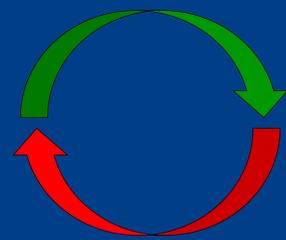


Problem

Every business unit wants to be forward-looking.



Most reporting only provides a backward-looking view.

How do you break out of this cycle?

Solution

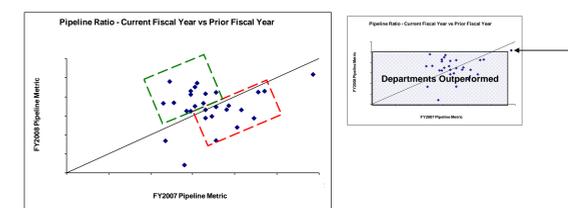
Breaking out of this cycle requires a sustained commitment to developing forward-looking metrics and reporting. Critical steps in the development life cycle are to:

- Create good metrics
 - Consider new ways to utilize data
- Diagnose out-of-balance, idiosyncratic, or bad metrics
 - Test, test, test!
 - Do the metrics reward desired outcomes?
- Build awareness and acceptance
- Standardize and refine
- Integrate with existing reporting

Developing Forward-Looking Metrics and Reporting

Break your business unit out of the cycle of wanting to be forward-looking but relying on backward-looking reporting.

Case Study: The grant award 'Pipeline Ratio' metric was originally created to provide a forward-looking view of financial sustainability. The metric as originally constructed (the sum of all future award commitments for the next fiscal year or multiple years divided by historical commitments) proved to be out of balance and idiosyncratic. Departments tended to meet the goal in alternating 'flip flop' patterns. Problematically, the highest performing department by absolute measures fell below goal with respect to the ratio:



Solution: The pipeline ratio was modified to only utilize one future year of data to mitigate the sawtooth pattern, to compare this one future year against the same observation one year earlier (to recognize single-year growth), and balanced with a longer-term growth measure (to recognize multiple-year growth, mitigating the effect of punishing good historical performance).

Sustained Development: Insights from the metric testing phase, combined with forecasting techniques, awareness-building, refinement, and standardization has resulted in forward-looking, available-on-demand reporting available at department and school levels in a production reporting environment.

Diagnosis

By stating the goal relative to the prior year, the Pipeline Ratio could reward poor performance in the prior year and punish good performance in the prior year

Mechanics

When a department performs well, the goal for next year becomes more difficult
When a department performs poorly, the goal for next year becomes easier

These effects combine to flip-flop likely payout structures each year (confirmed by statistical testing):

Year 1	Meets Goal?	Year 2	Meets Goal?		Coefficient	P-value
Department Above Goal	Yes	Easier Goal	More Likely	One Year	-0.6896	0.0099
Department Below Goal	No	More Difficult Goal	Less Likely	Multiple Years	-0.6768	0.0014

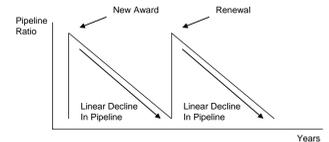
Diagnosis

Underlying event patterns will cause the pipeline metric to move in cyclical patterns

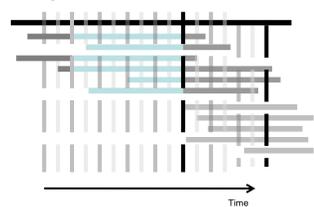
Mechanics

Awards are often funded for multiple years, with abrupt endpoints
Renewal does not occur until an award is expiring

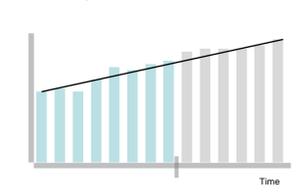
These effects produce sawtooth patterns in the pipeline metric, with rapid increases driven by large new awards or renewals, followed by gradual decline over the life of the awards:



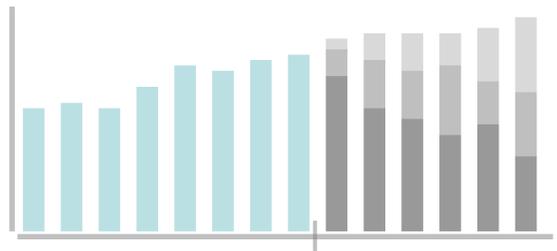
Existing and Probable Future Commitments



Trend Analysis



Existing and Probable Future Commitments with Gap-to-Trend Prescriptive Analysis



Diagnosing Reporting Maturity

Backward-looking reporting asks "How did we do?" and might imply corrective action in situations where 'it pays to correct your mistakes.'

Better reporting provides context about the present and assists in decision support.

The best reporting includes forward-looking views that enable proactive decision-making.

Results

At the Medical School, sustained attention to developing grant award metrics has resulted in the creation of new metrics, the diagnosis of out-of-balance and idiosyncratic metrics (and subsequent balancing), refinement into predictive analysis that supports proactive decision-making, standardization, and integration into available-on-demand productionized reporting.

Future Development

Continue to advance reporting maturity of additional metrics

Improve visualization tactics to describe uncertainty

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Grant Review & Analysis Office



Additional Information on Forecasting:
<http://jeffhoron.com/2011/02/forecasting/>