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# **TRECEREA LA AGILE ÎN DEZVOLTAREA DE SOFTWARE PENTRU A ÎMBUNĂTĂȚI VALOAREA LIVRATĂ**

## **Proiect de master**

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## ABSTRACT

În prezent, managementul proiectelor este un subiect foarte discutat. Modul de management al proiectelor metodologia nu s-a schimbat semnificativ față de anii 60. In diferite sectoare, piața construcțiilor, IT și modul în care proiectele sunt achiziționate astăzi s-au schimbat. Această situație duce la o problemă, unde o perspectivă managerială și modul în care sunt executate proiectele de software development are un mare decalaj. Acesta este motivul pentru a schimba și a căuta noi abordări de management proiectelor în viitor.

Practic, abordarea agile proiect management este adoptată din IT, de unde metodologia s-a dezvoltat prin procese empirice. Este potrivit în special pentru proiecte complexe, în care este dificil de specificat în avans cerințele și rezultatele finale. Este adoptat de atâtea alte industrii, nu doar a IT, dar si departamentelor, unde sunt capabili să detecteze problemele prin teste repetitive și îmbunătățiri constante.

Această teză a cercetat care sunt oportunitățile și beneficiile implementării metodologiei agile in management proiectului în software development.

Există multe avantaje găsite în implementarea unei abordări agile pentru a crește participarea fiecărui membru al echipei de dezvoltare a proiectului comparativ cu situația actuală. În plus, crește implicarea clientului și grupul de angajați mai concentrat.

Mai mult de atât, scade întârzierea, incertitudinea și riscul implicat în faza de construcție. se concentrează, de asemenea, pe managementul timpului și pe întâlniri regulate, care vor fi benefice pentru a ține evidența progresului proiectului.

**Cuvinte cheie:** Management de proiect, Metodologie Agile, Scrum, software development, adaptabil la schimbare, proiecte IT.

## **ABSTRACT**

Currently, project management is an extremely discussed topic. The way of project management methodology has not changed significantly from the 60's in various sectors, construction market, IT, and the way project is managed today has changed. These circumstances come to a problem, where a managerial perspective and how IT projects are performed have a huge gap in between. This is the motive to make a difference and searching for the new project management approaches in the future.

Essentially, the agile project management approach is embraced from the IT division, from where it has developed through empirical processes. It is basically suited for complex projects, where it is troublesome to indicate requirement and final deliverables in advance. It is embraced by so numerous other IT divisions, where it is possible to identify the issues by repetitive tests and continuous improvements.

This thesis has investigated what are the opportunities and the benefits to execute an agile project management approach within the development stage of an IT project.

There are numerous benefits found of implementing an agile approach to extend participation of each member of the development team in the project compared to the present situation. Additionally, it improves client's involvement and more focused employee group.

Moreover, it diminishes delay, uncertainty, and risk involved during the development phase. It is additionally centered on the time management and regular meetings, that will be useful to keeping track of the project's progress.

**Keywords:** Agile project management, Scrum, Project management, Software Development projects

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## **INTRODUCTION**

Agile project management is an iterative approach to deliver a project throughout its life cycle. Iterative approaches are frequently used in software development projects to promote velocity and adaptability since the advantage of iteration is that you can adjust as you go along instead of following a straight path. Agile software development refers to a group of software development methodologies based on iterative development. The agile methodology has a number of methodologies beneath its umbrella with their appropriateness shifts in industries. The adaptability of any of agile methodologies in corporate organizations brought challenges due to some other standards already in place conflicting with agile. We will describe in this document some of the challenges corporate organizations are going through in order to adopt the agile software development life cycle.

Software engineering is defined as the process of designing and implementing systems on time and on budget, and identified Agile methodology with Scrum as an example of an iterative approach to developing and delivering systems. This style of development is rapidly becoming the trend in the IT industry due to its high success rate and quick delivery of software products. Studies in the past using the iterative development approach were completed without the basis of a company client.

Agile innovation methods have revolutionized information technology. Over the past 25 to 30 years they have enormously increased success rates in software development, developed high quality and speed to market, and enhanced the motivation and productivity of IT teams.

Currently, agile methodologies that imply new values, principles, practices, and advantages and are an absolute replacement to command-and-control style management.

## BIBLIOGRAPHY

1. Software Engineering, 10th Edition Ian Sommerville, University of Lancaster, United Kingdom, University of St Andrews, Scotlan, 2016 Pearson
2. [Embracing Agile \(hbr.org\)](#)
3. N. Stankovic and T. Tillo, “Concurrent Software Engineering Project,” Journal of Information Technology Education, Vol. 8, 2009, pp. 27-41.
4. Project Management Institute. 2017. A Guide to the Project Management Body of Knowledge (PMBOK Guide). 6th ed. Newton Square, PA: Project Management Institute - P.6
5. Raymond, L., & Bergeron, F. (2008). Project Management Information Systems: An Empirical Study of Their Impact on Project Managers and Project Success. International Journal of Project Management, 26, 213-220.
6. <http://dx.doi.org/10.1145/1060710.1060712>
7. [CHAOSReport2015-Final.pdf \(standishgroup.com\)](#)
8. Effective Project Management: Traditional, Agile, Extreme, 7th Edition. Robert K. Wysocki.
9. Aguanno, 2004: Aguanno, K. (2004). Managing agile projects. Lakefield, Canada: Multi-Media Publications Inc.
10. Royce, W.W. (1970) Managing the Development of Large Software Systems. Proceedings of IEEE WESCON, 26, 328-388.
11. [Microsoft Word - How a Traditional Project Leader Transitions to Scrum - 20110711.docx \(scruminc.com\)](#)
12. Project management and its effects on project success Marly Monteiro de Carvalho, Leandro Alves Patah, Diógenes de Souza Bido International Journal of Project Management, October 2015, Elsevier
13. Cohen, D., Lindvall, M. and Costa, P. (2004) An Introduction to Agile Methods. Advances in Computers, 62, 1-66.
14. M. Khalifa, J. Verner; Published 1 August 2000; Business; IEEE Trans. Engineering Management.

15. Highsmith, J. and Cockburn, A. (2001) Agile Software Development: The People Factor. IEEE Computer, 34, 131-133.
16. [Scrum Guide | Scrum Guides](#)
17. [Toyota Global Site | Frontier Research \(toyota-global.com\)](#)
18. Lee, Gwanhoo and Xia, Weidong. 2010. "Toward Agile: An Integrated Analysis of Quantitative and Qualitative Field Data," MIS Quarterly,
19. Yusuf, Y., Sarhadi, M. and Gunasekaran, A. (1999) Agile Manufacturing The Drivers, Concepts and Attributes.
20. Handbook of Positive Supervision for Supervisors, Facilitators, and Peer Groups 1st edition by Fredrike Bannink (2014) Paperback
21. Bannink, F. P. (2014). Positive CBT: From reducing distress to building success.
22. Kalpana Sureshchandra, J. J. Shrinivasavadhani
23. Chen, R.R., Ravichandar, R., Proctor, D.: Managing the transition to the new agile business and product development model: lessons ... 57, 116–140 (2015)
24. Ganesh, N. & Thangasamy, S. (2012). Lessons Learned in Transforming from Traditional to Agile Development.
25. Boehm, B. and Turner, R. (2005) Management Challenges to Implementing Agile Processes in Traditional Development Organizations.
26. Chow, D.-B. Cao / The Journal of Systems and Software 81 (2008) 961–971
27. Gandomani, T.J., Zulzalil, H., Ghani, A.A.A., Sultan, M.A.B.: Towards comprehensive and disciplined change management strategy in agile
28. Ganesh, N. & Thangasamy, S. (2012). Lessons Learned in Transforming from Traditional to Agile Development. Journal of Computer Scienc
29. Asnawi, A.L., Gravell, A.M., Wills, G.B. (2011). Empirical Investigation on Agile Methods Usage:
30. Nuottila, Jouko; Aaltonen, Kirsi; and Kujala, Jaakko (2016) "Challenges of adopting agile methods in a public organization,"

31. [Scaling agile at financial institutions: Lessons from the trenches \(deloitte.com\)](#)
32. People over Process: Key Challenges in Agile Development
33. McHugh, Orla; Conboy, Kieran; and Lang, Michael (2011) "Using Agile Practices to Influence Motivation within IT Project Teams,"
34. [Transition to Agile Development - Rediscovery of Important Requirements Engineering Practices | IEEE Conference Publication | IEEE Xplore](#)
35. [A survey study of critical success factors in agile software projects - ScienceDirect](#)