From Complexity to Dexterity

A slew of stakeholders weighs in with divergent demands. A once very precisely defined scope slowly gets loaded down with so-called must-haves. New bleeding-edge technology doesn't quite work as expected.

In a business world that can transform in the blink of an eye, complexity is the new normal.
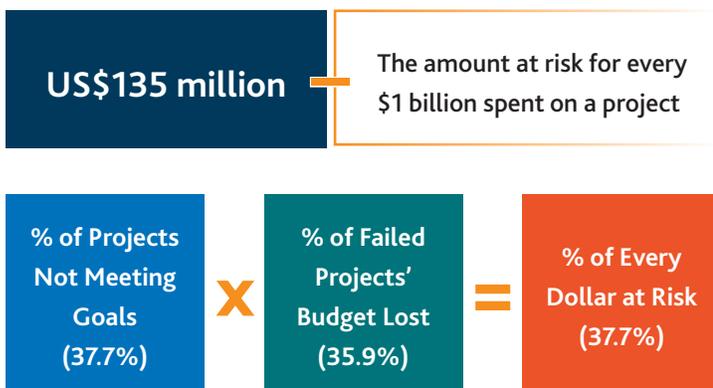
"Complexity is rarely about one thing," says Edwin Bolwerk, vice president of major projects at Vanderlande Industries, a global supplier of material-handling systems in Veghel, the Netherlands. "It's multiple items that together add risk."

To grasp just how much risk, consider the numbers: Fewer than two-thirds of all projects fail to meet their original goal and business intent, according to PMI's 2013 *Pulse of the Profession*™ report.[1] That puts US$135 million at risk for every US$1 billion spent on a project. The trend becomes all the more troubling for projects with added complexity, which, on average, have budgets nearly twice as large, according to PMI's *Pulse of the Profession*™ *In-Depth Report: Navigating Complexity*.[2]

A 2013 study by management consultants Bain & Company found that 63 percent of global executives reported that excessive complexity is raising their costs and hindering their growth.[3]

With so much on the line, organizations are scrambling to understand complexity—and how to respond.

US$135 million — The amount at risk for every $1 billion spent on a project

% of Projects Not Meeting Goals (37.7%) X % of Failed Projects' Budget Lost (35.9%) = % of Every Dollar at Risk (37.7%)

Source: PMI's 2013 Pulse fo the Profession™: The High Cost of Low Performance.

"You have to look beyond the scope, schedule and budget to consider the stakeholders involved, the number of lines of business the project touches, how many people—internal and external customers—will be impacted and how much financially is at stake," says Sandy List, PMP, program manager at Bank of America, Charlotte, North Carolina, USA. "Every one of these issues has the potential to add complexity to the project."

Complexity undoubtedly means different things to different organizations, but some common traits do emerge. In the Pulse complexity report, 57 percent of respondents report multiple stakeholders as complexity's defining characteristic. Ambiguity comes in at a close second.

Multiple stakeholders	**57%**
Ambiguity of project features, resources, phases, etc.	**48%**
Significant political/authority influences	**35%**
Unknown project features, resources, phases, etc.	**33%**
Dynamic (changing) project governance	**29%**
Significant external influences	**28%**
Use of a technology that is new to the organization	**26%**
Use of a technology that has not yet been fully developed	**25%**
Significant internal interpersonal or social influences	**23%**
Highly regulated environment	**18%**
Project duration exceeds the cycle of relevant technologies	**10%**

Source: PMI's 2013 Pulse fo the Profession™ In-Depth Report: Navigating Complexity.

Both are simply facts of life, and the most forward-thinking organizations find ways to turn complexity into dexterity.

One of the most effective ways for organizations to navigate complexity is to get stakeholders to agree on clear strategic end goals at the very start, says Ben Soccorsy, enterprise program leader at PMI Global Executive Council member Wells Fargo, a financial services company in San Francisco, California, USA.

"The more clarity stakeholders establish up front about exactly what the project needs to do, the better chance you will have to eliminate complexity," he says. "When you lack a crisp vision, you get ambiguity, and that allows complexity to creep in."

The risk is clear: Poorly defined objectives rank among the top three reasons for project failure, according to a 2012 PwC survey.[4]

Identifying complexity from the beginning helps ensure governance and risk-mitigation measures are in place from the outset, says Iain Fraser, PMP, former chair, PMI board of directors, PMI Fellow and CEO of Project Plus, a project management consultancy in Wellington, New Zealand. "These measures would not make the complexity go away, but they will make sure the team is focused and the project is better governed and managed."

Organizations must also establish due diligence processes that provide transparency. Only then will they be able to identify the issues that drive complexity before a project is even approved or bid. From there, organizations can build an oversight structure to manage, mitigate and track the issues across the project's life cycle.

"The secret to success with complexity is to break it down into manageable parts and get the very best people involved," Mr. Fraser says. When organizations have the tools and processes as well as the right skill sets in place to get at the root cause of complexity, they're better equipped to decide whether a project or program is worth the risk, and what they need to do to manage those risks.

THE CASE FOR GOVERNANCE

Uncertainty about the future often adds complexity. The pharmaceutical business is a prime example: The industry has a success rate of about 10 in bringing a new drug to market. The trouble is, companies don't know which ones will cross the finish line.

"We are trying to predict what's going to happen 10 years from now," says Ken Jones, president and CEO, pharmaceutical firm Astellas Pharma Europe Ltd. in Surrey, England. "With respect to multimillion-euro drug-development projects, the level of ambiguity obviously increases."

Further complexity comes from the differing goals of multiple stakeholders. "Research wants to develop a new drug, commercial wants something to sell, and customers and stakeholders want a product proven safe and effective," he says.

To deal with such uncertainty and ambiguity, Astellas created a rigorous governance process that begins with key stakeholders communicating their goals and committing to a specific project plan. The team then builds a tracking structure that includes frequent progress reports, a conflict resolution process, risk-escalation steps and regular reviews to determine if the project is moving toward its original goals.

"When teams start adding extra objectives or changing the project plan, things get convoluted," Mr. Jones says. "Having a robust governance process helps prevent this scope creep and ensures that significant risks and issues are escalated in a timely manner."

Even so, projects can change with just one shift in regulations. "Remaining current can present challenges, particularly if the design of a particular clinical study has already commenced and changes to regulatory requirements occur subsequently," he explains. "Astellas remains on top of these changes and they're communicated to relevant project leads and senior regional management teams, allowing them to assess the potential impact to Astellas and the changes required to our ways of working."

Organizations have little choice but to deal with complexity, but such project management rigor helps Mr. Jones' team better control the risks and determine which projects should be fast-tracked, slowed down or killed.

CASESTUDY **COMPLEXITY IN ACTION**

Organization: Wells Fargo, San Francisco, California, USA
Industry: Financial services
Lesson Learned: Building consensus among multiple stakeholder groups helps a team deliver better results.

Enterprise program leader Ben Soccorsy learned a thing or two about dealing with multiple stakeholders during the first phase of a major website overhaul at Wells Fargo.

His team managed separate projects for each business unit, with each unit entering its product and service information into the new customer portal. The approach satisfied individual unit stakeholders, but it added time, cost and complexity to the project, he says. And in the end, the deliverable lacked cohesion.

So when Mr. Soccorsy's team launched the second phase of the project, it took a different route. "We did 2.0 all at once, unifying stakeholders and business units to deliver the upgrade as a single project," he says.

The new tactic made better use of human and financial resources, allowing the team to accelerate the delivery date. It also cut the budget by more than half of what it would have cost to run individual smaller projects.

But to pull off the new process, Mr. Soccorsy needed stakeholders to use a project template that would create roughly the same interface for each division. They also had to agree to share overhead and resources, and participate as a group in decision-making.

To secure their buy-in, his team made presentations to each division leader, explaining the benefits of the unified approach and demonstrating how using a template would create a consistent customer experience.

"Getting alignment across the organization required a lot more activity in the early stages," he says.

The payoff: The revamped site launched on time and on budget in December 2012.

"We traded one kind of complexity for another, but it was the right trade-off," Mr. Soccorsy says. "We did what was best for the organization and the customers, instead of what was easiest for the project team."

PART OF THE ORGANIZATIONAL DNA

To turn complexity to their advantage, organizations must invest the time and money to build a strong project management culture. The Pulse complexity report found that high-performing organizations—those that achieve 80 percent or more of projects on time, on budget and meeting original goals—are far more likely to use key project management practices than low performers, those that achieve 60 percent or fewer projects on time, on budget and meeting original goals. Those practices include risk management (81 percent versus 51 percent), project performance measures (80 percent versus 57 percent), program management (80 percent versus 48 percent) and project portfolio management (76 percent versus 39 percent).

Project Management Techniques, Methods and Practices, and Maturity	High Performers	Low Performers
	Percent using always or often	
Risk management practices	81%	51%
Project performance measures	80%	57%
Change management practices	76%	64%
Resource management to estimate and allocate resources	82%	51%
Program management	80%	48%
Project portfolio management	76%	39%
Agile/Incremental/Iterative project management practices	53%	24%
Mature benefits realization process	29%	3%
Mature portfolio management practices	28%	3%
High organizational agility	28%	4%
Average percent of active project sponsors	79%	43%
Organization has a PMO	78%	67%
Average percent of projects meeting goals and business intent	90%	34%

Source: PMI's 2013 Pulse fo the Profession™ In-Depth Report: Navigating Complexity.

A 2012 PwC report echoes the finding: 97 percent of respondents agree that project management is critical to business performance and organizational success. And 94 percent agree that project management enables business growth.

Responsibility for establishing a strong project management infrastructure starts at the executive suite, where leaders ensure project and program goals align with strategy, says Mr. Fraser of Project Plus.

That responsibility should then move down through a centralized function, such as a program or project management office (PMO) or a project academy, which can support and guide the team in delivering the project or program and act as a line of communication back to the top.

"This organization-wide approach, in people, policy and processes, is how organizations can deal with complexity and leads to better performance," he says.
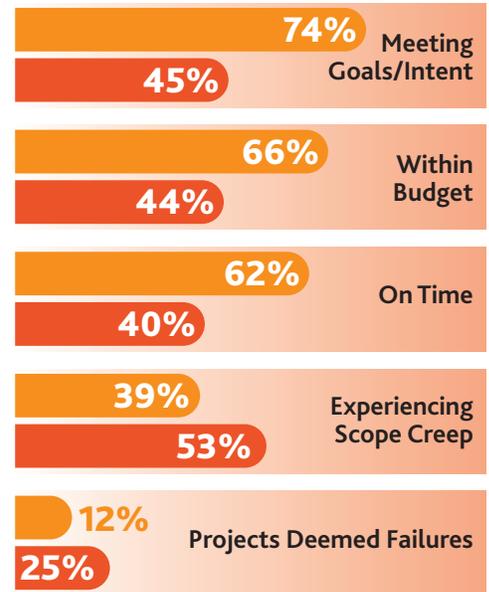
PAVING THE WAY

One of the key players in dealing with complexity is the sponsor. The Pulse complexity report found an engaged project sponsor is the most significant driver of success on a highly complex project. Nearly 80 percent of projects have active sponsors at high-performing organizations, but the number drops to only 43 percent at low-performing organizations.

"Without a good, proactive, highly engaged sponsor, a complex program can get into a hole much more readily—one which will be doubly hard to get out of," says Mike Szomjassy, president of the energy, water and facilities division at PMI Global Executive Council member CH2M Hill, an engineering and construction multinational, Atlanta, Georgia, USA.

The sponsor should be the one helping to ensure the project team is aligned to the goals of the enterprise and client. The sponsor should also communicate with "enough frequency to recognize when and where intervention is needed" and, perhaps just as important, when it's not. "The sponsor's role should be more about governance, assurance and senior client relationships than the actual delivery," says Mr. Szomjassy.

Vanderlande's Mr. Bolwerk agrees there's a fine line that should not be crossed.

"The role of the sponsor is to guide the team to acceptance by making people comfortable with what to expect, how to measure and how to ensure results. In this role the sponsor is not replacing the team, but paving their way," Mr. Bolwerk explains. "The sponsor must respect the team and understand where the complexity lies, yet not get involved, other than through the mutual verification of the process that is being followed."

	Active Sponsors 80%+	Active Sponsors <50%
Meeting Goals/Intent	74%	45%
Within Budget	66%	44%
On Time	62%	40%
Experiencing Scope Creep	39%	53%
Projects Deemed Failures	12%	25%

● 80%+ of Projects Have Active Sponsors
● <50% of Projects Have Active Sponsors

Source: PMI's 2013 Pulse fo the Profession™ In-Depth Report: Navigating Complexity.

CASE STUDY COMPLEXITY IN ACTION

Organization: Savannah River Nuclear Solutions (SRNS), Aiken, South Carolina, USA
Sector: Nuclear energy
Lesson Learned: An active project sponsor helps clarify ambiguous project features.

The Savannah River site needed a serious cleanup. Built in the 1950s, the U.S. government facility had once manufactured roughly one-third of the nation's nuclear weapons-grade plutonium and all of its tritium. The government still wanted to use the site, but the radioactive waste needed to be addressed. So Savannah River Nuclear Solutions (SRNS), which manages and operates the site, launched a US$1.4 billion cleanup project in April 2009, with PMI Global Executive Council member the U.S. Department of Energy (DoE) as sponsor.

The goal was to make 75 percent of the site clean enough to no longer require regulatory oversight. But while the team understood the project goals, the methods to achieve those goals weren't fully defined, says Paul Hunt, senior vice president of environmental management operations at SRNS.

For example, while tearing down a 50-year-old concrete building, the team discovered the concrete had hardened beyond expectations, which meant it had to bring in larger, more costly equipment. And later, in the area where it was removing radioactively contaminated soils, the team discovered the volume was more than two times what had been anticipated—which meant there was significantly more contaminated soil to be excavated and managed as radioactive waste.

From the project launch, SRNS and DoE had planned for such unknowns with a deliberate risk management process. Stakeholders from both organizations worked together with shared goals, vision and a common understanding of potential project risks, he says, and had held back contingency funds to deal with just this kind of ambiguity.

Developing that kind of understanding and alignment makes it much easier to discuss the challenges that inevitably arise when teams face the uncertainty of highly complex projects. "Because DoE stakeholders were part of the risk process, they responded more quickly, which meant we were able to address problems more efficiently," Mr. Hunt says.

SRNS delivered the eight-year project in just 45 months while reducing the site's contaminated footprint by 13 percent more than the original goal, earning recognition as a 2013 PMI Project of the Year Award finalist.

"Strong collaboration was critical to our success," he says. "It helped us deal with the pressure and handle issues without losing focus on the end result."
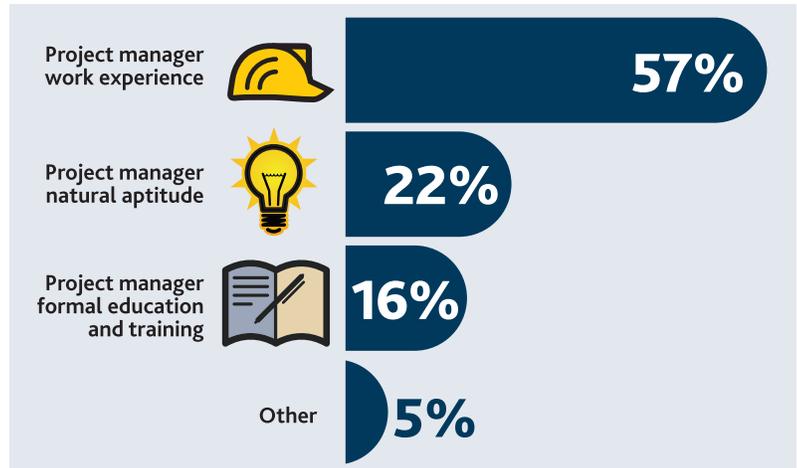
TALENT THAT CAN WALK THE TIGHTROPE

Process can only take an organization so far on highly complex projects. There must also be a pipeline of talent with the skills to navigate complexity—and that doesn't just happen by itself. Organizations must build the expertise through training, mentoring and stretch assignments. The Pulse complexity report found that 57 percent of high performers said a project practitioner's work experience is the attribute most likely to drive completion of a highly complex project.

Project leaders and their teams need training in traditional project and program management skills, including risk management, project planning and resource management, says Bank of America's Ms. List. They should know how to create a strong business case, too, she added.

Organizations must then bolster that knowledge with industry-specific skills—including in legal and regulatory issues, and market and compliance trends—along with people skills, such as leadership and communication, Ms. List explains. The Pulse complexity research show just how important effective communication is: It ranks as the top factor impacting the success of highly complex projects.

Training shouldn't be limited to books and seminars. "Classroom training is fine, but people also need exposure to real-world projects," says Vanderlande's Mr. Bolwerk. That's where project practitioners have a chance to experience the risks facing highly complex projects and hone the leadership necessary to deal with them. It's a crucial talent: The Pulse complexity report revealed, far and away, the most important skill to develop is leadership, cited by 81 percent of high-performing organizations.
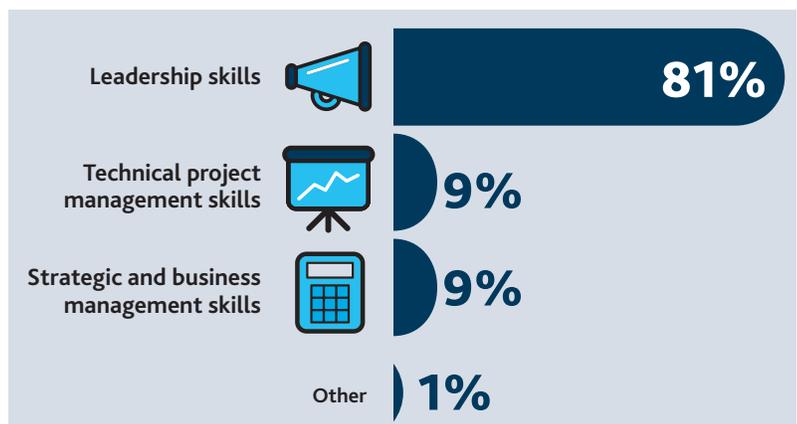
Mr. Bolwerk rotates his team members through different projects for several months at a time, exposing them to varying conditions while serving under multiple senior project managers who can show them the ropes.

Project manager work experience	57%
Project manager natural aptitude	22%
Project manager formal education and training	16%
Other	5%

Source: PMI's 2013 Pulse fo the Profession™ In-Depth Report: Navigating Complexity.

80%	Highly-effective communicators
Minimally-effective communicators	52%

Source: PMI's 2013 Pulse fo the Profession™ In-Depth Report: Navigating Complexity.

Leadership skills	81%
Technical project management skills	9%
Strategic and business management skills	9%
Other	1%

Source: PMI's 2013 Pulse fo the Profession™ In-Depth Report: Navigating Complexity.

Project leaders gain hands-on experience with complexity while the organization increases the number of project practitioners skilled at tackling such projects, he says.

CH2M Hill takes a similar approach, putting its project practitioners through a series of training programs to build core skills, and following up with mentoring and stretch assignments. "It gives us a broader pool of people who understand how to manage highly complex projects," says CH2M Hill's Mr. Szomjassy. "Their development is key to the success of our entire enterprise."

Mr. Szomjassy himself led the team for the London 2012 Olympic and Paralympic Games, dealing with layers of public and private stakeholders—all under the white-hot glare of the press. The team also had to contend with ambiguity about the final venue designs, which had to meet strict environmental goals, including a requirement to recycle 90 percent of waste material on-site.

His involvement was designed to send a message to the program's myriad stakeholders. "It demonstrates the organization puts the highest priority on program management, ensures that any issues will be addressed directly by the people with greatest authority and acknowledges through actions—not just words—that the organization's top leaders are fully invested in its success," he explains.

Under Mr. Szomjassy's leadership, the major venues and infrastructure built by the joint venture of which CH2M Hill was leading partner were completed more than a year ahead of the games and nearly £400 million under the £7 billion budget.

CASE**STUDY**   COMPLEXITY IN ACTION

Organization: Vanderlande Industries, Veghel, the Netherlands
Sector: Material-handling systems
Lesson Learned: Stakeholder communication helps mitigate the disruption sparked by new technology.

When Vanderlande Industries goes in to build and install one of its massive baggage and material-handling systems, it obviously has to tailor the system to the user environment. But the company also has to make sure all that whiz-bang technology plays nicely with everything created by third-party vendors.

Addig even greater complexity, he says, custom software requires use in live operational environments to address any software bugs not caught during in-house testing.

In February 2013, for example, the company was in the middle of a large baggage-handling installation when design challenges emerged. The technology hadn't previously been used in the manner required on the site, leaving the project substantially over budget and off schedule.

Yet the stakeholders knew the risks up front and worked with the team to pinpoint the problem. The project still ended over budget, but communication with and support from the customers helped solve the problem more quickly than if they'd haggled over who was at fault, Mr. Bolwerk says. By being transparent, Vanderlande minimized stakeholder frustrations and helped score buy-in for the solution.

Once the project was completed, the team met with the stakeholders to review the entire project and capture lessons learned. As a result, Vanderlande now sets strict criteria for defining IT customization in its bids. The company also uses past projects as examples to help customers visualize their own system needs, rather than just relying on technical specs. "When we can point to proven technology that's functioning in the world, it's easier to set boundaries for the new project," Mr. Bolwerk says.

TIPS FOR TAMING COMPLEXITY

1. **Project and program management culture comes from above.** Having engaged project sponsors is one of the main drivers for project success. They foster commitment to project and program management, participate in governance and stakeholder reviews, and invest in developing the skills and talent of their project leaders.

2. **Set a clear vision for project outcomes.** Even if project leaders and stakeholders don't know how they'll get there, setting specific goals for what the project needs to accomplish will define how decisions are made, and will prevent discord and scope creep from pulling the project off track.

3. **Break highly complex projects into manageable pieces.** Set short-term milestones that address the biggest risks up front, so the project team can determine the elements of complexity early, when problems are cheaper to solve.

4. **Establish centralized functions for oversight.** Not only does a centralized function—such as one created by a PMO or center of excellence—set guidelines and provide tools, it also acts as a go-between for project teams and leadership to ensure they remain aligned.

5. **Create a formal governance process—and follow it.** When there's insufficient governance, small problems snowball before they can be detected. Highly complex projects require diligent oversight by people empowered to make decisions to mitigate issues before they become a major problem.

6. **Invest in people.** Developing the expertise of project leaders ensures the organization has a broad pool of leaders ready to take the reins when highly complex projects arise.

7. **Communicate effectively with all stakeholders.** That includes tailoring communication to the target audience, seeking out different perspectives and ensuring project objectives are widely understood.

SUMMARY

In today's world, complexity simply cannot be avoided—so organizations go in armed with a formal project management structure, experienced leaders and the highest level of oversight from sponsors.

Developing the power to navigate complexity does more than just protect the bottom line. It can also provide a powerful competitive edge. "Projects with a lot of complexity are wonderful opportunities for the whole organization—if you can deliver them," says Mr. Szomjassy. "When that happens, it sets the stage for your organization's future."

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