Essay Proposal
COMP150 - Agile Essay

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Topic

In this essay I intend to address the question are Agile measurement methods such as burn down charts suitable for use in games development? I will look at different Agile metrics and their applications and how suitable they could be for use in game development.

Paper 1

Title: Designing and implementing a measurement program for Scrum teams: what do agile developers really need and want?

Citation: [1]

Abstract: "Agile developers are generally reluctant to non-agile practices. Promoted by senior software practitioners, agile methods were intended to avoid traditional engineering practices and rather focus on delivering working software as quickly as possible. Thus, the unique measure in Scrum, a well known framework for managing agile projects, is velocity. Its main purpose is to demonstrate the progress in delivering working software. In software engineering (SE), measurement programs have more in depth purposes and allow teams and individuals to improve their development process along with providing better product quality and control over the project. This paper will describe the experience and the approach used in an agile SE company to design and initiate a measurement program taking into account the specificities of their agile environment, principles and values. The lessons learned after five months of investigation are twofold. The first one shows how agile teams, in comparison to traditional teams, have different needs when trying to establish a measurement program. The second confirms that agile teams, as many other groups of workers, are reluctant and resistant to change. Finally, the preliminary results show that agile people are more interested in value delivery, technical debt, and multiple aspects related to team dynamics and will cooperate to

the collection of data as soon as there tools can do it for them. It is believed that this research could suggest new guidelines for elaborating specific measurement programs in other agile environments."

Web link: `http://dl.acm.org/citation.cfm?id=1822341`

Full text link: `https://www.researchgate.net/profile/Ghislain_Levesque/publication/221186048_Designing_and_implementing_a_measurement_program_for_Scrum_teams_what_do_agile_developers_really_need_and_want/links/0fcfd50574f7580b5c000000.pdf`

Comments: This paper talks about the problems with trying to measure or predict the progress of an Agile project. It mentions the problems with user stories being reopened and adding more which could be linked to the games industry.

Paper 2

Title: Why are industrial agile teams using metrics and how do they use them?

Citation: [2]

Abstract: " Agile development methods are increasing in popularity, yet there are limited studies on the reasons and use of metrics in industrial agile development. This paper presents preliminary results from a systematic literature review. Based on our study, metrics and their use are focused to the following areas: Iteration planning, Iteration tracking, Motivating and improving, Identifying process problems, Pre-release quality, Post-release quality and Changes in processes or tools. The findings are mapped against agile principles and it seems that the use of metrics supports the principles with some deviations. Surprisingly, we find little evidence of the use of code metrics. Also, we note that there is a lot of evidence on the use of planning and tracking metrics. Finally, the use of metrics to motivate and enforce process improvements as well as applicable quality metrics can be interesting future research topics. "

Web link: `http://dl.acm.org/citation.cfm?id=2593873`

Full text link: `https://www.researchgate.net/profile/Mika_Maentylae/publication/266657618_Why_are_industrial_agile_teams_using_metrics_and_how_do_they_use_them/links/54734bea0cf2d67fc0361916.pdf`

Comments: This paper reviews a series of paper about different Agile metrics and talks about the most common ones, the reference section includes lots of papers that may be useful.

Paper 3

Title: Survey on agile metrics and their inter-relationship with other traditional development metrics

Citation: [3]

Abstract: "In our civilized world today, measurement is very important in every aspect of our lives as a means of quantifying our success or progress in whatever activity we involve ourselves in. Consequently, this paper outlines the various metrics that are utilized in the Agile development process and compares them with the ones used in time past to measure success and progress. "

Web link: `http://dl.acm.org/citation.cfm?id=2047430`

Full text link: `https://www.researchgate.net/profile/Sanjay_Misra2/publication/220631207_Survey_on_agile_metrics_and_their_inter-relationship_with_other_traditional_development_metrics/links/5578816a08aeacff20028500.pdf`

Comments: This paper looks traditional and Agile metrics, it talks about how many possible metrics there are how they can vary depending on the software being produced. This should be relevant as the Agile metrics used in game making would likely be different than a piece of commercial software.

Paper 4

Title: Controlling and monitoring agile software development in three dutch product software companies

Citation: [4]

Abstract: " Agile software development governance depends on successful monitoring and control mechanisms. Software development managers generally are unaware of the complete set of monitoring and control mechanisms that are available to them, leading to uninformed decisions with unsuccessful outcomes. This paper presents a list of key process indicators and a list of interventions that software development managers require for successful governance of agile development processes. The list is based on three case studies of product software companies that have successfully developed and sold software for several decades. "

Web link: `http://dl.acm.org/citation.cfm?id=1569155`

Full text link: Couldn't find one.

Comments: I couldn't find a PDF of this paper but the abstract mentions monitoring Agile development so may be relevant.

Paper 5

Title: Appropriate Agile Measurement: Using Metrics and Diagnostics to Deliver Business Value

Citation: [5]

Abstract: " Agile Software Development continually measures both our product and the process used to create it, to allow improvement. With increased popularity, more risk-averse groups are being drawn to Agile, bringing with them modes of evaluation incompatible with Agile values and principles. These outmoded metrics drive dysfunctional behaviors which threaten the integrity of an emerging Agile culture. This paper collects some of the current thinking on appropriate Agile metrics, and proposes simple tools for use by teams or organizations. The intention of these tools is to foster dialogue about the appropriateness of metrics in a given context, and thereby to encourage measurements more congruent with the objectives of Agile teamwork. "

Web link: `http://dl.acm.org/citation.cfm?id=1155521`

Full text link: `http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=343E38B9B8DE1D6F467` `doi=10.1.1.106.7068&rep=rep1&type=pdf`

Comments:

Paper 6

Title: Scrum Metrics for Hyperproductive Teams: How They Fly like Fighter Aircraft

Citation: [6]

Abstract: " Scrum Teams use lightweight tools like Story Points, the Burn down chart, and Team Velocity. While essential, these tools alone provide insufficient information to maintain a high energy state that yields Hyper productivity. More data is required, but data collection itself can slow Teams. This effect must be avoided when productivity is the primary marker of success. Here we describe nine metrics that can develop and sustain Hyper productive Teams – Velocity, Work Capacity, Focus Factor, Percentage of Adopted Work, Percentage of Found Work, Accuracy of Estimation, Accuracy of Forecast, Targeted Value Increase, Success at Scale, and the Win/Loss Record of the Team. The unique contribution of this paper is to demonstrate how a light touch and lightweight strategy can be used to compare Teams with different Story Point reference scales. "

Web link: `http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6480431`

Full text link: `https://www.researchgate.net/profile/Jeff_Sutherland/publication/` `261047137_Scrum_Metrics_for_Hyperproductive_Teams_How_They_Fly_like_` `Fighter_Aircraft/links/561ff47708aea35f267e1235.pdf`

Comments: This paper looks at different Agile metrics specifically velocity.

References

[1] O. Ktata and G. Lévesque, "Designing and implementing a measurement program for scrum teams: What do agile developers really need and want?," in *Proceedings of the Third C* Conference on Computer Science and Software Engineering*, C3S2E '10, (New York, NY, USA), pp. 101–107, ACM, 2010.

[2] E. Kupiainen, M. V. Mäntylä, and J. Itkonen, "Why are industrial agile teams using metrics and how do they use them?," in *Proceedings of the 5th International Workshop on Emerging Trends in Software Metrics*, WETSoM 2014, (New York, NY, USA), pp. 23–29, ACM, 2014.

[3] S. Misra and M. Omorodion, "Survey on agile metrics and their inter-relationship with other traditional development metrics," *SIGSOFT Softw. Eng. Notes*, vol. 36, pp. 1–3, Nov. 2011.

[4] T.-H. Cheng, S. Jansen, and M. Remmers, "Controlling and monitoring agile software development in three dutch product software companies," in *Proceedings of the 2009 ICSE Workshop on Software Development Governance*, SDG '09, (Washington, DC, USA), pp. 29–35, IEEE Computer Society, 2009.

[5] D. Hartmann and R. Dymond, "Appropriate agile measurement: Using metrics and diagnostics to deliver business value," in *Proceedings of the Conference on AGILE 2006*, AGILE '06, (Washington, DC, USA), pp. 126–134, IEEE Computer Society, 2006.

[6] S. Downey and J. Sutherland, "Scrum metrics for hyperproductive teams: How they fly like fighter aircraft," in *System Sciences (HICSS), 2013 46th Hawaii International Conference on*, pp. 4870–4878, Jan 2013.