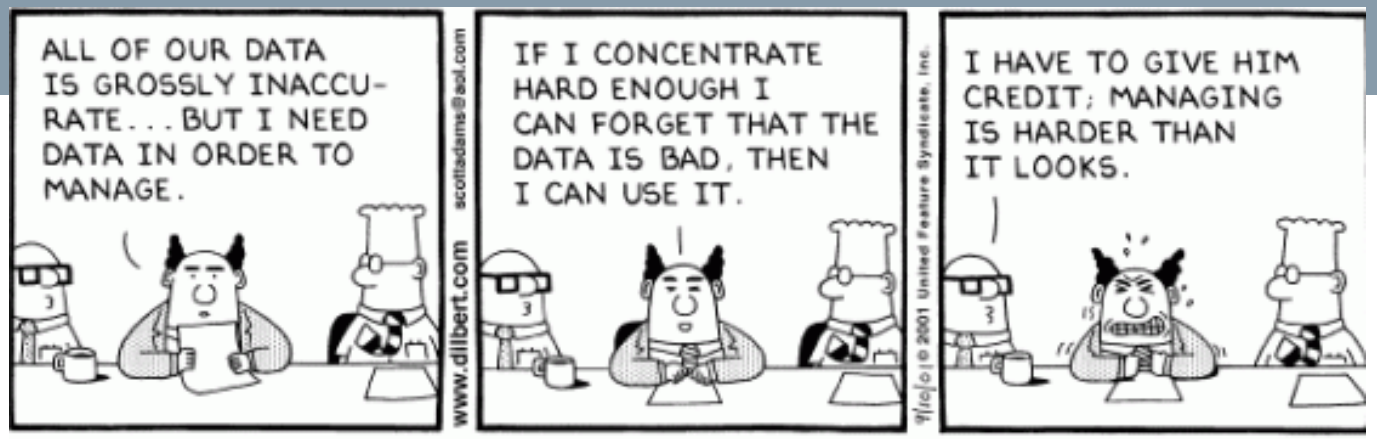
Measures Library



Measurement Library

Identify Measure, Metrics and KPIs for the Business, Organization, PMO, and Projects

Identify Measure Characteristics

Identify Formulas and Calculations, with examples

Identify Data Sources and Update/Refresh Frequencies

Define Components, Terms, Usage, Examples, Ranges, Owners…

Provide Use Case and Results interpretations

Identify Actions to be Taken

Selec	Who	Metric	Frequency	Analysis	Category	Units	Measure (LOV Edit / Sort)	Evaluation	Strategy Direction	Calculation	Scen
Yes	PM	Tactical	Monthly	Snapshot	Budget	%	**% Deviation Planned Vs. Actual Margin**	Quantifiable	Downward, Min, Negative	Planned Margin-Actual Margin (Planned Margin-Actual	Comp esti
Yes	PM	Tactical	Monthly	Trend	Budget	%, $	**Cost Deviation From Planned Budget (VAC)**	Quantifiable	Downward, Min	(Planned Budget Costs- Actual Costs) / planned Budget Costs	Comp alloca
Yes	PM	Tactical	@Project Start	Trend	Budget	%, $	**Value at Completion Budget at Completion**	Leading	Min, Downward	Budget At Completion = Estimate Costs To Complete	Dave pro
Yes	PM	Tactical	Weekly	Trend	Governance	#	**% or Number Of Overdue Projects Tasks**	Quantifiable	Downward, Min, Negative	Number of overdue project tasks	The Se Insta
Yes	PM	Tactical	@Project Close	Snapshot	Governance	R	**Achievement Of Initial Project Goals / Objectives / Targets**	Qualitative	Max, Positive, Upward	Project = Met project goals = y/n	Abby lead
Yes	PMO	Tactical	Monthly	Snapshot	Governance	#	**Customer Renewal Of Billable Resources**	Quantifiable	Max, Positive, Upward	Annual Recurring Revenue	In ye cust

Example: KPI - % Deviation Planned vs. Actual Margin

Measure	Category	Units
% Deviation Planned Vs. Actual Margin	Budget	%
Description	**Direction**	**Frequency**
Margin variance is the estimated margin for project minus the actual margin achieved at end of project Total revenue from services contracts within period,	Downward, Min, Negative	Monthly
Interpretation	**Calculation**	**Analysis**
A negative margin difference indicates improved margin over estimated margin. If actual margin decreases over milestones, that implies that project costs (expenses and/or discounts) are rising faster than related Service	Planned Margin-Actual Margin (Planned Margin-Actual Margin) / Planned Budget x 100 (Total Services Revenue) – (Hard Costs + Labor Costs) / Total	Snapshot
Scenario	**Example**	**Type**
Company A estimated a margin of 28% but calculated 32% at project completion	28%-32% = -4% margin difference (28%-32%) / 28% x 10 = -14% deviation	Measure
Reference	**Risks**	**Weight**
Value not set	Value not set	10%
Assumptions	**Comments**	**Actionable**
Value not set	Regardless if the 100 hours were applied over one or two	Value not set
Source	**Limitations**	
Value not set	Value not set	

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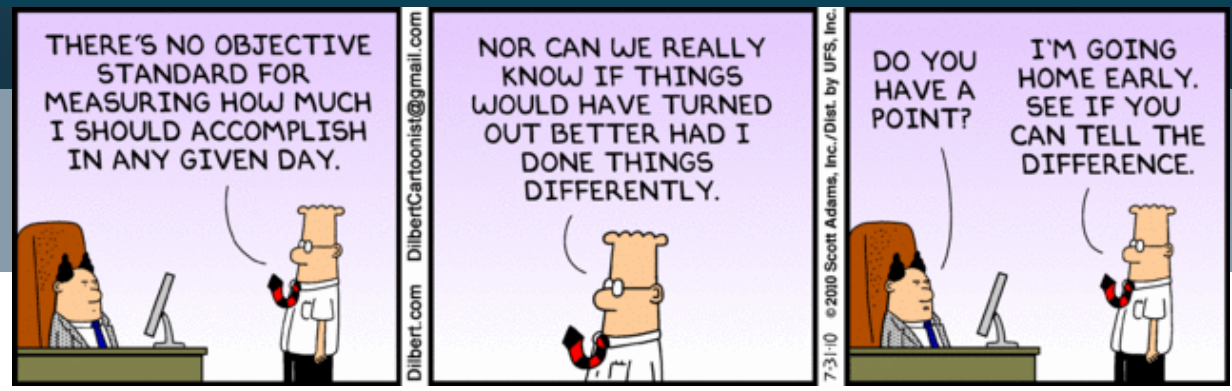
KPI Communications



Smarter decisions, better products.

Don’t Make Me Think

Programs and Project must measure progress, identify risks and tackle the difficult is changing course where necessary

Position as “single source of truth”; One Stop View, Definitive Destination

Regular, Consistent & Accurate Information Flow – builds trust

- E.g., Morning “Wall Street Journal” approach - 60 second review

Communicate Performance Measures, Metrics and KPIs

- Project State, Metrics; EVM - Planned vs. actuals
- Schedule Impacts; Corrective actions active & planned
- Risks and Issues

Immediately Usable by Decision Makers

Deliver with visibility, transparency and accountability

Clear measure / status

- What does “yellow” really mean? What actions are needed?
- Answer the natural questions…
  e.g., When will it be “corrected” / back on track?

Metrics and dashboards are not a substitute for direct stakeholder interaction

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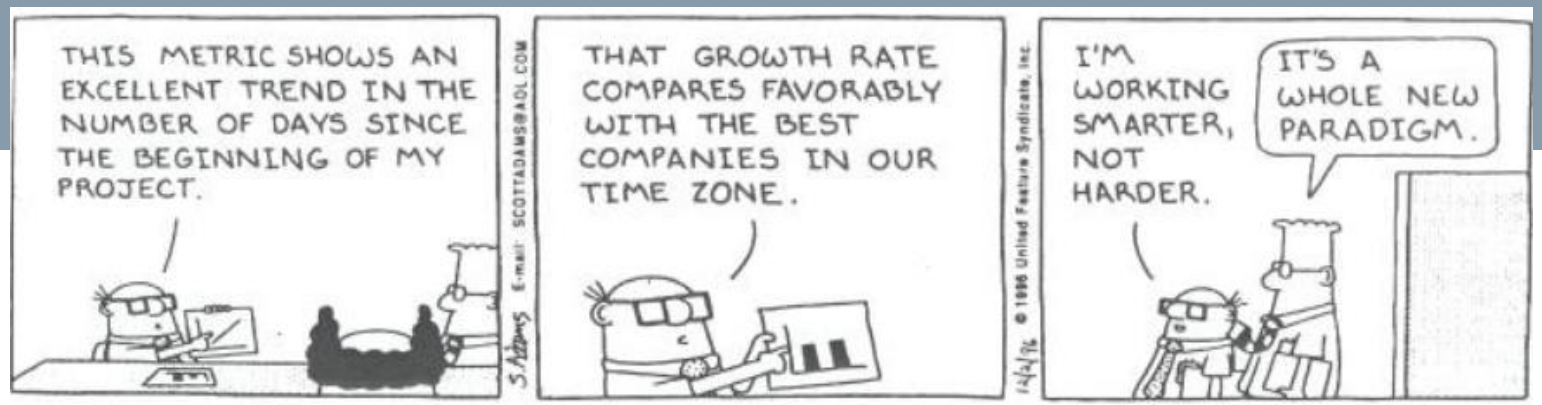
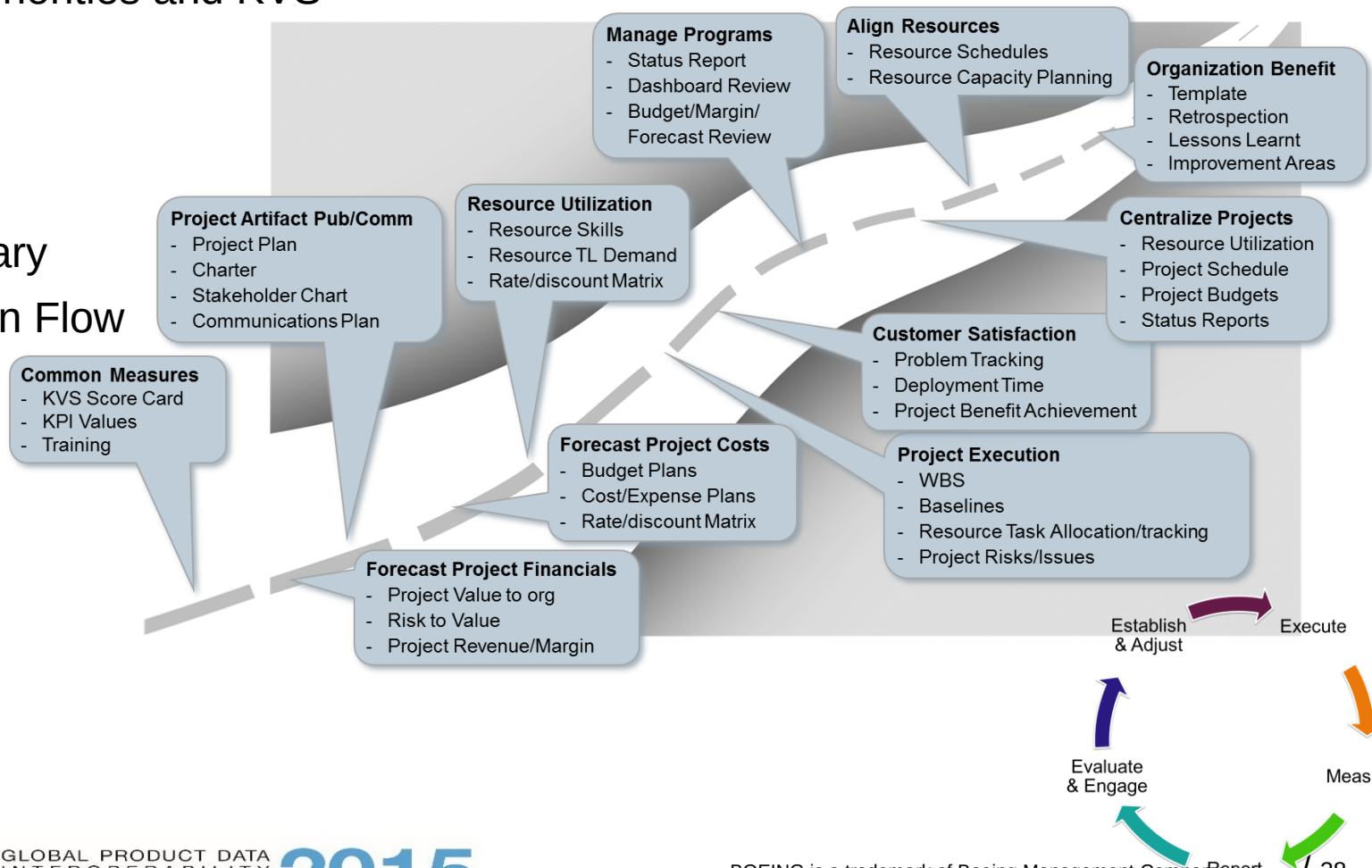
Summary



10 Step Measurement Roadmap

1. Understand the Environmental Dynamics – Market, Business, Programs, Projects
2. Identify Business Objectives, Goals, Priorities and KVS
3. Determine Value Components
4. Align & Define Candidate Measures
5. Identify Key Performance Indicators
6. Build and Maintain Measurement Library
7. Deliver Regular & Accurate Information Flow
8. Usable by Decision Makers
9. Periodic Reviews as organization, program and project evolve
10. Drive Continuous Improvement
    - both in measures & performance



People without information are unable to change; those with information are compelled to change

- M. Kubiak

If the measures don’t change, neither do the results

What gets measured and rewarded, gets done!

“Whenever there is fear, you will get the wrong figures.”

- W. Edwards Deming

References / Sources for More Information….

Project Management Resources - Practices, Tools, and White Papers

- www.projectmanagement.com/
- www.projectsatwork.com/
- www.pmperspectives.org/
- www.pmlinks.com/information/templates/
- www.psmsc.com/
- www.kpilibrary.com/
- www.smartkpis.com/
- www.4pm.com
- www.pmis-consulting.com
- www.pmblvd.com
- www.gantthead.com

Professional PM Organizations:

- www.pmi.org
- www.asapm.org
- www.ipma.ch
- www.apmgroup.co.uk
- www.aipm.com.au

For a copy of the KPI Library Spreadsheet Email Me

What gets measured gets done, what gets measured and fed back gets done well, what gets rewarded gets repeated.“

John E. Jones

Mike Denley

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Thank you

Thank you ■ Tack ■ Takk ■ Tak ■ Takk ■ Kiitos Tänan / Aitäh Aciu / de'koju ■ Djakujo ■ Danke ■ Dank u ■ Dankie ■ Dankon ■ Dziekuje ■ Dêkuji vám ■ Dâkujem vám ■ Hvala ■ Multumesk ■ Blagodarya ■ Tesekkür ederim ■ Köszönöm ■ tashakur / rakhmat ■ Tashakkur / rakhmat ■ bayarlaa / gyalailaa ■ rahmat ■ rakhmat ■ sag bol ■ tau ■ giihtu ■ xoasi ■ Spasibo ■ Merci ■ Grazie ■ Gracias ■ Gràcies ■ Gratias ■ Obrigado / Obrigada ■ Obrigado / Obrigada ■ Toda ■ Shokran ■ To-siä ■ Dhanyavaad ■ Asante ■ Arigatou gozaimasu ■ xìe xìe ■ Kam-sa-ham-ni-da ■ korp kun kah ■ korp kun krap (av kvinna) ■ shukriya ■ Diolch ■ a dank aych ■ Sag olun / Täsäkkür aläyiräm ■ Gracias ■ Salamat ■ Dhanyabad ■ Ngiyabonga ■ Ke a leboha ■ Eskerrik asko ■ Terima kasih ■ Terima kasih ■ Kia ora ■ Mahalo ■ miigwech ■ s.aHHa ■ jërë-jëf Efharisto´ ■ Paldies ■ Taing ■ Gura mie ayd ■ Dziakuj ■ Trugarez ■ tlho´ ■ faleminderit ■ Gratias ■ Mèrcie ■