

# The Business Value of Using Agile Project Management for New Products and Services

## by Dr. David F. Rico, PMP, ACP, CSM

What is the business value of agile project management for creating new products and services? In other words, “What are the costs, benefits, or what is the ROI of agile project management?” Has anyone ever measured the benefits of agile project management? If so, what are the results? Furthermore, is there a measurable difference between agile and traditional project management?

Agile project management crept into practice about a decade ago and quickly became the predominant paradigm for managing IT projects. However, agile project management continues to spread throughout the world-wide marketplace, including the public sector (i.e., government projects). As such, these questions and many more are being asked in increasing frequency.

Agile project management is a blend of older traditional ideas and newer discoveries for creating innovative products and services. It is lightweight, flexible, collaborative, and adaptable to frequent change, yet highly disciplined. This gives us the structure of the rational model from the last century along with the market and technological sensitivity to manage 21st century projects.

Agile project management is not just a fancy name for an old idea. It is a better way for managing high-risk, time-sensitive research and development oriented projects. Its lightweight structure leads to better productivity and efficient decision-making, while exceeding the quality characteristics of older paradigms. These alone result in lower costs and faster time-to-market.

However, because frequent customer interaction and early concept testing are used to elicit tacit needs, it results in outcomes that are sensitive to the market. This boosts customer satisfaction, which improves customer trust, retention, loyalty, and repeat business. These additional benefits translate into economic benefits such as improved sales, revenues, and overall profitability.

Agile project management is squarely focused on capturing and implementing only the highest priority market and customer needs that result in the greatest return on investment for them. This provides customers with the biggest bang for the buck, while reducing the operational workload on a project’s team members. This improves morale, sustainability, and business performance.

An early study of agile project management showed 10% to 20% improvements in revenues, quality, and cycle time, and 54% reductions in costs. Another early study showed 50% to 60% reductions in time to market and costs, along with 10 times higher development flexibility. These studies were often done at the organizational level, which somewhat diluted the effects.

Year	Author	Org.	Result
1998	Weill	Harvard	<ul style="list-style-type: none"> <li>• 20% improvement in communication, quality, and cycle time</li> <li>• 13% increase in strategic alignment, sales, and revenues</li> <li>• 54% reduction in product and service development costs</li> </ul>
1998	Thomke	Harvard	<ul style="list-style-type: none"> <li>• 50% reduction in development effort</li> <li>• 55% improvement in time to market</li> <li>• 925% improvement in number of changes allowed</li> </ul>
1998	MacCormack	Harvard	<ul style="list-style-type: none"> <li>• 48% productivity increase over traditional methods</li> <li>• 38% higher quality associated with more design effort</li> <li>• 50% higher quality associated with iterative development</li> </ul>
1999	Fichman	Boston	<ul style="list-style-type: none"> <li>• 38% reduction in time to produce products and services</li> <li>• 50% time to market improvement</li> <li>• 50% more capabilities delivered to customers</li> </ul>

As shown below, newer studies of agile project management squarely focused on the project as a unit of measure rather than the organization. In most cases, productivity, cost, and, quality gains were significantly higher than those of earlier studies (i.e., greater than 50%). VersionOne conducts annual surveys with little variation in results in spite of increasing sample sizes.

Year	Author	Organization	Sample Size	Improvements		
				Productivity	Cost Savings	Quality
2003	Johnson	Shine	131	93%	49%	88%
2006	Barnett	Agile Journal	400	45%	23%	43%
2007	Begel	Microsoft	492	14%	16%	32%
2007	Rico	UMUC	250	81%	75%	80%
2008	Ambler	AmbySoft	642	82%	72%	72%
2008	Wolf	IT Agile	207	78%	72%	74%
2008	Hanscom	VersionOne	3,061	74%	38%	68%
Average				67%	49%	65%

In 2008, the University of Maryland developed a database with over 153 data points on the costs and benefits of agile project management from 72 studies.<sup>1</sup> The benefits of agile vs. traditional projects were higher in every metric. Return on investment was nearly six times higher for agile project management. The studies of agile project management were often of better quality.

Metric	Agile	Traditional	Difference
<b>Cost Reduction</b>	29%	20%	9%
<b>Schedule Reduction</b>	70%	37%	33%
<b>Productivity Improvement</b>	117%	62%	55%
<b>Quality Improvement</b>	74%	50%	24%
<b>Customer Satisfaction Imp.</b>	70%	14%	56%
<b>Return on Investment</b>	2,811%	470%	2,341%

In 2009, the University of Maryland conducted a detailed return on investment study of agile project management.<sup>2</sup> Cost and benefit metrics, models, and measures were developed based on 52 data points from 32 studies. These models were used to estimate the ROI of agile project management, which was at least 10 times greater than traditional project management.

Method	Costs	Benefits	B/CR	ROI	NPV	ROA
<b>Extreme Prog.</b>	\$127,125	\$4,382,872	34:1	3,348%	\$3,667,983	\$4,283,867
<b>Agile Methods</b>	\$217,712	\$4,292,285	20:1	1,872%	\$3,498,958	\$4,125,209
<b>Test Driven Dev.</b>	\$249,653	\$4,260,344	17:1	1,607%	\$3,439,359	\$4,073,167
<b>Pair Prog.</b>	\$265,437	\$4,244,560	16:1	1,499%	\$3,409,908	\$4,048,404
<b>Scrum</b>	\$505,259	\$4,004,738	8:1	693%	\$2,962,424	\$3,715,411
<b>Traditional</b>	\$1,108,233	\$3,023,064	3:1	173%	\$1,509,424	\$2,633,052

Note: B/CR—Benefit/Cost Ratio, ROI—Return on Investment, NPV—Net Present Value, ROA—Real Options Analysis

The University of Maryland study also found that agile projects were 20 times more productive, had five times better cost and quality, and had a 7 times earlier breakeven point. Furthermore, agile projects had an 11 times greater ROI, 11 times higher NPV, and a 13 times higher ROA when expressed as a percentage. The best projects have even greater quality, which doubles ROI.

A similar study of the costs and benefits of agile project management was conducted by a market-leading firm.<sup>3</sup> Data was gathered from 23 agile projects and compared to a database of 7,500 traditional ones. The vendor reported that agile project management lowered costs by 61%, reduced schedules by 24%, improved quality by 93%, and improved productivity by 39%.

The business value of agile project management is an order of magnitude improvement over traditional methods from the 20th century. Another way to express this is that agile project management is at least 10 times better or a “10X solution” as claimed by other 20th century total quality management paradigms. Done well, agile project management yields impressive benefits.

Its benefits come from many factors that are too numerous to mention here. The primary drivers are increased productivity and quality. Productivity comes from its streamlined nature and quality from its uncompromising discipline. However, its real power comes from its adaptability to change, collaborative nature, and focus on bottom line business results for the marketplace.

Global competition is at an all-time high, technology is advancing at an unrelenting pace, and organizations must produce more with fewer resources. Executives are turning to agile project management as a key solution to thwart the 21st century management crisis. Over 80% of global firms apply agile project management and large public sector projects are joining in droves.

Although our knowledge of project management has never been greater, it continues to evolve rather quickly. It is not the last word, but is merely another stepping stone in our journey towards understanding how to manage 21st century projects. While its lessons should never be forgotten, it is certain to be refined with even greater principles, practices, and tools in the very near future.

1. Rico, D. F. (2008). What is the ROI of agile vs. traditional methods? An analysis of extreme programming, test-driven development, pair programming, and scrum (using real options). *TickIT International*, 10(4), 9-18.
2. Rico, D. F., Sayani, H. H., & Sone, S. (2009). *The business value of agile software methods: Maximizing ROI with just-in-time processes and documentation*. Ft. Lauderdale, FL: J. Ross Publishing.
3. Mah, M. (2008). Measuring agile in the enterprise: *Proceedings of the Agile 2008 Conference, Toronto, Canada*.

**Dr. Rico has been a leader in support of major U.S. gov't agencies for 25 years. He's led many Cloud, Lean, Agile, SOA, Web Services, Six Sigma, FOSS, ISO 9001, CMMI, and SW-CMM projects. He specializes in IT investment analysis, portfolio valuation, and organizational change. He's been an international keynote speaker, presented at leading conferences, written six textbooks, and published numerous articles. He's also a frequent PMI, APLN, INCOSE, SPIN, and conference speaker (<http://davidfrico.com>).**