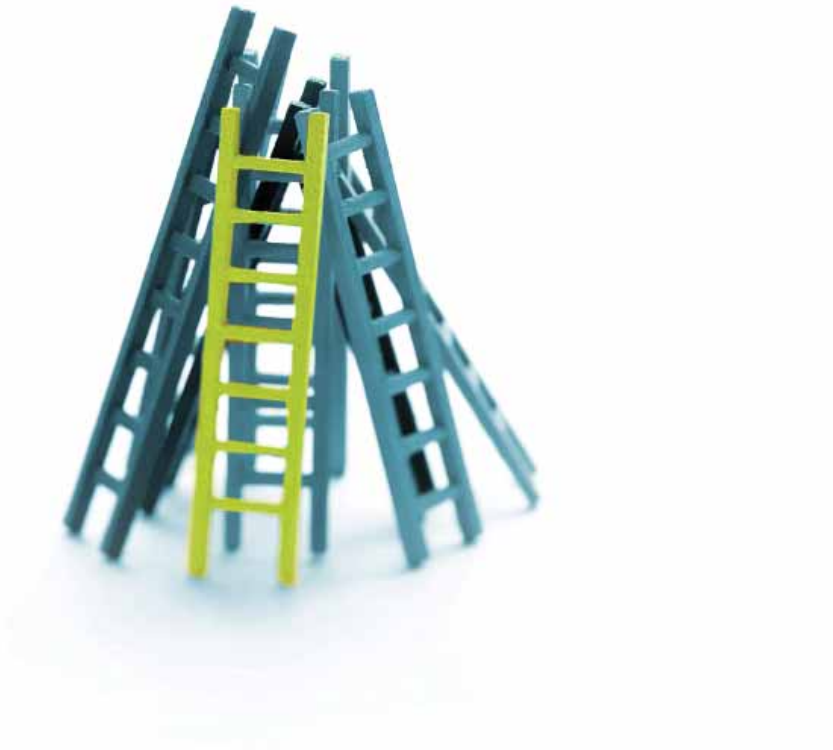**Deloitte.**

Get out of your analytics comfort zone

Unconventional approaches to predicting project outcomes

Turn insight
into foresight

The growing complexity of global business has raised the stakes at every level. With access to an unprecedented wealth of potentially valuable information, decision makers rely on powerful tools to uncover hidden patterns that may otherwise go undetected.

Currently, most companies use analytics in hindsight, measuring and interpreting past performance. To remain competitive, however, they are now investing in analytics infrastructure and tools that not only improve insight, but provide foresight into financial, economic, environmental and market information.

The goal is to make more informed and responsive decisions. At the same time, stakeholders and regulators are demanding deeper insight into risk and exposure in many industries, challenges predictive analytics can also address.

Research shows that while 74% of enterprises either used analytics or were planning to implement them in 2010, only 31% used predictive analytics[1]. While "after the-fact" analytics can provide valuable information, companies are missing out on the opportunity to use data at the start of new endeavours to predict future outcomes. In fact, adding foresight to hindsight through predictive analytics can help overcome the analytical shortcomings of many traditional processes and tools.

Getting out of your comfort zone and using analytics in new ways to predict future outcomes can help your company mitigate several key risk areas and reduce the possibility of complete project failure. Done right – and throughout a project – predictive analytics can help organizations make decisions more accurately, objectively and economically to ensure future success.

Predictive analytics = Hindsight + Insight + Foresight

Projects

in peril

Q Do companies still need to improve project success rates?

Companies continue to undertake transformational projects without having proper processes and measures in place to predict outcomes. Most companies understand that, to grow and implement their business strategies, they need to undertake transformational projects. However, despite their inherent strategic importance, these projects frequently result in cost overruns, run late or fail entirely. Research shows that the more complex the project, the greater the likelihood of failure. In fact, projects between $1 million and $3 million have a 34% chance of success, while those that are $10 million or greater have just a 7% likelihood of success[2]. Moreover, projects that are completed often fail to meet the scope, time, budget or quality requirements originally set out. Based on a study of 5,500 information technology (IT) projects, 43% of IT projects were not completed on time and the average schedule variance was 21%; while 33% of IT projects were not completed on budget and the average budget variance was 14%[3]. In light of these risks, organizations are starting to pay closer attention to project success rates. They're getting serious about improving performance – particularly as they begin to reap the associated rewards.

Despite this goal, many companies still do not analyze historical project performance or leverage available data to predict outcomes for current projects. The key is to understand not only why your projects are failing, but whether your current and future projects will be successful.

Research illustrates that in 2010:

21% of projects were cancelled prior to being delivered or were never used

37% of all projects succeeded in delivering the required functionality on time and on budget

46% of projects were over budget

63% of projects were challenged

71% of projects were delivered late[4]

A Yes. While project failure rates have improved, two-thirds of projects still don't deliver the planned benefits, leading to failed strategies at the corporate level.

Q What are the drivers of project failure?

Project failure drivers have common elements, such as project complexity and risk management, in addition to specific drivers by project type and industry.
The chart below depicts common measures of project success, such as cost, and the main executing domains for that area that can drive project failure if not properly managed, including business, delivery, governance, leadership, resourcing, risk and contracting.

Figure 1: Factors that drive project failures based on measures of success

Legend: Business, Delivery, Governance, Leadership, Resourcing, Risk, Contracting

X-axis: Cost impacting factors, Time impacting factors, Quality impacting factors, Benefits impacting factors, Overall impacting factors

Project complexity and risk management are common and predictable project failure drivers.
Despite the inherent complexity of large projects, insufficient time is devoted to risk management until a risk becomes an issue. During the early stages of most projects, potential risks are identified but are not mitigated appropriately. As the project progresses and risks become issues, teams scramble to build mitigation and remediation strategies but do not consistently consider the impact to either the project phase or the project as a whole. The reasons for project failure are diverse, ranging from poorly-defined requirements, lack of access to specialist resources and competing priorities. Whatever the cause, the impacts include significant unforeseen costs, operational failures, regulatory non-compliance, customer dissatisfaction and loss of competitive advantage. These affect not only the project manager, but also the executive sponsors, senior management teams and boards of directors. Predictive analytics can be used to proactively identify emerging risk trends before they affect the project.

Organizations that go through post-merger integration activities fall on the high end of the complexity spectrum since those activities affect most business functions, assets and employees.
Organizations that take on large scale projects or complex system implementation projects operate within boundaries that help manage and limit scope. With post-merger integration projects, the project scope could be the entire company or groups of business units, elevating the challenges and associated risks. Various studies analyze senior management views and experiences with post-

merger integration projects. Success rates range from as low as 20% to as high as 78%. This wide range could be a function of how the management team views success. Influencing factors include definitions of success and expected time horizon for capturing synergies benefits and achieving cost reductions. The inherent limitations of not using standardized surveys among the studies may also contribute to the wide range of post-merger integration project success results.

Several industry sectors experience higher project failure levels due to industry-specific risk factors.

Project failure can negatively affect many industries, such as technology, health and finance. To mitigate their potential severity, leading organizations are searching for new ways to keep their projects on track. The table below outlines common project challenges by industry.

Predictive analytics can be used to test and identify the predictors for common challenges and warn project teams and sponsors that those challenges are emerging in their projects.

Figure 2: Typical project failure drivers in various industries

Technology sector	Human change management not considered
	Reliance on people to complete unfamiliar work
	Lack of established methodologies to rely upon

Financial / banking sector	Rapid response to always changing business needs
	Increasing regulations
	Volatile financial landscape

Health sector	Resistance to change in the industry
	Sensitivity of projects as they relate to patient care
	Conflicting priorities

Public sector	Stewardship
	Value for money
	Conflicting priorities

Energy & resources sector	Resource constraints (appropriately skilled & retention)
	Regulatory & legal compliance requirements & constraints
	Aggressive cost / scope targets

A
Project failure drivers range from common factors to industry-specific factors – all of which can be predicted through analysis of similar successful projects and their practices.

Q

Why aren't companies applying predictive analytics to predict project outcomes?

There are a number of challenges to applying predictive analytics and predicting project outcomes. For one, analytics implementations have largely focused on operational data that is seen as more predictable and stable, so organizations have been wary of project applications from the beginning.

Further challenges include:

- **Project data** is not standardized across many organizations, making it difficult to identify the best usable data, and even more difficult to compare against similar projects because relevant data rarely exists.
- **Project status reports** are not derived from controlled project information system data.
- **Project data accuracy** cannot be confirmed or verified easily.
- **Resistance** within the organization hampers using past projects to predict current project success.

To effectively apply analytics to projects, you need to overcome the challenges of inconsistent project data, and that requires changing the organizational view of analytics. Currently, project data is the result of pre-defined metrics and various project execution processes and practices. Little attention is paid to ensuring those processes and practices will yield insights. As such, applying predictive analytics to predict outcomes requires other measures and alternative project success predictors. Organizations must focus on applying processes and practices relative to industry standards and project management methodologies to gather consistent, relevant usable data. This will allow them to examine current projects for evidence of successful project practices.

Insanity: doing the same thing over and over again and expecting different results.

Albert Einstein

Benchmarking projects provides you with the data to identify trends and derive foresight from predictive analytics. At the same time, it instils good project management practices, controls and governance.

In the short term, benchmarking your projects and using this data to predict outcomes will improve project success rates, increase benefits realization, achieve corporate strategies and drive transformational activities.

In the long-term, organizations will also be able to:

- **Improve** organizational learning, as the analysis of past project data allows you to identify where project controls are lacking or where too many controls are in place
- **Benchmark** projects to identify trends and instil good project management practices
- **Quantify** qualitative data and provide objective, measureable information to help make decisions, a process that will also improve project management maturity across an organization
- **Gain** a competitive advantage, as predictive analytics allows your company to implement strategy through effective project execution

Companies that use predictive analytics find that their overall required governance effort is reduced; they save money and have quantifiable metrics to justify decisions. They also gain a greater understanding of their data and increase their ability to predict future events. Overall, analytics can improve project consistencies and efficiencies, save money and identify failure areas.

Once you develop a large enough project data sample, or have a comparable knowledge base of similar projects from outside the organization, you can begin to see the point where performance impacts set in—this is known as the performance cliff. It's the point where, as projects get increasingly complex, organizations struggle to perform well. Understanding your organization's performance cliff can help you increase overall project success by focusing on projects that have a complexity past the performance cliff.

Not using predictive analytics risks your competitive advantage as you may continue making the same project mistakes and failing to achieve maximum project benefits. It also affects your ability to successfully implement strategy. Using analytics, on the other hand, provides insight into where you are not performing – without it, raising the bar for project success will be difficult.

Figure 3: Identify your organization's performance cliff
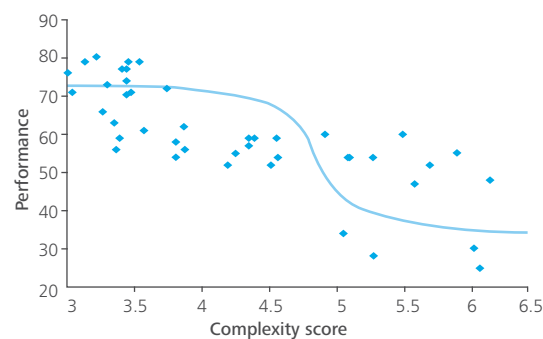
Organizations must change their view of analytics to predict project outcomes. They need to consider comparative techniques based on what makes a project successful in execution vs. traditional project metrics, such as schedule, cost variance and percent complete measures.

Improve project performance to increase your likelihood of success

Most organizations have one or multiple project management offices (PMOs) operating with various levels of authority and detail.

The PMO as an organizational structure first evolved to provide status reporting and consistent project information to management, particularly as organizations moved from a departmental organization to a matrix and project-based structure. Organizations planning to leverage predictive analytics for projects must now look to the PMO as the organization responsible for collecting, analyzing and predicting project outcomes. The PMO is well positioned for this role and can incorporate it into

the portfolio planning, reporting and risk management services they typically provide. The challenge for PMOs is transforming from a reporting, supporting function to a strategic advising function. A paradigm shift is required across the entire project management community to move project status reporting from historical status reporting to predictive monitoring and analysis. Organizations that accomplish this will see increased goal achievement and fewer project failures.

To get started:

1	**Identity owner**	• Find the appropriate resource to lead the predictive project analytics across the company; usually this should be the executive who has the most to gain from improved project performance. • This will ensure that project performance stays a top priority within your organization.
2	**Develop strategy**	• Develop a predictive project analytics strategy, including a governance strategy.
3	**Chose a set of analytical tools**	• Immediately take stock of existing project data and analytical tools • Choose a set of analytical tools to support the shift towards predictive project analytics across your organization
4	**Develop the supporting processes**	• The PMO helps develops news way to process and organize data to support these analytical tools • Create a project performance committee that includes various representatives from the organization. By engaging business, technology and management leaders (including HR, legal services, etc.), you will gain a better understanding of your internal and external project expectations and risks
5	**Develop trust and buy-in**	• Implement the predictive project analytics program by starting with a focused initiative. • As the initiative produces results, communicate benefits to those within the organization to allow the program to change from the business, IT and external business partners • Educate those within the organization on the importance of the program and their role within it.
6	**Continually evovle**	• After development of the program, the project perfromance committee should meet regularly to ensure current projects, as well as new projects are properly governed and incorporated into the predictive project analytics program.

Case study

Predictive analytics could have helped senior management take corrective action to unlock mergers & acquisitions transaction value.

Analytical studies of the world's largest post-merger integration database identified 35 risk factors as statistically significant. By applying these risk factors to the planning and execution of post-merger integration projects, organizations can minimize risks and improve their odds of success.

Post-merger integration projects are inherently complex and tend to span several business cycles. The level of change and uncertainty is high, and in some cases, additional acquisitions are introduced to the organization before the post-merger integration projects from prior acquisitions are completed. To help alleviate these complexities, predictive analytics can be applied to post-merger integration projects as a health check assessment during the planning and execution phases. It can also provide management with meaningful insights into project risks that require immediate attention.

A large car manufacturer merger provides a well-known example of a failed M&A initiative. Using predictive analytics, the companies could have objectively alerted senior management to serious potential risks affecting various post-merger integration projects. These issues, in fact, ultimately scuttled the overall success of the merger. Based on public knowledge, the following regressive analysis looks at why the merger failed and outlines insights that predictive analytics could have brought to management to improve the probability of success.

Predictive analytics can clearly identify project areas where additional attention is required. However, the willingness and commitment of senior management to address those areas will be the true test of its long-term value as a project risk management application.

Integration challenges	Use of predictive analytics to assess post-merger integration projects	Corrective actions management could have taken to improve project success
Over-estimated synergies that never materialized (e.g., plans to share technology among all cars did not work as originally planned)	**Assumption management** – Examines the nature and extent of assumptions made and the approach used to manage these assumptions	**By identifying the assumption** related to synergies early on, predictive analytics could recommend stronger management through the implementation of rigorous assumptions tracking, impact modeling, testing and review
Two different companies from different countries with different languages, styles and cultures (e.g., conservative vs. risk taking)	**Project team familiarity** – Considers the degree to which a project team has worked together before and shares common ways of working	**By identifying the culture differences** early on, predictive analytics could recommend a full stakeholder scan, a stakeholder management strategy and agreed-upon plans for project execution, including communication protocols and roles and responsibilities
The relationship between the two parties lacked commitment and alignment of objectives. For example: • Organization saw the merger as only temporary and behaved as such • The merger was announced as a merger of equals, however the organization exerted more influence • Executives did not see eye-to-eye on the products they each produced	**Executive sponsor alignment** – Assesses how well project sponsors are aligned to the scope and objective of the project	**By identifying differences** in the level of commitment, predictive analytics could recommend more rigorous validation of project objectives and activities with project sponsors, and regular monitoring of how well these objectives were being met
The merger lacked vision, leadership and strategic direction	**Level of executive involvement** – Considers the degree to which executive sponsors are involved in setting strategy and guiding execution of the project	**By identifying that executive involvement** and overall governance was low, predictive analytics could recommend that the project have a clear vision and mission aligned with KPIs that can be monitored by leadership and communicated to all stakeholders through a comprehensive communication strategy

Take the
next step

It's time to use analytics in unconventional ways to predict future project outcomes. Implementing predictive analytics in conjunction with traditional project management measures can take your project performance to the next level. As a result, you'll be able to provide executives with the strategic foresight needed to make informed decisions and drive project success. While getting there requires involvement from all areas of your business, an evolutionary approach has proven effective for other organizations. By identifying the right resource to lead the charge, you ensure project performance remains a top organizational priority and that you're keeping pace with evolving organizational needs.

Get out of your analytics comfort zone.

You'll be amazed by the insights you'll uncover.
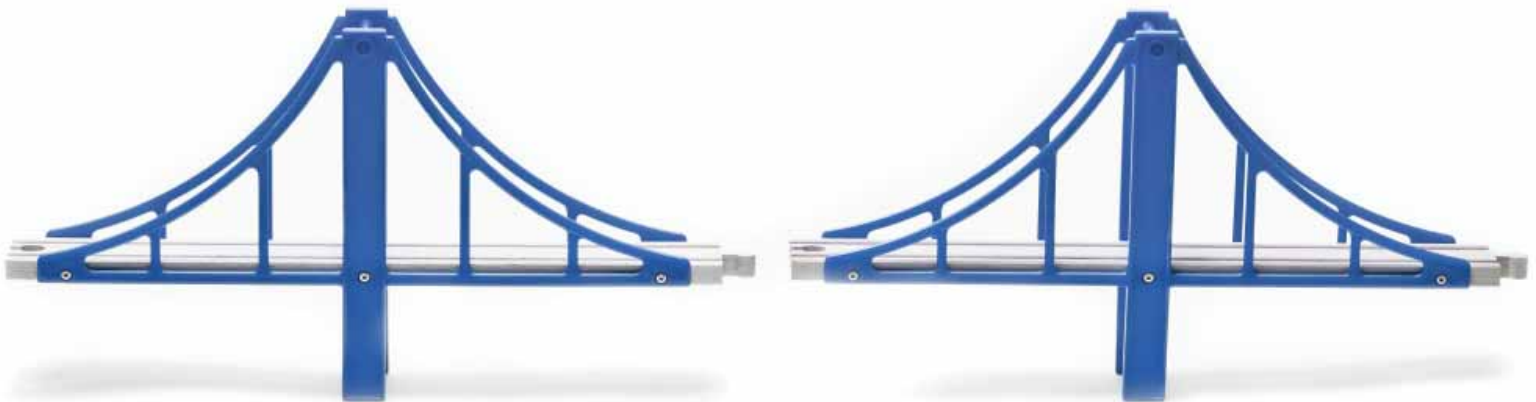
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Endnotes

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