Behavioral Change Metrics in an Engineering & Construction Environment[1]

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The engineering & construction industry is a project based industry and one which must undergo major transformation to deliver the projects of tomorrow.

Behavioral change is just one of the change dimensions associated with organizational transformation. Others include new tools, new process development, and new skill training that happen in parallel and influence and are influenced by the behavioral change dimension. Metrics must be carefully chosen recognizing their ability to drive behaviors and inadvertently drive unintended consequences. For example, activity measures may result in a lack of results and busy staff, while result measures may involve a limited understanding of the results, why are they not being achieved and large amounts of duplicative or uncoordinated activity. A balance is required.

Finally, transformation efforts involve a series of beginnings, middles and ends and the transitions between each phase as well as each set comprising the overall transformation effort is extremely important. (Beginnings, Middles and Ends: A Systematic Approach to Organizational Transformation; Prieto; PM World Journal; Vol. III, Issue VI – June 2014)

https://pmworldjournal.net/wp-content/uploads/2014/05/pmwj23-jun2014-prieto-beginnings-middles-ends-FeaturedPaper.pdf

In generalizing the design of behavioral metrics we can think of them as grouping into three broad categories:

- Doing the right things
- Doing enough of the right things
- Doing right things right

For organizational transformation to be effectively managed, it must be measured around individual behaviors and then aggregated for project, business unit and overall

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organizational measurement. Metrics must be traceable to top level strategic business objectives and reflect a cascading down of KPI's.

Let me use an example that would relate to a top level KPI on profitability. One change to improve top level profitability would be to reduce the percentage of revenue written off to bad debts. We would find that write-off levels are influenced by the age of the account, amount of communication with the debtor, and the effectiveness of the billing department. Normal KPI's would track the amount written off and even the aging of the account (as a leading indicator) but neither of these metrics drives the desired behavioral changes we require to improve outcomes. Let's look at the behaviors we might wish to instill (at the responsible individual level) in the transformed organization for each of the three influencers of write-off levels:

- Age of account
  - Time to contact with account after billing (goal less than 30 days)
  - Time to account billed after close of period (goal less than two weeks)

- Amount of communication
  - Number of phone calls placed to account during period (goal minimum of 1) (alternately, number of accounts without a follow-up call during period (goal zero))
  - Time of day calls are being made (provide guidance on best times to call (beginning of day for example) and track behavior and result)

- Effectiveness of billing department
  - Are the right payment methods and options being offered to the account (track options offered and time to collection)
  - Formal follow-up attempts with account until payment received
  - Recovery rate on aged receivables

As shown in this example a balance of activity and results metrics are deployed at the workforce level and can be aggregated for management and transformation purposes.

We can also think of this example from the "right" perspective outlined above.

Reduce The Percentage Of Revenue Written Off To Bad Debts		
	Activity Metric	**Results Metric**
Doing the right thing	Time of day calls are being made (provide guidance on best times to call	

	(beginning of day for example) and track behavior and result)	
Doing enough of the right things	Number of phone calls placed to account during period (goal minimum of 1) (alternately, number of accounts without a follow-up call during period (goal zero))	
	Are the right payment methods and options being offered to the account (track options offered and time to collection)	
	Formal follow-up attempts with account until payment received	
Doing right things right		Time to contact with account after billing (goal less than 30 days)
		Time to account billed after close of period (goal less than two weeks)
		Recovery rate on aged receivables

The use of metrics such as those outlined provides not only a window into the extent and rate of fundamental behavior changes at the workforce level but also acts to highlight training and skill needs required for these individuals to be successful. Behavioral change metrics act to inform the impact of other change dimensions such as those associated with new tools, new process development, and new skills training.

While the establishment of specific behavioral metrics must begin with the top level strategic business objectives and KPI's the firm has established for itself and then cascade down to specific workforce behaviors that are desired, let me offer a simplistic framework based on prior experience. At the most fundamental level the business of the business can be thought of as consisting of three aspects:

- Win work
- Do work
- Make profit

For example, a firm's strategy may suggest the level of improvement required in winning work; lays out a key element of strategy in doing work better by embracing digital technology and mindset; and focus on reducing project loss rates and improving DSO levels. In each of these three areas behavioral metrics can be established. An initial articulation of behavioral change metrics can be prioritized at the management level, recognizing current needs in the transformation process, but should not be unduly trimmed in order to achieve broad based behavioral change at the workforce level. These are the essential human objectives that transformations require to be successful.

Some behavioral metrics (color coded for activity and results metrics) from prior experience may include:

- **Win work**
  - Technical leadership recognized externally as thought leaders and create new opportunities for the firm
  - Account managers are growing opportunities and success rates with their key accounts (Opportunity growth rate exceeds 15%; success rates for key clients not less than 40% with aspirational goal of 50%)
  - Proposal systems and staffs achieve industry leading success rates
  - All proposals complete formal risk estimate prior to submittal and updated prior to contract execution (transparency of all contingency and risk reserves)
  - As signed project gross margin (PGM) exceeds x% (drives negotiating behaviors)
  - Sales and execution standards meet the highest standards of ethics and anti-corruption behaviors (all staff undergo training and certification annually)

- **Do work**
  - Project baselines (cost, schedule, risk, cash flow) maintained and performance tracked against them throughout entire project performance period (improve bid stage pricing)

- Current baseline only reflects signed contract amendments (behavior change focused on obtaining signed change orders)
- Monthly project reviews held for all projects (project management and review as a greatly enhanced behavior)
- Staff competency and efficiency continuously improved
    - Training progress on new systems (number/rate trained; competency level)
    - Digital awareness and utilization "score"
    - Degree of standardization efforts across the various aspects in the transformation program (leveraging BIM and broader digital efforts more broadly)
    - Percentage of engineering hours moved to lower cost or more readily available resource centers (drive cost competitive behaviors and work sharing)
    - Staff rotation fosters development of young professionals (% targeted staff completing planned development efforts)
- Rework levels and reasons tracked and reviewed against budget and contingency levels (measures effective project management coordination; goal is 0% rework)
    - Everyone is actively engaged in identifying errors before they reach customers (underscore do it right the first time)
    - Best practices are systematically identified, shared, and improved upon (learning and continuous improvement culture strengthened)
- DSO less than X days (goal of positive cash flow)
- Margin erosion maintained to less than 1% of as-sold PGM (drive project management accountability for profit)
- Comprehensive project closeout on all projects (database entry (BIM elements; estimate feedback); client debriefing; lessons learned)

- Make profit
    - DSO less than X days (goal of positive cash flow)
    - Final margin exceeds 100% of as sold PGM (drives project performance and upsell)
    - Percentage of revenue written off to bad debts reduced (50% overall reduction over next two years; 0% write-off for key clients) (Reflects behaviors from example)
        - Age of account
            - Days change request outstanding
            - Time to contact with account after billing (goal less than 30 days)

            - Time to account billed after close of period (goal less than two weeks)
        - Amount of communication
            - Number of phone calls placed to account during period (goal minimum of 1) (alternately, number of accounts without a follow-up call during period (goal zero))
            - Time of day calls are being made (provide guidance on best times to call (beginning of day for example) and track behavior and result)
        - Effectiveness of billing department
            - Are the right payment methods and options being offered to the account (track options offered and time to collection)
            - Formal follow-up attempts with account until payment received
                - Recovery rate on aged receivables
    - Transformation program adequately staffed and resourced[2]
        - Transformation goals are adapted for relevant employees at all levels of the organization
        - Sufficient personnel are allocated to support initiative implementation
        - At every level of the organization, key roles for the transformation are held by employees who actively supported it
        - Initiatives are led by line managers as part of their day-to-day responsibilities
        - The organization assigns high-potential individuals to lead the transformation (giving them direct responsibility for initiatives)
        - Leaders of initiatives receive change-leadership training during the transformation
    - Progress on transformation efforts to achieve Strategic Business Objectives[3]
        - Roles and responsibilities in the transformation are clearly defined
        - Staff engagement in transformation programs and systems
            - A capability-building program is designed to enable employees to meet transformation goals at each stage of the transformation process
            - All personnel are fully engaged in meeting their individual goals and targets

[2] Assessment by Executive
[3] Assessment by Senior Leadership

            - Expectations for new behaviors are incorporated directly into annual performance reviews
        - Everyone can see how his or her work relates to organization's vision
        - Performance against Growth and Profit strategy goals
    - Management demonstrating desired transformation behaviors[4]:
        - Senior managers communicate openly, consistently and continuously across the organization about the transformation's progress and success
        - Leaders role-model the behavioral changes we are asking employees to make
        - Senior managers communicate openly across the organization about the transformation's implications for individuals' day-to-day work
        - The organization develops its people so that they can surpass expectations for performance
        - Managers know that their primary role is to lead and develop their teams
        - Performance evaluations hold initiative leaders accountable for their transformation contributions
        - Leaders use a consistent change story to align the organization around the transformation's goals

Measurement is about tracking progress and ensuring that you are on the right track. The most effective behavioral change metrics are primarily focused on workforce behaviors. Many of the suggested metrics above can be further decomposed into workforce level behavioral change metrics.

To be effective, the developed metrics cannot be static and must capture the lessons learned from prior transformation stages while reflecting the dynamic nature of large transformation programs. These lessons include the need to:

- Prioritize metrics (they must demonstrate success towards strategy or strategic business objectives as appropriate)
- Socialize metrics (they must be user friendly and repeated consistently)
- Measure the metrics (are they being measured, communicated and used for effect)
- Review metrics (assure continued relevance)
- Realign metrics (reflect the dynamic needs of the program)

[4] Metric from results of 360 Performance Assessment (self-assessment; peer assessment; supervisor assessment by subordinate)

About the Author

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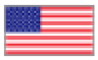

Bob Prieto is a senior executive effective in shaping and executing business strategy and a recognized leader within the infrastructure, engineering and construction industries. Currently Bob heads his own management consulting practice, Strategic Program Management LLC. He previously served as a senior vice president of Fluor, one of the largest engineering and construction companies in the world. He focuses on the development and delivery of large, complex projects worldwide and consults with owners across all market sectors in the development of programmatic delivery strategies. He is author of eight books including "Strategic Program Management", "The Giga Factor: Program Management in the Engineering and Construction Industry", "Application of Life Cycle Analysis in the Capital Assets Industry", "Capital Efficiency: Pull All the Levers" and, most recently, "Theory of Management of Large Complex Projects" published by the Construction Management Association of America (CMAA) as well as over 600 other papers and presentations.

Bob is a non-executive director of Cardno (ASX) and an Independent Member of the Shareholder Committee of Mott MacDonald. He serves on the Millennium Challenge Corporation Advisory Board and a member of the ASCE Industry Leaders Council, National Academy of Construction, a Fellow of the Construction Management Association of America and member of several university departmental and campus advisory boards. Bob served until 2006 as a U.S. presidential appointee to the Asia Pacific Economic Cooperation (APEC) Business Advisory Council (ABAC), working with U.S. and Asia-Pacific business leaders to shape the framework for trade and economic growth. He had previously served as both as Chairman of the Engineering and Construction Governors of the World Economic Forum and co-chair of the infrastructure task force formed after September 11th by the New York City Chamber of Commerce. Previously, he served as Chairman at Parsons Brinckerhoff (PB).

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