The impact of a proposal for innovation measurement in the software industry

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Abstract

Measuring an organization's capability to innovate and assessing its innovation output and performance on the market is a challenging task. We proposed a comprehensive model and a suite of measurements to support this task. In the current paper, we have reflected on the impact of the work. We have mainly relied on quantitative and qualitative analysis of the citations of the paper.

CCS Concepts: • **Computer systems organization** → **Embedded systems**; *Redundancy*; Robotics; • **Networks** → Network reliability.

Keywords: innovation, impact, relevance, measurement

ACM Reference Format:
Nauman bin Ali, Henry Edison, and Richard Torkar. 2018. The impact of a proposal for innovation measurement in the software industry. In *Woodstock '18: ACM Symposium on Neural Gaze Detection, June 03–05, 2018, Woodstock, NY*. ACM, New York, NY, USA, 2 pages. https://doi.org/10.1145/1122445.1122456

1 Introduction

Innovation measurement in SE was a challenge—we contributed with a measurement framework in *Towards innovation measurement in the software industry* [1].

The paper is structured as follows: Section 2 summarizes the contribution of *Towards innovation measurement in the software industry*. In Section 3, we describe a content analysis of the articles citing *Towards innovation measurement in the software industry*. Section 4 discusses the research identified in Section 3 that has extended our work. In Section 5, we discuss the research which documents the use of our work in industrial settings. Lastly, in Section 6 we suggest some directions for future research.

Woodstock '18, June 03–05, 2018, Woodstock, NY

ACM ISBN 978-1-4503-XXXX-X/18/06…$15.00
https://doi.org/10.1145/1122445.1122456

2 Summary and main contributions of *Towards innovation measurement in the software industry*

What was done.

3 Overview of the papers citing our article

Who found it relevant (would be good to have some qualitative data on how they ref the paper). Why did so many cite it?

For understanding the impact of our work, we have relied on the classification schema for academic citations proposed by Teufel et al. [3]. The categories in their schema are listed and briefly described in Table 1.

On February 24, 2020, the *Towards innovation measurement in the software industry*had over 72 citations in Science Direct and Scopus, 61 in Web of Science Core Collection, and 234 in Google Scholar. To get a relatively complete picture of how this work has impacted further research, we decided to analyse the 234 citations on Google Scholar.

While discussing the citations the following reference will be useful [2] We can use this to also articulate why we have relied on citations as a way to reflect on the paper.

4 Positioning in consideration of the recent state of the art and practice

What has been done after this (partly we'll get it from the previous section).

5 Expected impact

Here it would be nice to show cases in industry not counting Ericsson. Perhaps we can get it from Section 3?

6 New emerging ideas and current vision

What will be done, possibly

Table 1. Categories of citing papers from Teufel et al. [3]

Category	Sub-category	Description
Weakness	Weak	Weakness of the approach pursued in *Towards innovation measurement in the software industry*, Weakness in the definition, model, entities, attributes, or measurements of innovation as proposed in *Towards innovation measurement in the software industry*
Contrast/Comparison	CoCoGM	Contrast/Comparison in Goals or Methods (neutral)
	CoCoR0	Contrast/Comparison in Results (neutral)
	CoCo-	Unfavourable Contrast/Comparison (current work is better than cited work)
	CoCoXY	Contrast between two cited methods
Positive sentiment	PBas	author uses cited work as starting point
	PUse	author uses definitions/models/measures
	PIUse[1]	author uses cited work in industrial settings
	PModi	author adapts or modifies definition/model/measurements
	PMot	this citation is positive about approach or problem addressed (used to motivate work in current paper)
	PSim	author's work and cited work are similar
	PSup	author's work and cited work are compatible/provide support for each other
Neutral	Neut	Neutral description of cited work, or not enough textual evidence for above categories or unlisted citation function.

Table 2. Results of an analysis of the citing papers

Sub-category	References	Self-citations	Our network	From SE	Outside SE	Peer-reviewed	By practitioners
Weak							
CoCoGM							
CoCoR0							
CoCo-							
CoCoXY							
PBas							
PUse							
PIUse							
PModi							
PMot							
PSim							
PSup							
Neut							

7 References

References

[1] Henry Edison, Nauman Bin Ali, and Richard Torkar. 2013. Towards innovation measurement in the software industry. *Journal of Systems and Software* 86, 5 (2013), 1390–1407.

[2] Bart Penders. 2018. Ten simple rules for responsible referencing. *PLoS computational biology* 14, 4 (2018).

[3] Simone Teufel, Advaith Siddharthan, and Dan Tidhar. 2009. An annotation scheme for citation function. In *Proceedings of the 7th SIGdial Workshop on Discourse and Dialogue* (Sydney, Australia) *(SigDIAL '06)*. Association for Computational Linguistics, USA, 80–87.