Metrics: Reconciling Goals With Reality

THE IMPORTANCE OF METRICS

OVERVIEW

- Conceptualizing Metrics
- Reporting on Metrics
- Tools and Technologies
- Honorable Mention: The Power of Dashboards
- Automation
- Increasing Your Knowledge Base

Conceptualizing Metrics

- What does it mean
- Why is it important
- Building blocks of metrics
- Metrics Counseling: denial or dealing with reality
- Some methodologies and approaches to analysis

Conceptualizing Metrics

- What does it mean
  - Measures, Metrics and Key Performance Indicators
    - A ***measure*** is a standard, unit, or result of measurement *(ie number of students)*
    - Without a trend to follow or an expected value to compare against, a measure gives little or no information and does not provide enough information to make meaningful decisions
    - Key questions in the identification and designing of a measure are:
      - *What is the business objective?*
      - *What methods and tools will we use?*
      - *Who are the stakeholders and what do they need to know?*
      - *Which framework is best?*
      - *What should we measure?*
      - *How should we collect and analyze the measure*
      - *What do the measures tell us, and how do they aid in decision-making*

Conceptualizing Metrics

- What does it mean
  - Measures, Metrics and Key Performance Indicators
    - A ***metric*** is a quantitative or qualitative measure of the degree to which a system, entity, or process possesses a given attribute
      - Metrics are a comparison of two or more measures and are indicators for assessing the effect of a particular activity
      - A measure by itself doesn't provide much understanding unless it is compared with another value of the measure, becoming a metric *(ie number of undeclared FTIC students that declare a major their sophomore year)*
    - ***Metrics are a way of learning what works and what does not; they also help clarify expectations***

Conceptualizing Metrics

- What does it mean
  - Measures, Metrics and Key Performance Indicators
    - A ***key performance indicator (KPI)*** is a metric that keeps us focused on a critical area of business process
      - KPIs are generally based on **key business drivers**
    - KPIs are ideally actionable and represent a "short list" of agreed upon key measures
    - An entity may have many metrics, but few KPIs
      - KPIs cater to the selective group of **VIPs** (Very Important Processes)

Conceptualizing Metrics

- What does it mean
  - Measures, Metrics and Key Performance Indicators

Overall Business Strategy
What is this business trying to accomplish

Goals / Objectives
What are the short and long-term objectives to achieve the strategy

Key Business Drivers
What are the important execution steps to meet the goals and objectives

Key Performance Indicators
What measures of success are tied to the drivers

Supporting Metrics
What are the detailed measures that feed and augment the KPIs

Conceptualizing Metrics

- Why is it important
  - Metrics are important because of the **critical functions** they provide:
    - Strategic Planning: metrics facilitate in the identification and prioritization of goals and objectives
    - Control: metrics facilitates in evaluating and controlling the performance of processes, people, equipment, technology and other attributes
    - Reporting: metrics are used to demonstrate and report on the performance (strengths and weaknesses) of attributes
    - Communication: metrics are used to "tell" people, both internally and externally, what constitutes value and what the key success factors are
    - Opportunities for Improvement: metrics identify gaps between performance and expectations
    - Expectations: metrics help frame expectations both internally (with our personnel) and externally (stakeholders, vendors); metrics "shape" what activities are expected to be performed

Conceptualizing Metrics

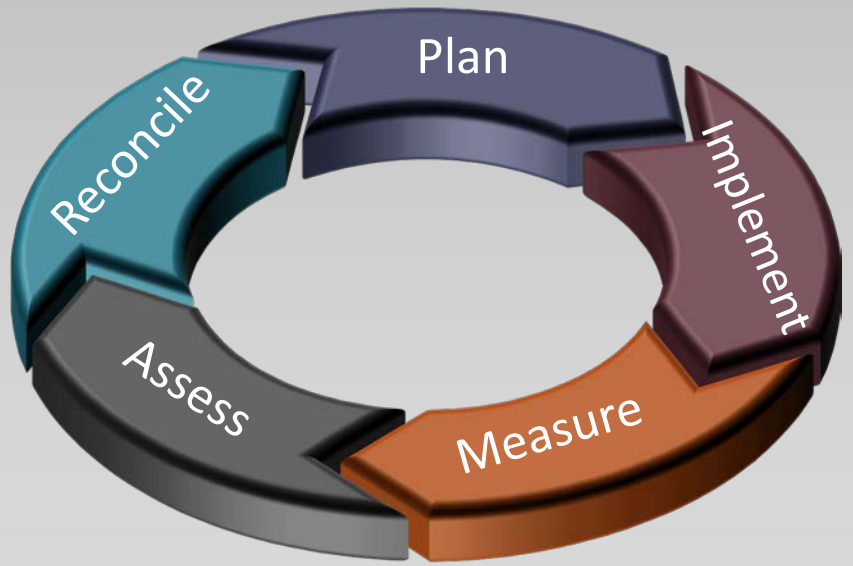
- Why is it important
  - Metrics are important because of the **critical functions** they provide:
    - Signposts and EAS (Emergency Alert System): metrics capturing, analysis and reporting are the signposts for driving and navigating the road as well as the EAS warnings when operational realities do not reconcile with goals/objectives
    - Reconciliation: metrics facilitate in the reconciling of gaps between how an area is actually performing against goals and initiatives
    - Benchmarking: metrics are used to compile trend analysis within businesses internally and industries externally to identify "best practices" and standards of operations

Conceptualizing Metrics

- Building blocks of metrics
  - The metric is *useful*
    - Not all metrics are useful and some don't really add insight or probative value; be selective with metrics chosen to be used to avoid wasting resource efforts and false narratives
  - The metric is based on a *comparison*
    - Metric performance should be compared to a baseline, benchmark, or target (goal)
    - You can't qualify an attribute as good, bad or indifferent without measuring the attribute relative to something else
  - The metric *aligns* with business goals/objectives
  - The metric is based on *actionable* data
    - Actionable metrics provide enough information to make decisions from
  - Gain *clarity* of the meaning and importance of the metric
    - In the very act of setting out to measure something, you are stating to your coworkers, management, stakeholders and industry analysts that **this particular activity is important**
  - Start *simple*, then add layers of complexity as needed

Conceptualizing Metrics

- Building blocks of metrics
  - Critical culture and paradigm shift as an *integral and continual* work process
    - Metrics assessment should occur as a highly integrated and continual part of work where appropriate
    - Failing to monitor key performance areas can have substantial negative impacts to achievement of strategic goals including loss of business



Conceptualizing Metrics

- Metrics Counseling: denial or dealing with reality

  - Meeting the challenges of metrics realities
    - Metrics identify gaps between performance realities and expectations (goals/objectives/initiatives)
    - Intervention should take place when undesired gaps have to be closed
      - Gaps can be indicators of problems at the tactical level (operational/resource issues)
        - The strategy is right but implementation of the strategy is problematic
      - Gaps can also be indicators of problems at the strategic level (strategic clarity/prioritization issues)
        - The strategy is problematic
    - In the short-term, most gaps tend to reflect tactical problems; however if the gaps are persistent then they tend to indicate strategic problems

  - Failing to meet the challenges of metrics realities
    - Not properly intervening when performance negatively varies from goals and targets is like operating in a state of denial

Conceptualizing Metrics

- Some methodologies and approaches to analysis
  - Balanced Scorecard (BSC) technique
    - Provides a balance to long-term and short-term objectives, financial and non-financial measures, leading and lagging indicators, and internal and external perspectives
    - Typically uses four views (customer, financial, internal business, and learning and growth) to translate high level strategies to real targets
      - Within each view (or dimension) the goals, metrics, targets, and initiatives are listed
      - When analyzing the views, users should also take into consideration relationships between views
    - As a model of performance, the BSC communicates in which ways leading inputs (human and physical), processes, and lagging outcomes are linked; and steers focus on the importance of managing these components to achieve strategic priorities

Conceptualizing Metrics

- Some methodologies and approaches to analysis
  - House of Quality method and Quality Function Deployment (QFD)
    - Uses a metrics "matrix" (house)
      - Left wall of the house contains desirable outcomes
      - The roof of the house contains the performance metrics
      - The right wall of the house contains the weights (relative importance of the outcomes)
      - The base of the house contains targets, priorities, and benchmark values
      - By looking at the correlations within the body of the matrix, users and management can decide to focus on those areas of that are most likely to affect overall performance
    - A number of software tools are available such as QFD designer are available to automate the analysis

Conceptualizing Metrics

- Some methodologies and approaches to analysis
  - American Productivity and Quality Center (APQC) approach and framework
    - The APQC approach focuses on referencing benchmarks as a guide to measuring operational performance and execution of best practices
    - The AQPC approach utilizes the Process Classification Framework (PCF) consisting of a detailed taxonomy of industry and business processes derived from the joint efforts of hundreds of U.S. entities
      - This detailed framework is then employed to benchmark and assess performance of individual entities against the benchmarks
    - This approach is generally coupled with Business Process Management (BPM) software that has the APQC best practices framework built in to gain overall understanding and improvement of an organization's processes

Reporting on Metrics

- Who uses metrics data
- Sample Goal → Objective → Metrics illustration
- Sample University of Houston "Online Resume for Legislators and Other Policymakers"

Reporting on Metrics

- Who uses metrics
  - Metrics are used at all levels
    - Internally
      - Executive management (strategic planning and course corrections)
      - Management (operational effectiveness and course corrections)
      - YOU! (operational effectiveness and course corrections)
    - Externally
      - External stakeholders (students/parents, board of regents, donors, industry analysts, state agencies as recipients of filed data, federal agencies as recipients of filed data)
      - Vendors/Partnerships
    - *Reporting on metrics provides an opportunity to demonstrate strengths and weaknesses within an area of business process*

Reporting on Metrics

- Sample Goal → Objective → Metrics illustration

Strategic Goals	Objectives	Metrics	Target/Results 2012-13	
			Target	Result
1 Support university efforts to attract, enroll, and retain an academically prepared and diverse student body.	1.1 Improve rates at which students persist from semester to semester	1.1.1 Fall to spring persistence	72.0%	68.9%
		1.1.2 Fall to fall persistence	62.0%	63.8%
	1.2 Improve rates at which students identify their educational goals and develop plans to achieve them.	1.2.1 Percentage of students identifying their educational goals and developing plans to achieve them.	80.0%	78.0%

Note: to make the metrics even more granular and meaningful, further lower levels of tactical objectives/metrics can be added; ie Fall to spring persistence within the College of Business

Reporting on Metrics

- Sample University of Houston "Online Resume for Legislators and Other Policymakers"

Online Resume for Legislators and Other Policymakers
UNIVERSITY OF HOUSTON

Location: Houston, Gulf Coast Region
Emerging Research Accountability Peer Group: Texas State Univ - San Marcos, Texas Tech Univ, UT Arlington, UT Dallas, UT El Paso, UT San Antonio, Univ of North Texas
Out-Of-State Peers: University Of Cincinnati-Main Campus, University Of Illinois At Chicago, University Of New Mexico - Main Campus, University Of South Carolina - Columbia, University Of Wisconsin - Milwaukee
Degrees Offered: Bachelor's, Master's, Doctoral, Professional
Institutional Resumes | Accountability System | Definitions | Institution Home Page

Enrollment

Race/Ethnicity	Fall 2006 Number	Fall 2006 Percent	Fall 2010 Number	Fall 2010 Percent	Fall 2011 Number	Fall 2011 Percent
White	13,230	38.5%	13,212	34.1%	13,196	33.1%
Hispanic	6,634	19.3%	8,641	22.3%	9,368	23.5%
African American	4,515	13.2%	4,869	12.6%	4,836	12.1%
Multi-Racial Afr Am	0	.0%	228	.6%	322	.8%
Asian	6,697	19.5%	7,676	19.8%	7,777	19.5%
International	2,500	7.3%	3,278	8.5%	3,365	8.5%
Other & Unknown	758	2.2%	848	2.2%	956	2.4%
Total	34,334	100.0%	38,752	100.0%	39,820	100.0%
TX First Time Transfers	**Number**	**% of UG**	**Number**	**% of UG**	**Number**	**% of UG**
Two-Year Institutions	2,031	7.7%	3,143	10.7%	3,170	10.4%
Other Institutions	461	1.8%	600	2.0%	548	1.8%

Costs

Average Annual Total Academic Costs for Resident Undergraduate Student Taking 30 SCH

Fiscal Year	Texas Rates: Institution Average	Percent Increase	Peer Group Average	Percent Increase
2007	$6,762	.0%	$6,446	.0%
2008	$7,706	14.0%	$7,004	8.7%
2009	$8,168	6.0%	$7,617	8.8%
2010	$8,496	4.0%	$8,056	5.8%
2011	$8,496	.0%	$8,398	4.2%
2012	$9,211	8.4%	$8,902	6.0%

Financial Aid

Fiscal Year	Institution Percent	Institution Avg Amt	Peer Group Percent	Peer Group Avg Amt	OOS Peer Group Percent	OOS Peer Group Avg Amt
Federal Student Loans						
2009	76%	$3,621	53%	$6,135	48%	$6,850
2010	42%	$7,392	50%	$7,418	50%	$7,184
Federal, State, Institutional or Other Grants Known by Institutions						
2009	61%	$9,261	57%	$7,210	58%	$7,440
2010	52%	$5,981	57%	$7,447	60%	$7,866
Federal (Pell) Grants						
2009	29%	$3,323	28%	$3,379	25%	$3,450
2010	34%	$3,901	34%	$4,431	30%	$4,041

Student Success

One-Year Persistence of First-time, Full-time, Degree Seeking Undergraduates

	Enter Fall 2005	Enter Fall 2009	Enter Fall 2010
Cohort	3,218	3,107	3,459
Total	89.3%	91.0%	91.7%
Same	77.3%	81.5%	81.1%
Other	12.0%	9.4%	10.6%

Two-Year Persistence of First-time, Full-time, Degree Seeking Undergraduates

	Enter Fall 2004	Enter Fall 2008	Enter Fall 2009
Institution Persistence			
Cohort	3,044	3,507	3,104
Total	83.1%	82.4%	83.8%
Same	63.7%	64.6%	67.9%
Other	19.4%	17.8%	15.9%
Peer Group Persistence			
Cohort	2,848	3,109	3,130
Total	82.8%	82.6%	82.5%
Same	61.3%	61.3%	62.7%
Other	21.6%	21.3%	19.8%

Average Number of Fall & Spring Semesters and SCH Attempted for Bachelor's Degree

Year	Institution Grads	Institution Sem	Institution SCH	Peer Group Average Grads	Peer Group Average Sem	Peer Group Average SCH
FY 2007	3,046	10.98	152.67	2,582	10.53	147.42
FY 2010	2,985	10.68	148.53	2,781	10.41	144.82
FY 2011	3,426	10.68	150.62	3,118	10.43	146.37

Graduation Rates

Cohort	Institution Rate	Peer Group Rate
Fall 2001 4-year	14.2%	19.7%
Fall 2005 4-year	17.0%	23.6%
Fall 2006 4-year	17.6%	24.9%
Fall 2000 5-year	36.4%	42.1%
Fall 2004 5-year	41.4%	45.8%
Fall 2005 5-year	41.7%	46.3%
Fall 1999 6-year	48.1%	52.1%
Fall 2003 6-year	49.1%	55.7%
Fall 2004 6-year	53.1%	55.9%

Nation Comparison (IPEDS Definition)

Cohort	Institution Rate	OOS Peers Rate
Fall 2001 4-year	10.0%	20.0%
Fall 2005 4-year	12.0%	23.0%
Fall 2006 4-year	15.0%	23.8%
Fall 2000 5-year	29.0%	42.4%
Fall 2004 5-year	32.0%	46.2%
Fall 2005 5-year	36.0%	46.2%
Fall 1999 6-year	40.0%	49.4%
Fall 2003 6-year	41.0%	52.8%
Fall 2004 6-year	46.0%	52.8%

Six-year Graduation & Persistence Rate, Fall 2005

Student Group	Cohort	Rate
For Students Needing Dev Ed		
Institution	482	65.8%
Peer Group	492	54.7%
For Students NOT Needing Dev Ed		
Institution	1,780	75.1%
Peer Group	2,000	74.5%

*Peer Group data is average for peer group.

Funding

Source	FY 2006 Amount	Pct of Total	FY 2010 Amount	Pct of Total	FY 2011 Amount	Pct of Total
Appropriated Funds	$211,490,238	33.2%	$257,364,298	35.6%	$255,142,551	33.6%
Federal Funds	$75,333,190	11.8%	$127,973,487	17.7%	$133,142,605	17.5%
Tuition & Fees	$171,220,730	26.9%	$222,184,771	30.7%	$258,718,001	34.0%
Total Revenue	$636,243,074	100.0%	$723,019,105	100.0%	$759,944,736	100.0%

Tools and Technologies

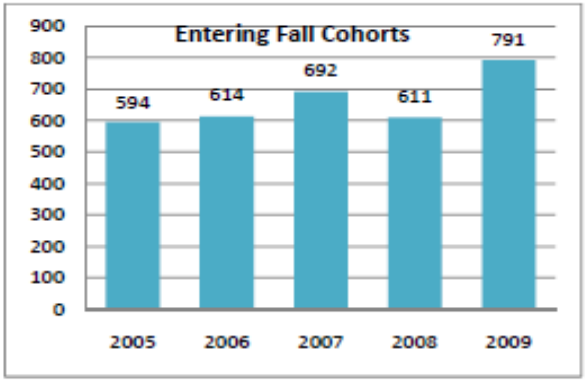
- There are a wealth of tools and technological resources available to facilitate metrics analysis and reporting
- There is a wide spectrum of capabilities modern metrics tools and technologies provide
  - The ability to interactively filter, drill into data, and verify formulas used to calculate the metrics
  - Alerts that proactively notify users of issues and undesirable gaps in performance
  - Analytics and statistical tools such as trends, forecast projections, variance analysis, control charts, histograms and correlations that can provide insights derived from metrics
  - What-if scenarios to see the impact of potential changes before you take actions
- Software providers are increasingly supporting use of metrics and analytics in conjunction with business processes
  - Cognos
  - Business Intelligence
  - Business Objects
  - Business Analytics
  - iDashboards

Honorable Mention: The Power of Dashboards

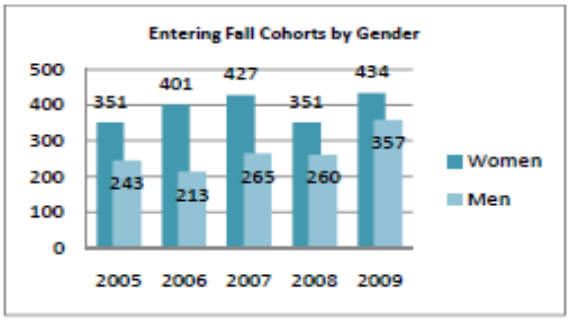
- A dashboard is a tool used by executives, managers, workers, and others to monitor business performance
- A dashboard is the critical delivery vehicle for performance metrics

The Power of Dashboards *(illustration)*

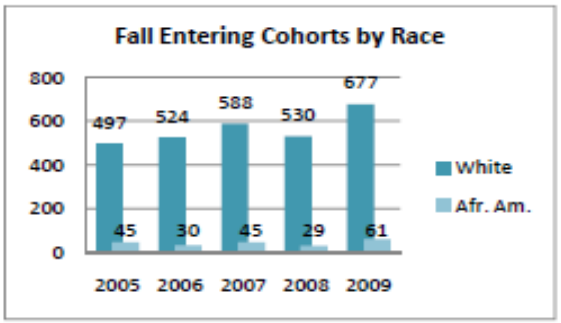
DRAFT Achieving the Dream Fall Cohort Demographics: 2005 - 2009



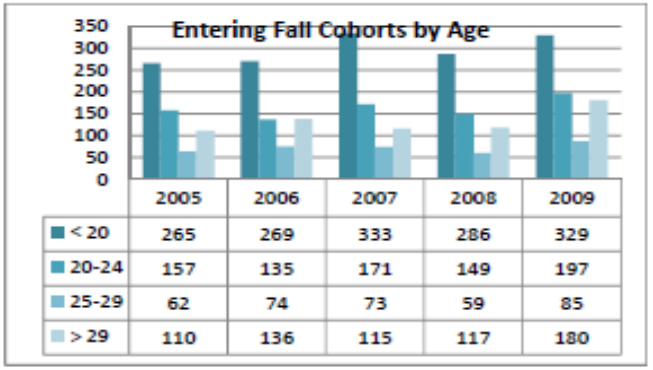
Fall cohort size increased 33% from prior year.



Men are increasingly closing the gender gap.

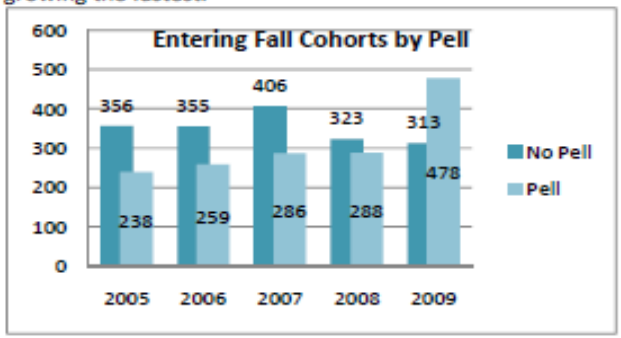


African American make-up is the highest ever – doubling the prior year. Other races/ethnicities are too small for



	2005	2006	2007	2008	2009
< 20	265	269	333	286	329
20-24	157	135	171	149	197
25-29	62	74	73	59	85
> 29	110	136	115	117	180

All segments grew at least 25%, but the oldest segments are growing the fastest.



Cohort students receiving Pell have increased by 100%, while those not receiving Pell have fallen 12%.

The Power of Dashboards *(Illustration 2, UH)*

UNIVERSITY of HOUSTON

LOGOUT System Student Data Course Data Admissions Data

FTIC COHORT GRADUATION REPORT (BETA)

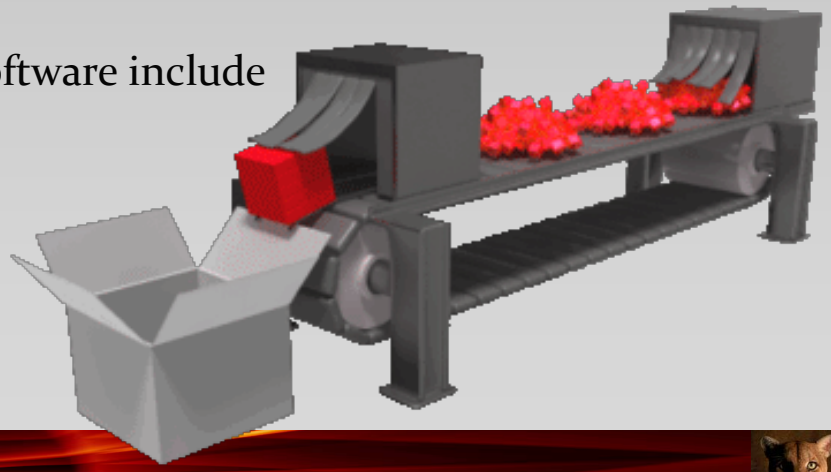
Fall 2007 Cohort in Spring 2012

as of 2012-05-11

			THIS SEMESTER						PRIOR SEMESTERS	
	Fall 2007	Spring 2012	Applied	% Applied	Denied	% Denied	Awarded	% Awarded	Awarded	% Awarded
Architecture, College of	67	74	22	29.7%	2	9.1%		0.0%	4	5.4%
Business, Bauer College of	300	507	74	14.6%	3	4.1%		0.0%	219	43.2%
Education, College of	119	146	24	16.4%		0.0%		0.0%	54	37.0%
Engineering, College of	248	210	35	16.7%		0.0%		0.0%	43	20.5%
Hotel & Restaurant Mgt, Col of	115	138	14	10.1%		0.0%		0.0%	65	47.1%
Lib Arts & Soc Sci, Coll of	535	897	129	14.4%	6	4.7%		0.0%	297	33.1%
Nat Sciences & Math, Col of	511	501	48	9.6%	1	2.1%		0.0%	143	28.5%
Pharmacy, College of	307	92		0.0%		0.0%		0.0%	4	4.3%
Technology, College of	50	199	37	18.6%	4	10.8%		0.0%	34	17.1%
UScholars	1040	528		0.0%		0.0%		0.0%		0.0%
Totals	3292	3292	383	11.6%	16	4.2%		0.0%	863	26.2%

Automation

- Don't be limited by the lack of availability of sophisticated metrics analysis software in building a metrics reporting toolset that meets your information needs while also is not labor intensive to produce the metrics reports
- Compilation Work vs Information Analysis
  - Strive to design a metrics reporting process that maximizes the amount of time spent on analyzing and digesting the data, and minimizes the amount of time spent on gathering, compiling, and slicing the data
- Leverage built-in automation features that your existing work pcs already provide
  - Many pcs have delivered software that provides automation features such as Macros, Pivot Tables, Pivot Charts and ODBC connections
  - Example common software include
    - Excel
    - Access
    - SAS
    - SQL Server



Increasing Your Knowledge Base

- Information available on metrics is vast and wide, there are a variety of resources available to help you build upon your knowledge of metrics analysis and reporting
  - Trial and error, it's a great learning process
    - Small scope metrics projects (whether they be directed projects or personal initiatives) provide some of the best opportunities for learning through trial and error
- Online Tools already available (including a wealth of underutilized free information)
  - Application Help menus
  - Application online guides, knowledge bases and forums
  - Google, Bing, etc
  - Youtube (you gotta try it!!)
  - Blog sites
  - Dedicated Technology forums
  - Subscription sites

THANK YOU

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