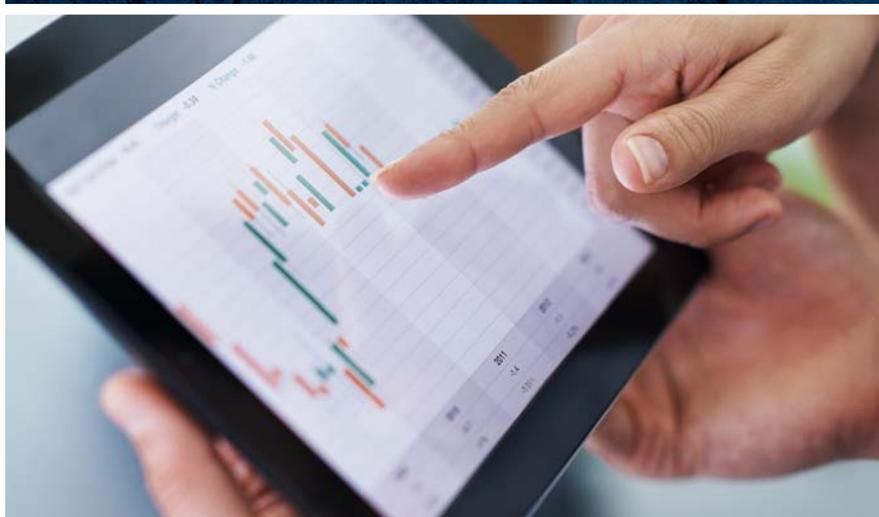


A dark, blue-tinted background image of a construction site featuring a large excavator. The scene is dimly lit, with some structural elements visible.

**F T I**  
CONSULTING™

# The Value of Statistical Analytics for Capital Project Management

EXPERTS WITH **IMPACT**



# The Value of Statistical Analytics for Capital Project Management

## INTRODUCTION

Consider the following questions for your organization:

- What is the value of a 3% improvement in cost performance for your organization?
- How would you benefit from knowing the top 3 reasons your projects succeed or fail?
- How valuable would it be to know exactly how to improve your estimating assumptions?
- How would your management practices and forecasting change if you knew which variables were leading indicators of project performance?
- Would you be surprised if you were shown new KPIs that better predicted performance?
- How would you use the knowledge that specific contractors, vendors, PMs, etc., were reliably linked to desired or undesired project performance?

Answers to these types of fundamental project management performance questions are realistic expectations when data science experts analyze your organization's existing data using Statistical Analytics ("Analytics"). And through a combination of industry and project management expertise with data science best practices, results are proven to be reliable, beyond coincidence, and relevant for your management teams. Single proof-of-concept projects or turnkey entry packages are both smart entry points for organizations new to Analytics, and the resulting model results typically reveal additional high-value analyses that organizations should seriously consider. If your organization is new to Analytics or unsure how to take the next step, start by asking the questions "How do we improve performance of ..." or "How can we predict the result of ..." and then enlist an Analytics professional to build and interpret the statistical models that answer your questions.

## PMO ANALYTICS ADOPTION

Analytics is rapidly changing the way PMOs operate, and if your organization has not yet felt the impact, it soon will. Gartner predicts "by 2030, 80 percent of the work of today's project management discipline will be eliminated as artificial intelligence takes on traditional PM functions."<sup>1</sup> The Analytics revolution, including AI, will not be stopped, and organizations need to embrace the changes now or risk falling farther and farther behind competitors. Consider that properly implemented AI makes consistently better decisions than humans<sup>2</sup> in most contexts and can do so within moments.

Given the following three categories of Analytics adoption, where does your PMO fit?

1. PMOs that currently do not understand or embrace Analytics (even though they may believe they do);
2. PMOs that have started to use Analytic modeling, but in limited capacities and/or are unsure how to fully validate and interpret models; or
3. PMOs that embrace Analytics and employ trained data science professionals to customize, validate and interpret models.

A category 1 PMO is missing the vast potential of Analytics and falling behind the status quo at an increasing rate. A category 2 PMO has begun to experience the benefits of Analytics insights but is likely using invalid models, unless a trained data science professional is consistently identifying and addressing common model deficiencies. Category 3 PMOs are well prepared to build and maintain a competitive advantage as Analytics continues to evolve.

A common reason for complacency towards embracing Analytics is the mistaken belief that data governance and quantitative analysis (e.g., advanced Excel spreadsheets, self-service BI dashboards, real-time KPIs) is the same as Analytics. Quantitative analysis and Analytics both use data to produce insights that aid in decision-making, and there are some points of overlap, but Analytics is a different specialty, wholly dependent on statistical models and capable of profoundly deeper learning and insights than non-statistical analysis can perform. Many automated statistical modeling programs are available, but beware that for reliable models and interpretation of results, there is no substitute for models customized and validated by data science experts.

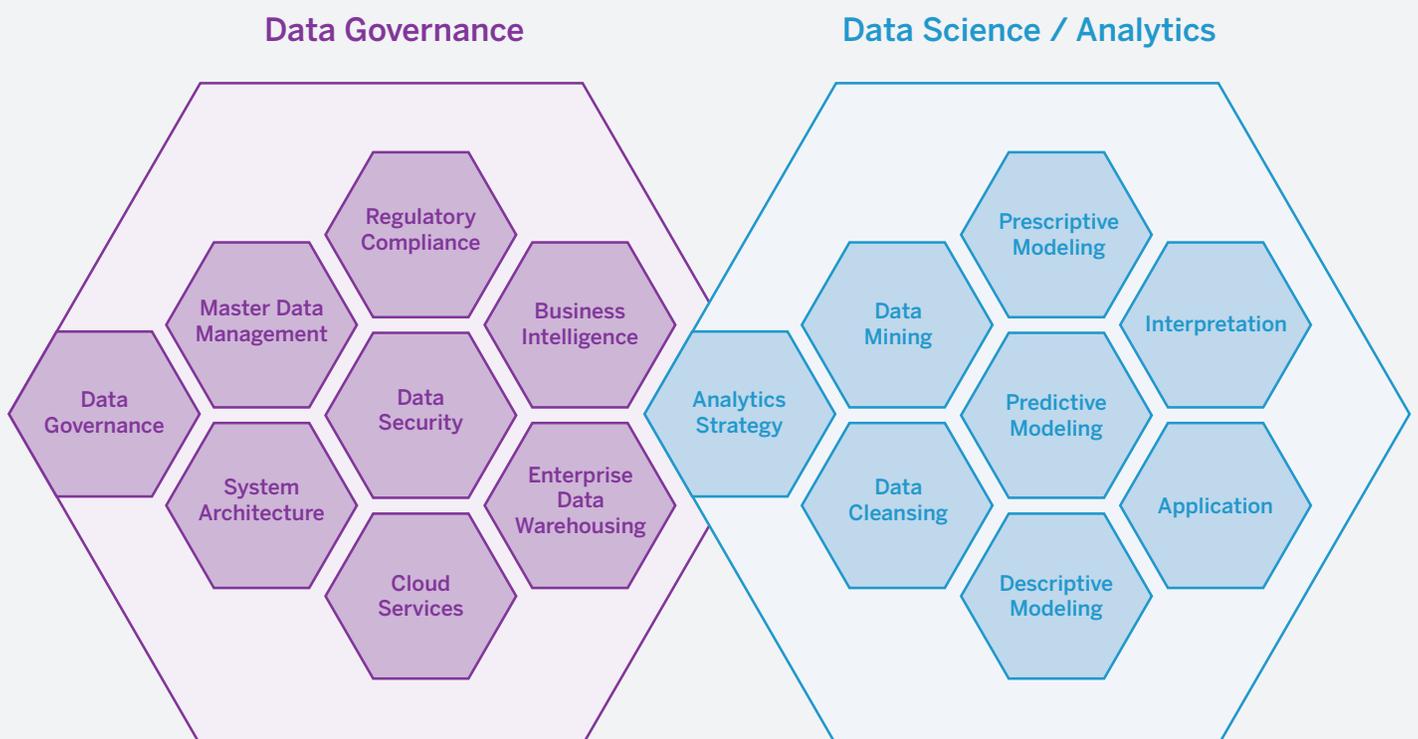
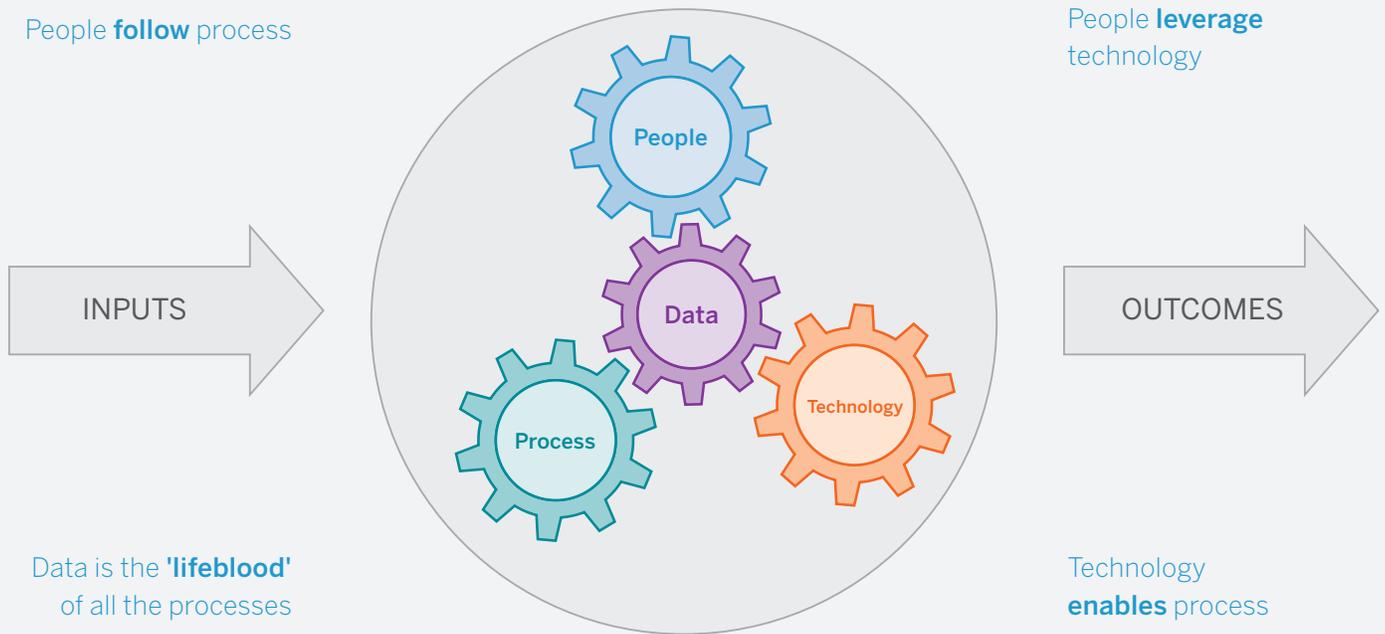


Figure 1: Data Governance vs. Data Science

## PEOPLE, PROCESS, TECHNOLOGY, DATA



**Figure 2:** People, Process, Technology, Data

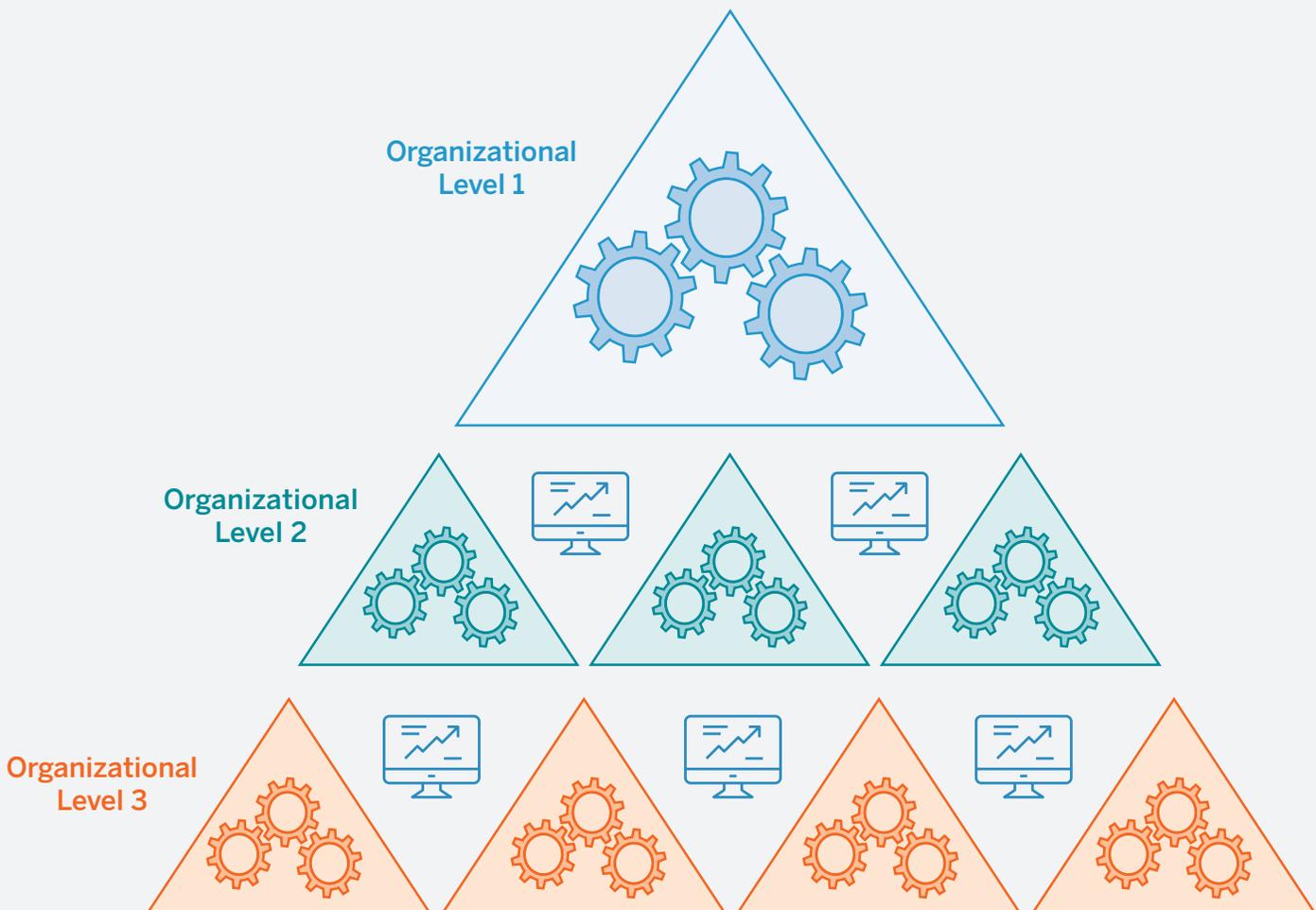
Analytics upscales the project management ecosystem of people, process, and technology. By identifying and quantifying what truly matters for performance, Analytics makes people better informed, process leaner, and technology more targeted. Analytics enables an organization to understand and improve itself using insights that were cost prohibitive before advancements in computing power and statistical tools. This ongoing evolution means the characteristics of Analytics-driven organizations will increasingly be distinguished from those of organizations that fall behind. For capital project management, this means Analytics-driven organizations will make faster, better-informed decisions, and then understand the impacts of those decisions in a continuously improving cycle.

The rate of data growth also makes Analytics a game changing advancement for organizations. A recent DELL EMC study found the average amount of data managed by a typical organization grew 569% from 2016 to 2018<sup>3</sup>. The status quo is changing, and Analytics is needed to ensure people, process, and technology are increasingly competitive in the unavoidable world of exponentially increasing data.

## THINKING BIGGER – THE KPI PYRAMID

As statistical models are built to answer ongoing business questions, a PMO and the broader organization begin to understand which variables are and are not statistically significant for performance throughout the various business units. The organization can and should use this insight to refine existing KPIs and develop new ones. The “KPI Pyramid” concept leverages and connects these Analytics-based KPIs throughout the various organizational levels. By performing an additional layer of statistical modeling to analyze relationships between KPIs themselves, it is possible to identify which subordinate KPIs are correlated with higher-level KPIs.

The result is an interconnected, predictive and prescriptive model of the organization’s “clockwork” of actions and reactions, based on the metrics and variables (KPIs) that have been proven to be statistically significant. Comprehensive, organization-wide optimization modeling can occur at this point. This model may also serve to prove or disprove the importance of legacy KPIs.



**Figure 3:** The KPI Pyramid

## LEVERAGING YOUR POTENTIAL

FTI's Asset Lifecycle Management group has partnered its Data Intelligence Group (DIG)'s statistical Analytics with management consulting and EPPM software implementation to help organizations establish and grow their competitive edge. The result is advanced, innovative solutions for improving capital project portfolio management and the entire asset lifecycle process.

From where your organization is today to where you dream it can be, FTI's Asset Lifecycle Management with DIG Statistical Analytics can help make it a reality.

## REFERENCES

<sup>1,2</sup>Weldon, D. (2019, March 21). Artificial intelligence seen taking over most project management functions. Retrieved March 29, 2019 from: <https://www.information-management.com/news/artificial-intelligence-seen-taking-over-most-project-management-functions>

<sup>3</sup>Violino, B. (2019, April 10). Typical data workloads increased by 569% over past two years. Retrieved April 10, 2019 from: <https://www.information-management.com/news/typical-data-workloads-increased-by-569-over-past-two-years>

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FTI Consulting's Asset Lifecycle Management (ALM) practice streamlines the construction, maintenance, operations and retirement of your assets, helping to deliver optimal lifecycle return on investment. Our seasoned professionals, well-proven processes, and state-of-the-art tools and technology optimize performance, reduce risk and improve collaboration among stakeholders across countless industries. We advise owner/operators, equity partners and EPC firms on the diverse challenges faced throughout the ALM process.

## ABOUT THE AUTHOR



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Chris Phelan is a Director in FTI Consulting's Asset Lifecycle Management practice. Chris specializes in leading full-spectrum data-maturity initiatives resulting in advanced statistical analytic insights. From capability and maturity assessments to advanced, custom prescriptive analytics and machine learning solutions, he excels in digital platform design, business unit alignment, EPPM implementation, process and procedure development, data warehousing, business intelligence, data science solutions, and the technical trainings and continuous improvement required for expansive organizational change initiatives. Chris is a seasoned professional leading projects and programs in multiple industries, and currently focuses on big data statistical analytics, data governance, system integrations, and Lean Six Sigma Continuous Improvements for Fortune 500 companies.



## EXPERTS WITH IMPACT

### About FTI Consulting

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