DELIVERY LEADERSHIP

Are Agile Myths Costing Your Business?

By Barry L Smith

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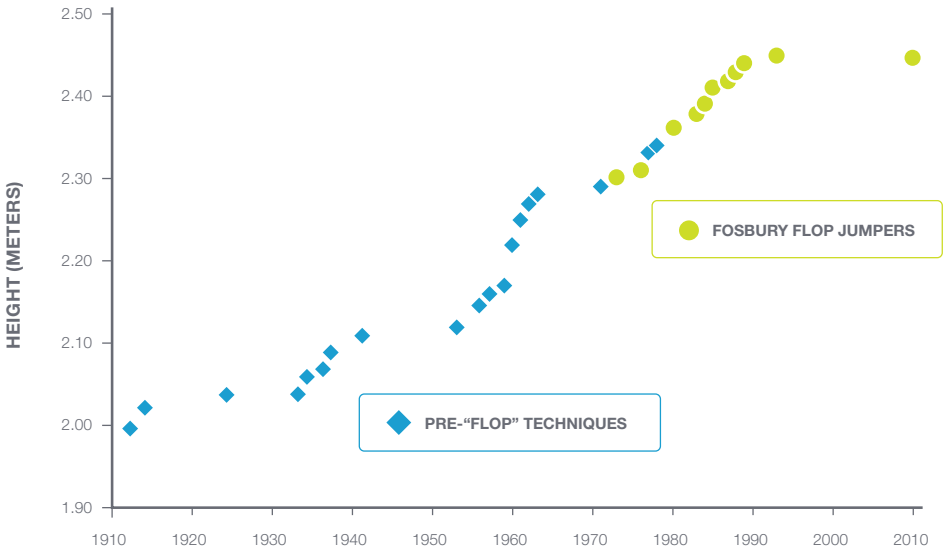
When is it time to embrace a new approach? Today, 16 years after the Agile Manifesto was published, less than half of all IT projects apply Lean/Agile software development. “Agile skeptics” recite a litany of justifications for their adherence to traditional Waterfall-style development. But if your technology strategy is still based on these misconceptions, your business is competing with a handicap. Lean/Agile methods are the industry-standard best practices, consistently delivering more business value than “traditional” SDLCs.

The history of high jumping offers an instructive analogy. In 1963 Valeriy Brumel, one of the greatest athletes to ever compete in the sport, set his sixth consecutive world record with a jump of 2.28 meters (7’ ¾”). Like almost all his contemporaries, Brumel used the “Straddle” style, then considered the peak of technical innovation.

However, prevailing wisdom didn’t keep a lanky 16-year-old in Oregon from searching for a better way. After much experimentation, Dick Fosbury found success with a radically unorthodox approach: crossing the bar head first, facing the sky, and arching his back over to a shoulder-first landing. A local newspaper likened the style to “a fish flopping in a boat,” and the Fosbury Flop was christened[1]. After he became an NCAA champion, Fosbury’s innovation was largely ignored by top-tier athletes unwilling to risk a change. But his 1968 Olympic gold medal win caught the attention of younger jumpers looking for an edge. The result? For almost four decades now, every new world record has been achieved with the Fosbury Flop.

A CENTURY OF HIGH JUMP RECORDS



Lean/Agile methods today are the software equivalent of Fosbury's breakthrough — they are proven techniques that deliver measurably better results. If your company isn't enjoying those advantages yet, isn't it past time to take the leap?

Myth, Meet Reality

If you're responsible for delivering technology solutions, it's important to understand the facts about Lean/Agile development. Sure, making a change from familiar practices is always a challenge — but don't let old misconceptions keep you from understanding the potential rewards. You owe it to yourself to know the difference between Agile myth and reality.

Let's review some of the most common myths about Lean/Agile, and see how they compare to real-world data.

MYTH #1

"Our business needs reliable forecasts, so we need to gather all the requirements and make estimates before starting development."

REALITY

This common fable is grounded in the conviction that extensive advance planning, followed by sequential stages of development, gives predictability in software projects. It's a common belief, but one that isn't supported by real-world evidence. History shows that Waterfall-based programs are inherently prone to inaccurate estimates and schedules.

- A 2012 study by McKinsey and the University of Oxford[2] analyzed over 5,400 IT projects (the large majority using non-Agile methods). The study found that, "On average, large IT projects run **45 percent over budget and 7 percent over time**, while delivering **56 percent less value than predicted.**" Even more disturbing is the incidence of "black swans" — "17 percent of IT projects go so bad that they can threaten the very existence of the company."

- In 2011, a similar Gartner study surveyed IT initiatives at 150 large companies across five countries[3]. These companies reported frequent and costly project failures. Smaller projects (< $350K) failed at a 20% rate; medium projects ($350K - $1M) at 25%; while **$1+ million projects failed an appalling 28% of the time.**

- Over the last 20 years, the Standish Group has conducted annual surveys of IT projects. Back in 1995 their research found that "… a staggering 31.1% of projects will be cancelled before they ever get completed. Further results indicate **52.7% of projects will cost 189% of their original estimates…** On the success side, the average is **only 16.2% for software projects that are completed on-time and on-budget.**"[4] Fast-forward twenty years and the results are no better; in 2015, their review of thousands of Waterfall-driven projects concluded that **only 11% were considered successful.**[5]

Decades of experience and thousands of software projects have shown us that delays, disappointments, excessive costs and outright failures are the norm for Waterfall development.

MYTH #2

"You can't say Waterfall doesn't work – it's been used successfully for decades!"

REALITY

It's true that classical software engineering — based on forward planning and sequential workflows — *may* deliver functional, high-quality code. However, it does so at consistently greater cost and higher risk than Lean/Agile approaches. These problems are well illustrated by two taxpayer-funded examples:

- **The cost of quality:** By the early 2000s, NASA projects applying traditional software engineering were achieving some of the lowest defect rates ever reported. Their measurements of .004 bugs per thousand lines of code (KLOC) were a remarkable 99.9% lower than industry average. However, high quality came at a very high cost. NASA estimated its development expenses were **at least 150 times higher** than for typical commercial software.[6]

- **The risk of failure:** One of the biggest drawbacks to traditional "big bang" Waterfall delivery was illustrated in 2012, when the U.S. Air Force abandoned the effort to modernize its logistics systems by transitioning to an Oracle-based ERP system. Even though the project didn't involve writing any new software, the huge Waterfall-style implementation led the USAF **to spend $1 billion over 6 years, without gaining any usable result.**[7] As a direct consequence of that failure, the Air Force moved to a hybrid Agile/CMMI "AFSC Way" to reduce risk on all its software projects.[8]

While no methodology can eliminate all project risks (yet), every objective analysis of Lean/Agile approaches has shown they produce better results than Waterfall.

- In its 2015 *CHAOS* Report, Standish Group segmented its database of over 10,000 software projects to compare Waterfall and Agile approaches. Their data showed that Agile-based projects outperformed Waterfall on projects of every size, with the most pronounced advantage on the largest projects. By SG's rigorous definition of "success", most large projects are still challenged, but **Agile projects demonstrated 6 times the success rate of their Waterfall equivalents.**

Like most myths, the "Waterfall works!" mantra contains a grain of truth. What most businesses find more important, though, is "What works **best**?" For software development, the answer is clear.

MYTH #3

"Agile is fine for a few small project teams, but won't work at a large enterprise like ours."

REALITY

It's a popular misconception that Lean/Agile is suitable when only a few teams are involved, but doesn't scale for big business. In fact, the larger the enterprise and its projects, the more it gains by abandoning Waterfall in favor of Agile. As illustrative examples, consider:

- Not many companies operate on a larger scale than British Telecom (BT). Active in 119 countries, BT relies on a 3,000-person development organization to keep its global systems competitive. Until 2004, most

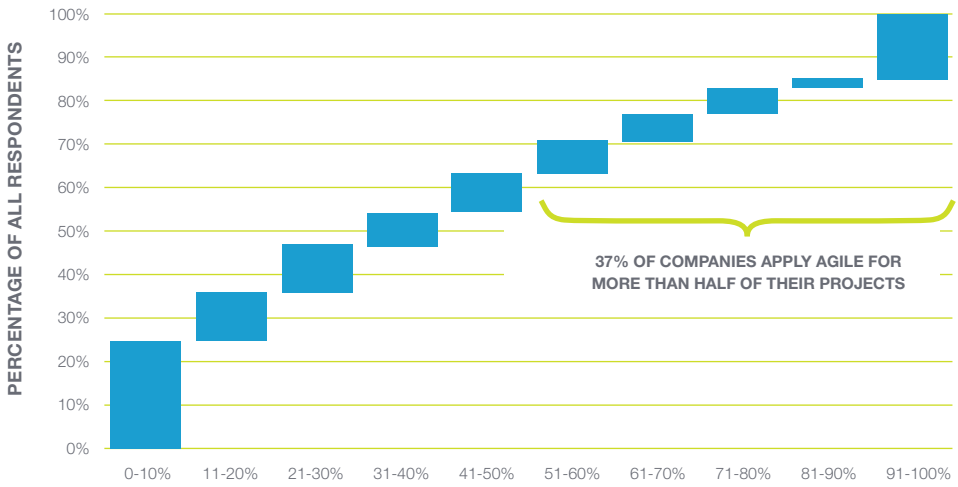
software projects were developed with Waterfall processes. With projects taking 18 months or longer to be delivered, BT's new CIO realized that a significant change was needed. **In 2005 the entire IT group transitioned to Agile practices and 90-day release cycles.** BT has since seen dramatic improvements in product quality and its ability to respond to customer demand.[9]

- In 20 years, Quicken Loans has grown from a small mortgage provider into the largest online lender in in the U.S., closing $220 billion in mortgages in 2013-2015. The firm's ability to differentiate itself in a crowded market is largely attributed to its commitment to build core financial systems in-house rather than using off-the-shelf solutions. For the IT staff of almost 1,200 — about 8% of the total workforce — "innovation" is a daily mandate, and Agile development is key to their execution.[10] The result is a winner for both customers and employees: Quicken Loans has topped J.D. Power's Customer Satisfaction ratings for seven straight years and Computerworld has crowned it "Best Place to Work in IT" every year since 2005.

To be clear, it isn't only a few brave pioneers that are reaping the benefits of Agile. A 2016 survey by Hewlett Packard and Projects at Work reports that **Agile approaches have become predominant in almost 40% of IT organizations.**[11] That finding is reinforced by the *2015 State of Scrum Report*, in which 47% of survey respondents reported Scrum was applied in at least half their projects.[12]

AGILE ADOPTION IS BECOMING MAINSTREAM

Source: 2016 Hewlett Packard / Projects at Work survey



*WHAT PERCENTAGE OF YOUR ORGANIZATION'S PROJECTS ARE CURRENTLY MANAGED USING AGILE?"

MYTH #4

"Agile may be fine for software startups that can take a risk. As a publicly-owned company, we need to stick with a tried-and-true SDLC."

REALITY

Companies that successfully transition to Lean/Agile tech development are unanimous in reporting improvements in cost, quality and time to market regardless of industry. For shareholders, that translates to competitive advantage and higher returns.

- Royal Philips NV, a global leader in medical technology with a market capitalization of $28 billion, faces constant pressure to meet seemingly contradictory goals. On the one hand, it needs to develop complex new products as rapidly as possible. Yet given the reliability and safety demands of healthcare, its devices and software must meet extremely high quality standards. In 2014, Royal Philips began a company-wide shift to Agile software development based on Scrum and the Scaled Agile Framework (SAFe®). It was a major effort. **By the end of 2016, over 3,700 people in more than 40 groups were active in SAFe development.**[13] The results show the effort was well worth it:
  - » Average time for major releases dropped 67%
  - » Feature cycle times were reduced from 240+ days to less than 100 days
  - » Quality improved overall, with some divisions reaching zero regression defects
  - » Business units can now plan on 5 major releases per year, driving increased customer focus and responsiveness
- *"What's in your wallet?"* Capital One is well known for its tagline, but less recognized as a leader in Agile IT. Prior to the acquisition of ING Direct in 2012, Capital One's IT group followed traditional practices and relied on vendors for most of its technology. But as the new head of Card IT, Rudy

Wolfs (one of ING's founders) understood the potential competitive advantage of developing its own systems with Agile teams.

The transition was dramatic. In 2011, only 1 percent of Capital One's software was delivered via Agile methods, but by 2014 this had mushroomed to 85%. That shift wouldn't matter but for the results: with up to 400 product releases per month, **project costs have dropped "significantly," delivery times reduced to 3-6 months, and 95% of IT's products meet expectations on first release.**[14] These improvements have helped fuel Capital One's strong market performance — its stock price has more than doubled in the last four years.

- These big gains aren't limited to a few exceptional outcomes. Dr. David F. Rico has been researching and publishing on software project metrics for almost two decades. In *The Business Value of Agile Software Methods*,[15] Rico and his co-authors summarize their analysis of some 300 articles and studies. Their findings help quantify results that are often only anecdotal in nature.
  - » The return on investment (ROI) of employing any single Lean/Agile technique is extraordinarily high, ranging from 580% (for Scrum) to 3,100% (for XP).
  - » Overall, Agile-based projects generated an average of 21.2 lines of code (LOC) per hour, with quality measured at 1.8 defects/KLOC. In contrast, average productivity of traditional methods was measured at 0.85 LOC/hour with 33.3 defects/KLOC. This translates into nearly 25 times the productivity with 95% fewer defects.
  - » Applying standard financial measures (ROI and NPV) to these productivity rates, the authors estimate that a using Agile methods on a medium-sized project is **15 to 18 times more cost-effective than following Waterfall.**

Still Not Convinced?

Even given the wealth of data demonstrating the value of applying Lean and Agile, many IT teams are still reluctant to move away from their traditional practices. Often there's a belief that, *"Our organization is different, so Agile just won't work here."* Do any of these rationalizations sound familiar to you?

OTHER MYTHS

"Agile is probably a good fit for many other firms, but it won't work for our company because…"

"…our systems are too mission-critical."

Tell that to NASA. It's hard to imagine a more demanding test than launching interplanetary spacecraft that must function reliably for many years and millions of miles. After successfully transitioning ground-control systems to Agile development, NASA gained the confidence to begin applying Agile to space-borne mission systems in 2014.[16]

"…our industry is highly regulated."

Earlier examples have shown the success of Lean/Agile in regulation-bound environments like financial services, healthcare, and even the military. How about the energy sector? Colorado Springs Utilities took the unusual step of comparing two similar projects by following its traditional practices for one, and trying out Agile on the other. Even with the challenges of learning new practices for the latter, they found that, **"If this were a competition, the Agile project would have scored higher in every category."**[17]

"…our applications are too complex."

Salesforce.com has built the world's largest cloud-based enterprise software platform using ADM, the Agile/XP-based method it rolled out in 2007[18] More than 150,000 corporate customers rely on Salesforce to power their customer service, sales automation, marketing and analytics. On an average business day, the platform supports **2.3 billion transactions.**[19]

"…it wouldn't be a good fit for our culture."

The Federal government has long been a poster child for bureaucratic Waterfall practices, but even that is changing. The FBI helped lead the transition, but only after burning through some $600 million in two failed projects to modernize its post-9/11 information systems. In 2010, the FBI's new CIO cancelled the vendor's contract, replacing 300 outside developers with a 45-person internal project group. **The FBI's Scrum teams then delivered a fully-functional system in two years.**[20] Now other government agencies including the Department of Commerce, the Veterans Administration and the IRS are all making the leap to Agile.[21]

Summing Up

The reality of software development today is that organizations of every size, industry, structure and mission are applying Lean/Agile principles to be more successful. When we take an objective look at the current state of technology development, the data is consistent and compelling. **Teams and companies that apply Lean/Agile methods outperform those that don't.** Given all the demonstrated benefits of Agile, shouldn't you evaluate the reality yourself?

At AIM Consulting, we understand that making the shift to Agile can look daunting. That's why we're here to help. Our deeply experienced Lean/Agile consultants have been helping firms make the leap for over 10 years. We will work with you to understand your business challenges, and provide strategic guidance, training, and coaching to help you start gaining benefits immediately.

Contact AIM today, and let's discuss new ways to boost your company's bottom line.

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Agile Consulting Help

Many organizations lack the specialized talent in house to implement a transformation to Agile. At AIM, we believe in a pragmatic, not dogmatic, approach. AIM's approach is tailored to the specific needs of your organization and designed to bring value to your business. Our expertise is delivered not as a coaching and certification course, but as an end-to-end implementation where our experts blend with your teams to build your organization's agile capability. Whether you are a growing business or a Fortune 100 enterprise, we align the right people, processes and tools to fit your business. Our goal is to provide you with a solution that can continue after our involvement is complete.

What we deliver

- Maturity assessments
- Strategic roadmaps and KPIs
- Templates and tools
- Change readiness
- Agile coaching and training
- Gradual adoption with pilot teams
- End-to-end implementation
- Key resource augmentation

Our expertise

- Scrum, Lean, Kanban
- Scaled and SAFe Agile
- TDD and Pairing
- Agile operations / DevOps
- Continuous Integration / Delivery

How agile benefits you

- Visibility and transparency to stakeholders
- Greater alignment between the business and IT
- Increased value to users
- Faster speed to market
- Reduced number of defects in production
- A team-based, collaborative culture
- Improved employee satisfaction

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How can we help you with your next project?

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About AIM Consulting

AIM Consulting is a rapidly growing, nationally recognized leader in technology solutions and services. We have the people, processes, and tools to provide companies with strategic guidance on business-critical initiatives and deliver end-to-end solutions. We meet the highest standard of excellence in technology, for better value than other consulting companies, because we are 100% focused on forging long-term relationships with deeply experienced consultants and building high-performance, service-oriented teams that produce results.

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