Are Agile Projects Really More Successful?  
The Results of New Research on Agile 

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Source Paper

Does Agile Work? –
A Quantitative Analysis of Project Success

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Session Objectives

- Review trends in the use of agile in industry
- Understand whether Agile is associated with more successful projects
- Discuss what situations and moderators impact the relationship between agile use and success
And as early as 1958, Koontz noted that “no effective manager makes a plan and then proceeds to put it into effect regardless of what events occur”

(Koontz, 1958, p. 54).
The History of Agile

“It is a bad plan that admits of no modification.”

– Publilius Syrus (~100 BC)
The History of Modern Agile

- Evolved in the mid-1990s as part of a reaction against "heavyweight" methods,
- These are now typically referred to as Agile Methodologies, after the Agile Manifesto published in 2001.
- Later, some of these authors formed The Agile Alliance, a non-profit organization that promotes agile development.

- Started in 1994, studied over 35,000 application development projects
- In 2000:


diagram showing:
- 23% outright cancelled and unused
- 49% overrun (time, budget, lack features)
- 28% on time, within budget, and with features

Impact of savings in finding defects early

- It has been known since the 70s that defects in software development are cheaper to fix the earlier they are found.
- At each stage in development the cost of a defect or missed requirement gets higher.
- The most expensive time to find a defect? After a project is delivered.
Planning in the Software Industry

Relative Cost to Fix a Defect, after Poston (1985)
The Tenents of Agile

- Individuals and interactions over processes and tools
- Working software over comprehensive documentation
- Customer collaboration over contract negotiation
- Responding to change over following a plan
The 11 principles behind the Agile Manifesto

- Customer satisfaction by rapid, continuous delivery of useful software
- Working software is delivered frequently (weeks rather than months)
- Working software is the principal measure of progress
- Even late changes in requirements are welcomed
- Close, daily cooperation between business people and developers
- Face-to-face conversation is the best form of communication (co-location)
- Projects are built around motivated individuals, who should be trusted
- Continuous attention to technical excellence and good design
- Simplicity
- Self-organizing teams
- Regular adaptation to changing circumstances
Where Agile Grew Up

- Software development
- Small teams
- New Product development
- Low criticality
- Senior developers
- Requirements change often
- Cultures that thrive on chaos
Where Agile is less effective

- Large teams
- Inexperienced team members
- Geographically dispersed teams
- High criticality
- Requirements do not change often
- Culture that demands order
Agile Methodologies Basics

- Small releases
- Iterative and incremental development
- Collocation
- Release plan/feature backlog
- Iteration plan/feature backlog
- Self organizing teams
- Pairing (in XP)
- Test–driven development
- Tracking
- Simple, lean and adaptable
# Differences between traditional development and Agile development, after Dybå and Dingsøyr (2008)

<table>
<thead>
<tr>
<th></th>
<th>Traditional development</th>
<th>Agile development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fundamental assumption</strong></td>
<td>Systems are fully specifiable, predictable, and are built through meticulous and extensive planning</td>
<td>High-quality adaptive software is developed by small teams using the principles of continuous design improvement and testing based on rapid feedback and change</td>
</tr>
<tr>
<td><strong>Management style</strong></td>
<td>Command and control</td>
<td>Leadership and collaboration</td>
</tr>
<tr>
<td><strong>Knowledge management</strong></td>
<td>Explicit</td>
<td>Tacit</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>Formal</td>
<td>Informal</td>
</tr>
<tr>
<td><strong>Development model</strong></td>
<td>Life-cycle model</td>
<td>The evolutionary–delivery model</td>
</tr>
<tr>
<td><strong>Desired organizational form/structure</strong></td>
<td>Mechanistic (bureaucratic with high formalization), aimed at large organizations</td>
<td>Organic (flexible and participative encouraging cooperative social action), aimed at small and medium sized organizations</td>
</tr>
<tr>
<td><strong>Quality control</strong></td>
<td>Heavy planning and strict control. Late, heavy testing</td>
<td>Continuous control of requirements, design and solutions. Continuous testing</td>
</tr>
</tbody>
</table>
Agile Process

1. Product owner creates prioritized wish list or backlog
2. Project team creates sprint backlog
3. Teams have daily Scrum meetings during each 2–4 week sprint
4. Sprint results in a useful product

Daily Scrum

Monitoring and controlling

Sprint review and Sprint retrospective

Repeat steps 1–4 until complete

24 hours

Sprint 2–4 weeks

Potentially shippable product increment

Planning

Executing

Closing

Information Technology Project Management, Seventh Edition (Schwalbe, 2014)
Although Agile has been used for project planning for a number of years now, to date, the majority of research examining its usefulness has been:

- anecdotal,
- single-case studies
- based on small sample sizes
- single-organization
- single-industry settings
Research Model

Outcomes
1. Overall Project Success
2. Project Efficiency
3. Stakeholder Satisfaction

Predictor
Degree of Effort in Agile Planning

Moderators
1. Quality of the Vision/Goals
2. Project Complexity
3. Team Experience
Methodology Approach

Method
- Global on-line questionnaire

Methodology Approach
- Post-positivism and quantitative

Target Audience
- Project managers

Unit of Measure
- Completed projects
Data Gathering

- 859 participants provided information on at least one project.
- 1,386 projects.
- 1002 projects provided data on agile
- People from over 60 countries
- Each participant provided data on two projects, one more successful and another less successful.
Sources of Survey Participants

- USA, 313
- Missing, 183
- Canada, 57

Other countries and regions: Saudi Arabia, 8; Serbia, 4; South Africa, 5; Spain, 15; Sweden, 4; Turkey, 6; UAE, 12; United Kingdom, 8; Qatar, 3; Portugal, 5; Russia, 3; Singapore, 11; Romania, 2; Poland, 5; Philippines, 3; Pakistan, 7; Others, 20; Nigeria, 6; Mexico, 8; Malaysia, 3; Kuwait, 4; Kosovo, 2; Italy, 7; Ireland, 4; Germany, 10; Egypt, 4; Greece, 5; France, 5; Finland, 3; Ecuador, 3; Argentina, 4; Australia, 19; Belgium, 3; Brazil, 12; Austria, 2; Colombia, 6; Croatia, 3; Hungary, 3; Hong Kong, 4.
Distribution of Projects

Histogram: Project success rating

- Expected Normal

No. of obs.
Data Analysis

- One question on agile planning during execution was misunderstood by some respondents.
- A transformation was undertaken on one subset of responses to correct the error.
- Homogeneity was confirmed between the two groups (group 1 – no transformation needed and group 2 – transformed).
Success Measures

- Project efficiency – meeting cost, time and scope goals
- Stakeholder success – satisfying the expectations of project stakeholders who are the best judges of overall success
Success Measures

Efficiency Factor = mean of the following three responses:
1. How did the project do in meeting project budget goals?
2. How did the project do in meeting project time goals?
3. How did the project do in meeting project scope and requirements goals?

Stakeholder Success Factor = mean of the following four responses:
1. How did the project sponsors and stakeholders rate the success of the project?
2. How do you rate the project team’s satisfaction with the project?
3. How do you rate the client’s satisfaction with the project’s results?
4. How do you rate the end users’ satisfaction with the project’s results?
Frequency table for methodology type

<table>
<thead>
<tr>
<th>Percentage Agile/Iterative</th>
<th>Count</th>
<th>Percent</th>
<th>Cumulative – Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>80–100%</td>
<td>80</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>60–79%</td>
<td>152</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td>40–59%</td>
<td>347</td>
<td>25</td>
<td>42</td>
</tr>
<tr>
<td>20–39%</td>
<td>162</td>
<td>12</td>
<td>54</td>
</tr>
<tr>
<td>1–19%</td>
<td>194</td>
<td>14</td>
<td>68</td>
</tr>
<tr>
<td>0%</td>
<td>451</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
</tbody>
</table>
Moderators

The following moderators were examined:
- quality of the vision/goals of the project
- project complexity
- project team experience level
- stakeholder engagement level
Agile Planning Effort index

= total effort expended on planning after the planning phase
  the total project effort (in person days)
## Agile Use Characteristics

<table>
<thead>
<tr>
<th>Percentage Agile/Iterative</th>
<th>Upfront planning effort index</th>
<th>Agile planning effort index</th>
<th>Efficiency Factor</th>
<th>Stakeholder Success Factor</th>
<th>Valid N</th>
</tr>
</thead>
<tbody>
<tr>
<td>80–100%</td>
<td>0.161</td>
<td>0.149</td>
<td>4.82</td>
<td>3.64</td>
<td>80</td>
</tr>
<tr>
<td>60–79%</td>
<td>0.147</td>
<td>0.138</td>
<td>4.66</td>
<td>3.57</td>
<td>152</td>
</tr>
<tr>
<td>40–59%</td>
<td>0.164</td>
<td>0.132</td>
<td>4.79</td>
<td>3.54</td>
<td>347</td>
</tr>
<tr>
<td>20–39%</td>
<td>0.135</td>
<td>0.101</td>
<td>4.63</td>
<td>3.41</td>
<td>162</td>
</tr>
<tr>
<td>1–19%</td>
<td>0.150</td>
<td>0.091</td>
<td>4.46</td>
<td>3.18</td>
<td>194</td>
</tr>
<tr>
<td>0%</td>
<td>0.154</td>
<td>0.048</td>
<td>4.58</td>
<td>3.21</td>
<td>451</td>
</tr>
<tr>
<td>All Groups</td>
<td>0.153</td>
<td>0.105</td>
<td>4.64</td>
<td>3.38</td>
<td>1386</td>
</tr>
<tr>
<td>p(F)</td>
<td>0.173</td>
<td>0.000</td>
<td>0.087</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>
Standard Linear Regression analysis of methodology type vs. project success rating

<table>
<thead>
<tr>
<th>Methodology type</th>
<th>$R^2$</th>
<th>p-level</th>
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<tbody>
<tr>
<td></td>
<td>0.030</td>
<td>0.000</td>
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</tbody>
</table>
Measures of Agile

Combined Agile measure = mean of the following two responses as a summated scale of normalized values:
  • Methodology type
  • Agile planning index

Where Agile planning index is defined as follows:
Agile Planning Index
= total effort expended on planning after the planning phase
  total project effort (in person days)
Moderator values after Serpador and Turner Planning effort index vs. success for maximum impact

(2015)
MHRA analysis for quality of vision/goals as moderator in the Agile measure versus success factor relationship

<table>
<thead>
<tr>
<th>Variables entered</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combined Agile measure</td>
<td>.875***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderators</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of vision/goals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction Terms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of vision/goals*Combined Agile measure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.019***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$ + p < .10, * p < .05, ** p < .01, *** p < .001$
**MHRA analysis for quality of vision/goals as moderator in the Agile measure versus success factor relationship**

<table>
<thead>
<tr>
<th>Variables entered</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects Combined Agile measure</td>
<td>.875***</td>
<td>.572**</td>
<td></td>
</tr>
<tr>
<td>Moderators Quality of vision/goals</td>
<td></td>
<td>−.513***</td>
<td></td>
</tr>
<tr>
<td>Interaction Terms Quality of vision/goals*Combined Agile measure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( R^2 )</td>
<td>0.019***</td>
<td>0.151***</td>
<td></td>
</tr>
</tbody>
</table>

+ \( p < .10 \), * \( p < .05 \), ** \( p < .01 \), *** \( p < .001 \)
MHRA analysis for quality of vision/goals as moderator in the Agile measure versus success factor relationship

<table>
<thead>
<tr>
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<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td>0.875***</td>
<td>0.572**</td>
<td>-0.253</td>
</tr>
<tr>
<td>Combined Agile measure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderators</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of vision/goals</td>
<td>-0.513***</td>
<td>-0.643***</td>
<td></td>
</tr>
<tr>
<td>Interaction Terms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of vision/goals*Combined Agile measure</td>
<td></td>
<td></td>
<td>0.401+</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.019***</td>
<td>0.151***</td>
<td>0.152+</td>
</tr>
</tbody>
</table>

+ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$
Agile Factor Impact

Highly Successful
Successful
Mediocre
Unsuccessful
Failure
<table>
<thead>
<tr>
<th>Industry</th>
<th>Methodology type</th>
<th>Efficiency Factor</th>
<th>Stakeholder Success Factor</th>
<th>Valid N</th>
<th>$R^2$</th>
<th>Regression p value vs. Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>4.81</td>
<td>4.44</td>
<td>3.3</td>
<td>87</td>
<td>0.008</td>
<td>0.404</td>
</tr>
<tr>
<td>Financial services</td>
<td>4.78</td>
<td>4.62</td>
<td>3.27</td>
<td>167</td>
<td>0.015</td>
<td>0.112</td>
</tr>
<tr>
<td>Construction</td>
<td>4.74</td>
<td>4.54</td>
<td>3.65</td>
<td>36</td>
<td>0.035</td>
<td>0.274</td>
</tr>
<tr>
<td>High technology</td>
<td>4.53</td>
<td>4.69</td>
<td>3.43</td>
<td>166</td>
<td>0.042</td>
<td>0.008*</td>
</tr>
<tr>
<td>Health care</td>
<td>4.5</td>
<td>5.04</td>
<td>3.52</td>
<td>80</td>
<td>0.057</td>
<td>0.032*</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>4.34</td>
<td>5.11</td>
<td>3.71</td>
<td>95</td>
<td>0.005</td>
<td>0.477</td>
</tr>
<tr>
<td>Retail</td>
<td>4.31</td>
<td>4.56</td>
<td>3.23</td>
<td>31</td>
<td>0.000</td>
<td>0.889</td>
</tr>
<tr>
<td>Professional services</td>
<td>4.27</td>
<td>4.53</td>
<td>3.32</td>
<td>56</td>
<td>0.056</td>
<td>0.078</td>
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<tr>
<td>Utilities</td>
<td>4.26</td>
<td>4.44</td>
<td>3.41</td>
<td>35</td>
<td>0.001</td>
<td>0.826</td>
</tr>
<tr>
<td>Other</td>
<td>4.25</td>
<td>4.48</td>
<td>3.19</td>
<td>109</td>
<td>0.121</td>
<td>0.0002*</td>
</tr>
<tr>
<td>Education</td>
<td>3.8</td>
<td>4.87</td>
<td>3.15</td>
<td>25</td>
<td>0.063</td>
<td>0.224</td>
</tr>
<tr>
<td>Government</td>
<td>3.65</td>
<td>4.3</td>
<td>3.17</td>
<td>115</td>
<td>0.010</td>
<td>0.277</td>
</tr>
<tr>
<td>All Groups</td>
<td>4.43</td>
<td>4.62</td>
<td>3.36</td>
<td>1002</td>
<td>0.019</td>
<td>0.007*</td>
</tr>
</tbody>
</table>

* indicates statistical significance
Comparison of means and regression results for agile success by region

<table>
<thead>
<tr>
<th>Region</th>
<th>Methodology type</th>
<th>Efficiency Factor</th>
<th>Stakeholder Success Factor</th>
<th>Success Factor</th>
<th>Valid N</th>
<th>R²</th>
<th>Regression p value vs. Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific</td>
<td>3.67</td>
<td>4.70</td>
<td>3.28</td>
<td>3.30</td>
<td>22</td>
<td>0.072</td>
<td>0.227</td>
</tr>
<tr>
<td>Russia and FSU</td>
<td>3.67</td>
<td>4.44</td>
<td>3.33</td>
<td>3.27</td>
<td>9</td>
<td>0.214</td>
<td>0.209</td>
</tr>
<tr>
<td>Europe</td>
<td>4.00</td>
<td>4.69</td>
<td>3.41</td>
<td>3.39</td>
<td>142</td>
<td>0.002</td>
<td>0.592</td>
</tr>
<tr>
<td>Indian subcontinent</td>
<td>4.17</td>
<td>4.30</td>
<td>3.44</td>
<td>3.29</td>
<td>83</td>
<td>0.037</td>
<td>0.081</td>
</tr>
<tr>
<td>Middle East</td>
<td>4.33</td>
<td>4.33</td>
<td>3.31</td>
<td>3.22</td>
<td>73</td>
<td>0.000</td>
<td>0.911</td>
</tr>
<tr>
<td>North America</td>
<td>4.55</td>
<td>4.74</td>
<td>3.43</td>
<td>3.41</td>
<td>527</td>
<td>0.029</td>
<td>0.000*</td>
</tr>
<tr>
<td>Latin America</td>
<td>4.61</td>
<td>4.48</td>
<td>3.06</td>
<td>3.11</td>
<td>58</td>
<td>0.118</td>
<td>0.008*</td>
</tr>
<tr>
<td>Far East</td>
<td>4.90</td>
<td>4.73</td>
<td>3.50</td>
<td>3.46</td>
<td>24</td>
<td>0.001</td>
<td>0.862</td>
</tr>
<tr>
<td>Africa sub–Sahara</td>
<td>5.00</td>
<td>4.67</td>
<td>3.07</td>
<td>3.18</td>
<td>32</td>
<td>0.016</td>
<td>0.485</td>
</tr>
<tr>
<td>Australasia</td>
<td>5.08</td>
<td>4.67</td>
<td>3.00</td>
<td>3.16</td>
<td>32</td>
<td>0.003</td>
<td>0.766</td>
</tr>
<tr>
<td>All Groups</td>
<td>4.43</td>
<td>4.62</td>
<td>3.36</td>
<td>3.33</td>
<td>1002</td>
<td>0.019</td>
<td>0.007*</td>
</tr>
</tbody>
</table>

*- indicates statistical significance
The Research

- How do different types of projects fare under Agile?
# Team Size?

<table>
<thead>
<tr>
<th>Project team size</th>
<th>Number of Projects</th>
<th>$R^2$</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–5</td>
<td>224</td>
<td>0.036</td>
<td>0.005</td>
</tr>
<tr>
<td>6–15</td>
<td>375</td>
<td>0.019</td>
<td>0.007</td>
</tr>
<tr>
<td>16–30</td>
<td>186</td>
<td>0.042</td>
<td>0.005</td>
</tr>
<tr>
<td>31–50</td>
<td>91</td>
<td>0.014</td>
<td>0.261</td>
</tr>
<tr>
<td>51–100</td>
<td>78</td>
<td>0.000</td>
<td>0.864</td>
</tr>
<tr>
<td>101–500</td>
<td>41</td>
<td>0.015</td>
<td>0.444</td>
</tr>
<tr>
<td>500+</td>
<td>7</td>
<td>0.052</td>
<td>0.622</td>
</tr>
</tbody>
</table>
# Complexity?

<table>
<thead>
<tr>
<th>Complexity of the project</th>
<th>Number of Projects</th>
<th>$R^2$</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>73</td>
<td>0.016</td>
<td>0.278</td>
</tr>
<tr>
<td>Medium</td>
<td>512</td>
<td>0.016</td>
<td>0.004</td>
</tr>
<tr>
<td>High</td>
<td>417</td>
<td>0.035</td>
<td>0.000</td>
</tr>
</tbody>
</table>
Local vs. Remote Teams?

<table>
<thead>
<tr>
<th>Local vs. remote team</th>
<th>Number of Projects</th>
<th>$R^2$</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>One city or region</td>
<td>424</td>
<td>0.015</td>
<td>0.009</td>
</tr>
<tr>
<td>National</td>
<td>263</td>
<td>0.042</td>
<td>0.001</td>
</tr>
<tr>
<td>International</td>
<td>315</td>
<td>0.024</td>
<td>0.005</td>
</tr>
</tbody>
</table>
## Project Technology Level?

<table>
<thead>
<tr>
<th>level of use of technology</th>
<th>Number of Projects</th>
<th>$R^2$</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowtech</td>
<td>101</td>
<td>0.039</td>
<td>0.049</td>
</tr>
<tr>
<td>Mediumtech</td>
<td>437</td>
<td>0.010</td>
<td>0.037</td>
</tr>
<tr>
<td>Hightech</td>
<td>408</td>
<td>0.023</td>
<td>0.002</td>
</tr>
<tr>
<td>Super hightech</td>
<td>56</td>
<td>0.078</td>
<td>0.037</td>
</tr>
</tbody>
</table>
## Stakeholder Engagement?

<table>
<thead>
<tr>
<th>Degree of stakeholder engagement</th>
<th>Number of Projects</th>
<th>( R^2 )</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Engaged</td>
<td>400</td>
<td>0.001</td>
<td>0.430</td>
</tr>
<tr>
<td>Somewhat Engaged</td>
<td>452</td>
<td>0.021</td>
<td>0.002</td>
</tr>
<tr>
<td>Mostly not Engaged</td>
<td>132</td>
<td>0.085</td>
<td>0.001</td>
</tr>
<tr>
<td>Not at all Engaged</td>
<td>18</td>
<td>0.139</td>
<td>0.128</td>
</tr>
</tbody>
</table>
## Experienced Team?

<table>
<thead>
<tr>
<th>Experience level of team</th>
<th>Number of Projects</th>
<th>$R^2$</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>349</td>
<td>0.010</td>
<td>0.057</td>
</tr>
<tr>
<td>Medium</td>
<td>538</td>
<td>0.030</td>
<td>0.000</td>
</tr>
<tr>
<td>Low</td>
<td>115</td>
<td>0.023</td>
<td>0.100</td>
</tr>
</tbody>
</table>
## Clearness of Goals/Vision?

<table>
<thead>
<tr>
<th>Quality of goals/vision statement</th>
<th>Number of Projects</th>
<th>$R^2$</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>191</td>
<td>0.000</td>
<td>0.772</td>
</tr>
<tr>
<td>Good</td>
<td>569</td>
<td>0.014</td>
<td>0.005</td>
</tr>
<tr>
<td>Poor</td>
<td>198</td>
<td>0.033</td>
<td>0.010</td>
</tr>
<tr>
<td>Very Poor/ Not used</td>
<td>44</td>
<td>0.085</td>
<td>0.055</td>
</tr>
</tbody>
</table>
Comparison for $R^2$ from analysis between combined Agile measure and success factors

<table>
<thead>
<tr>
<th></th>
<th>Stakeholder Success Factor</th>
<th>Efficiency factor</th>
<th>Stakeholder Success Factor (group 2 only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=1002</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.152</td>
<td>0.096</td>
<td>0.171</td>
</tr>
<tr>
<td>$p$</td>
<td>0.089</td>
<td>0.083</td>
<td>0.010</td>
</tr>
</tbody>
</table>
Findings

- Agile been adopted in multiple industries and across national borders
- Agile projects plan more than traditional projects
- Agile has achieved it’s best success to date within some industries; notably, high technology, healthcare, and professional service
- The quality of goals and vision of a project are very important to the success of Agile projects
Findings

- The amount of agile adoption is positively correlated with project success.
- Agile has a greater impact on stakeholder success measures than efficiency measures.
- After removing moderator effects, agile use was found to have an \( R^2 \) of .15 with project success.
- Agile appears to work well with experienced and less experienced teams, if stakeholder engagement is low and in complex environments.
Future Research

- The success of different agile methodologies should be studied in greater detail.
- The role of project complexity in the relationship between Agile and success is an area that warrants further study.
- Analysis of projects where more time is spent replanning during execution is warranted to understand if they are more or less successful.
- Does the relationship between how planning is structured impact Agile success?
- It would be useful to revisit this field in a few years to determine the ongoing diffusion rate of Agile given its record of success.
5 elements of Agile everyone should use

- Test as you build
- Review as early as possible with stakeholders
- Close team work
- Good communication with business customers
Implementing your Agile Plan

- Get team support
- Get management support
- Explain it to the business
- Finalize your plan!
Getting buy-in from your team

- Find champions within the team
- Get them involved in the planning
- Get them enthusiastic and they will help sell the idea!
Implement your plan the Agile way – Iteratively!

- See what the team is ready for
- Look at what fits the environment
- Don’t try to do it all right away!
Bumps along the way and how to ride them

- Resistance from some team members
- Business or management may not be receptive
- Drift into old processes
- When time crunch comes, processes can fall to the wayside
- Stay the course through problems and delays
Session Objectives

- Review trends in the use of agile in industry
- Understand whether Agile is associated with more successful projects
- Discuss what situations and moderators impact the relationship between agile use and success
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References


References

References