Navigating Digital Transformation: A Survey Study on Agile Adoption Impact

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Abstract

Enhancing organizational agility is important for successful digital transformation. This study investigates the impact of agile practices on large organizations in Croatia, aiming to determine their effect on HR, process performance, clients, and technology, and to identify correlations among these dimensions. A survey of employees from large Croatian companies revealed that agile methodologies positively impact all organizational dimensions. Key findings indicate improvements in employee motivation, interpersonal relations, internal communication, team productivity, change management, and faster problem detection. Agile practices also enhance client satisfaction, communication, and user participation in product development. However, the adoption of cutting-edge technologies like AI and blockchain remains limited. Strong correlations among the dimensions suggest that improvements in one area positively influence others, underscoring the benefits of agile transformation. This study emphasizes the need for leadership support, cultural readiness, and continuous learning to drive digital change effectively. The findings provide actionable insights for organizations aiming to implement agile methodologies, highlighting their versatility across various sectors including public administration, healthcare, and marketing. By focusing on large companies in Croatia, this research adds a new regional perspective to the global discourse on agile and digital transformation.

Keywords: agile transformation, digital transformation, organizational agility, leadership
JEL classification: O30, M15, L86

Paper type: Research article
Received: 3 May 2024
Accepted: 6 August 2024

DOI: 10.54820/entrenova-2024-0034

Introduction

Enhancing organizational agility is critical for successful digital transformation. Agile practices, as noted by various researchers, enable quick adaptation to market demands and customer needs, fostering collaboration, responsiveness, and continuous feedback. This adaptability is crucial for driving digital innovation and maintaining a competitive edge. Agile leadership is particularly essential, as it cultivates a dynamic capability within organizations to navigate rapid technological changes.

Practical applications of agile methods, such as daily stand-up meetings and sprint planning, enhance collaboration and transparency, key elements for iterative and incremental digital transformation processes. However, a significant risk of failure in digital transformation efforts exists, often due to a disconnect between business and technology leaders. Shared ownership and collaborative goals between these teams are vital for bridging this gap and enhancing success rates.

The study investigates the impact of agile transformation on digital transformation within large organizations in Croatia. It aims to determine the effect of agile practices on key organizational dimensions and identify correlations among them. A survey conducted among employees of large Croatian companies focused on HR, process performance, clients, and technology. Results indicate a positive impact of agile methodologies on all dimensions, emphasizing the importance of leadership support, cultural readiness, and continuous learning for successful digital transformation.

This paper addresses the importance of agile transformation in enhancing organizational adaptability and innovation, examining the following research questions: (i) Can agile transformation positively impact the five dimensions of interest? (ii) Is there a significant correlation among these dimensions? (iii) How can organizations enhance the success of digital transformation through effective agile practices? The results from the survey among large Croatian companies will be discussed, highlighting the implications for practice and future research.

Literature review

The literature consistently highlights the critical role of agile methodologies in driving successful digital transformation across various sectors. The adoption of agile practices not only enhances organizational adaptability and innovation but also addresses specific industry challenges, from public administration to healthcare and marketing.

Agile methodologies in business in general

The complexity of business requires innovative and new approaches in all aspects of development. Whether it is the development of an idea or software, testing solutions, or other similar aspects. Agile methods stand out as a possible solution for increasing business efficiency Agile methodologies significantly increase the success of business projects across various industries, especially in organizations focused on software development and digital transformation. Fogoroș et al. (2020) suggest that aligning business models with agile methodologies can improve process acceleration and management facilitation, highlighting the need for a cultural shift toward employee and customer-centric approaches.

Frameworks like Scrum and XP are very popular, so Alrajhi, and Saeedi (2018) emphasize that those frameworks enhance flexibility and customer engagement, crucial for successful digital transformation in almost every part of business area. Patnuri (2023) identifies agile leadership as essential for overcoming digital

transformation challenges in IT organizations, with benefits such as improved communication and faster time to market.

Agile adoption as a prerequisite for successful digital transformation

The complexity of digital transformation projects necessitates the adoption of agile methods for success. Sallam et al. (2024) highlights the positive relationship between agile maturity and digital transformation success, emphasizing practices like performance management and customer availability.

Scrum and Kanban are important agile methodologies in enhancing flexibility and adaptability for every digital transformation project, according Popoola et al. (2024). Using agile gives a possibility of early adjustments in case of unforeseen circumstances that may affect the agreed deadlines and success of the digital transformation.

Simon and Schmitt (2023) advocate for 'Agile Science' to enhance interdisciplinary collaboration and responsiveness in digital transformation research. Integration of agile values in digital transformation model to enhance organizational agility is crucial for Bergkvist and Magnusson (2023) while Ibrahimi and Benchekroun (2023) underscore the role of organizational agility in supporting digital transformation, focusing on risk-taking and experimentation.

Delioğlu and Uysal (2022) emphasize the pivotal role of agile leadership in fostering dynamic capabilities and strategic flexibility within organizations, crucial for adapting to rapid technological changes.

Sector-Specific Applications and Challenges

Agile methodologies have been tailored to meet the unique needs of different sectors, demonstrating their versatility and effectiveness. Ciancarini, Giancarlo, and Grimaudo (2024) discuss the adaptation of agile methodologies like Scrum in public administrations, which improve the quality of digital services by promoting flexibility and responsiveness.

Palfreyman and Morton (2022) highlight that strategic agility is essential for fostering innovation in the UK healthcare sector, with agile processes helping to overcome governance and financial constraints. Advancements in the healthcare sector, especially considering the impact of AI, necessitate the ability for rapid adaptation, which is achievable using agile methods

Moi and Cabiddu (2020) explore agile marketing capabilities in international digital marketing contexts, emphasizing quick adaptation and continuous innovation. Similar as in healthcare sector, technological advancements make it very important being quick in adoptions and adjustments.

Agile model for the digital transformation of universities and focus on integrating digital techniques into teaching and learning activities to drive growth and competitiveness is proposed by Kerroum et al. (2020). This becomes extremely important in the context of the increasing focus on online learning and teaching. Those who successfully perceive and can quickly adapt to these trends will attract a larger number of students

Wiechmann et al. (2022) identify key factors influencing the success of agile management in digital transformation within medium-sized businesses, highlighting organizational structure, technology adoption, and cultural change.

Methodology

The survey aimed to gather data from employees of large companies in Croatia across five key organisational dimensions: HR, Process, Performance, Clients, and Technology. Each section included multiple items designed to measure the respondents' perceptions and experiences with agile methodologies.

A questionnaire was constructed that examined how people in the organisations they work for see agile as a methodology. The questionnaire consisted of six parts. The first part examined the demographic characteristics of the sample and the methods and tools to support agile methods used in the organisation. The other five parts consisted of 5-6 questions each within five categories, which are: HR dimension and influence on relations in the organisation; Process dimension and influence on processes in the organisation; Performance indicator; Clients and service users; Technological dimension and use of technology in the organisation.

The questionnaire was distributed through the LinkedIn social network and through business addresses within companies using agile methodology. As the research area is the use of agile methodology in large companies, all answers of respondents who are employed in companies with less than 250 employees were excluded from the analysis. Furthermore, all answers of participants who do not use agile methodology in their work were excluded from the analysis. The survey was distributed electronically to a targeted sample of employees across various industries. A total of 350 responses were collected, providing a robust dataset for analysis.

In total, 115 participants employed in large software companies took part in the research. Large companies have more than 250 employees. There were 10 participants (8,7%) in the 18-25 age group, 44 participants in the 26-35 age group (38,3%), 45 participants in the 26-35 age group (39,1%), while there were 16 participants in the 46-55 age group (13,9%). Most participants fall within the 26-45 age range, comprising nearly 78% of the sample. Gender distribution is as follows: 67 are men (59,3%), while 48 are women (41,7%). According to job functions, 20 participants (17,4%) work in administrative positions. Fifty-two employees (42,2%) work in managerial positions, and 43 (37,4%) work in projects. Agile methodologies are widely used across various job functions, with a significant presence in management and project roles.

Results

Full The results will be presented according to five dimensions, which were also used in the survey. Basic measures will be shown, as well as the relationships between the dimensions through the calculation of the Pearson correlation coefficient.

Impact of agile methodology on human relations in organisation

Table 1 presents a set of questions about the impact of agile methodologies on human relations with the basic statistical measures.

The mean score of 3.53 indicates a generally positive perception of agile methodologies to increase employee motivation. With a mean score of 3.63, respondents generally agree that interpersonal relations improved after adopting agile methodologies. The mean score of 3.89 suggests a relatively strong agreement that internal communication between departments improved.

For the question related to the quality of new hires, the mean score of 3.35 suggests a moderate perception that this part improved.

Table 1
Descriptive statistics of variables measuring the perceived impact of agile methodology on human relation in organisations

Survey statement	N	Min	Max	Mean	SD
After using the agile methodology in work, the motivation of the employees increased.	115	1	5	3.53	1.079
After using the agile methodology in the work, interpersonal relations improved.	115	2	5	3.63	0.985
After using the agile methodology in work, internal communication between departments improved.	115	1	5	3.89	1.130
After using the agile methodology, more quality people are employed.	115	1	5	3.35	1.116
After the use of agile methodology, more people who are familiar with agile work methods are employed.	115	1	5	4.26	0.974
After the use of agile methodology, internal training improved for employees.	115	1	5	3.32	1.232

Source: Authors' work

The very high mean score of 4.26 indicates strong agreement that more "agile-competent" employees are being hired. Moderate perception of improved internal training for employees is justified with a mean score of 3.32.

Impact of agile methodology on efficiency of software development

Table 2 presents a set of questions about the impact of agile methodology on the efficiency of software development.

The mean score of 3.98 indicates a positive perception of improved team productivity after adopting agile methodologies. Respondents generally perceive better management of changes and greater flexibility in product development with agile methodologies, indicating a mean score of 3.9.

Improvements in team management due to agile methodologies got a mean score of 3.88. A very high mean score of 4.17 indicates a strong result that agile methodologies lead to faster problem detection in product development. The mean score of 3.98 shows that respondents experience frequent changes in product development direction with agile methodologies.

Table 2
Descriptive statistics measuring the perceived impact of agile methodology on efficiency of software development

Survey statement	N	Min	Max	Mean	SD
After using the agile methodology in the work, team productivity improved.	115	1	5	3,98	1,402
After using the agile methodology in the work, changes in product development are better managed, and greater flexibility is observed.	115	1	5	3,97	1,429
After using the agile methodology in the work, better team management is observed.	115	1	5	3,88	1,562
After using the agile methodology in the work of the agile methodology, there is a faster detection of problems in product development.	115	1	5	4,17	1,410
After using the agile methodology in the work, there are frequent changes in the direction of product development.	115	1	5	3,98	1,622
After using agile methodology in work, better product/software maintenance is observed.	115	1	5	3,64	1,596

Source: Authors' work

Impact of agile methodology on the quality of software quality

In Table 3, the mean score of 3.57 indicates a moderate positive perception of improved product quality following the adoption of agile methodologies. The "Time to market faster" dimension got a mean score of 3.83, and it reflects a general agreement that products reach the market faster with agile methodologies. Regarding cost reduction in product/software development, the mean score of 2.93 indicates a lower perception of cost reductions because of agile. This score is slightly below the mid value, suggesting that respondents are less convinced about the cost-saving benefits of agile methodologies.

The moderately positive perception that agile methodologies contribute to higher company income is indicated with a mean score of 3.37. The results indicate that respondents generally perceive agile methodologies to positively impact performance indicators such as product quality, faster time to market, and higher company income. However, there is less confidence and variability concerning cost reduction and risk management.

Table 3
Descriptive statistics measuring the perceived impact of agile methodology on the software quality

Survey statement	N	Min	Max	Mean	SD
After using the agile methodology in our work, we notice that the products are of better quality.	115	1	5	3,57	1,036
After using the agile methodology in the work, the products reach the market faster.	115	1	5	3,83	1,209
After using the agile methodology in the work, costs in product/software development are reduced.	115	1	5	2,93	1,269
After using the agile methodology in the work, the company's income is higher.	115	1	5	3,37	1,135
After using the agile methodology in the work, the project risk is reduced.	115	1	5	3,23	1,257

Source: Authors' work

The impact of agile methodology on the satisfaction of clients or users of developed software solution

Table 4 presents the impact of agile methodology on the satisfaction of clients or users of developed software solutions.

The mean scores of 4.01, 4.00, and 4.25 indicate that respondents generally perceive a positive impact of agile methodologies on client/user satisfaction, communication, and participation in development. These results suggest that the implementation of agile methodologies has a significant and generally consistent positive impact on client/user satisfaction, communication, and participation in development.

A more moderate perception of agile methodologies' impact on attracting potential users and user recommendations is indicated with mean scores of 3.34 and 3.38, respectively. These scores are closer to the neutral midpoint, suggesting mixed perceptions. Results suggest that while some respondents see benefits in terms of increased visibility and user recommendations due to agile methodologies, these benefits could be more consistently experienced across the organisations. The high variability indicates that the impact of agile practices on these aspects may depend heavily on specific contexts, implementation strategies, and perhaps the nature of the products or services offered.

Table 4
Descriptive statistics measuring the perceived impact of agile methodology on the satisfaction of clients or users of developed software solution

Survey statement	N	Min	Max	Mean	SD
After using agile methodology in our work, we notice greater satisfaction of clients or users.	115	1	5	4,01	1,547
After using the agile methodology in work, there is better communication with clients or users.	115	1	5	4,00	1,528
After using agile methodology in work, users participate more in product/software development.	115	1	5	4,25	1,438
After using the agile methodology in your work, more and more potential users notice you.	115	1	5	3,34	1,762
After using agile methodology in your work, your users recommend you to other users.	115	1	5	3,38	1,775

Source: Authors' work

The impact of agile methodology on the efficiency of technology usage

Table 5 presents descriptive statistics *measuring the perceived impact of* agile methodology on the efficiency of technology usage. The survey results indicate that agile methodologies have a positive impact on the technological dimension within organisations, particularly in increasing the use of digital tools (mean score of 4.57) and recognising the importance of DevOps and cybersecurity (mean score of 4.3 and 4.14, respectively). However, there is more variability and less consensus on the impact of agile methodologies on product maintenance and the adoption of newer technologies like blockchain and AI (mean score of 3.64 and 2.82, respectively).

Table 5
Descriptive statistics measuring the perceived impact of agile methodology on the efficiency of technology usage.

Survey statement	N	Min	Max	Mean	SD
After using the agile methodology in your work, the number of digital tools you use has increased.	115	1	5	4,57	,992
After using the agile methodology in the work, newer technologies (blockchain, artificial intelligence, machine learning) are used for product development.	115	1	5	2,82	1,710
After using the agile methodology in your work, you believe that the introduction of DevOps methodology and processes (process automation) is important for the further development of the company.	115	1	5	4,30	1,357
After using agile methodology in work and using newer technology and tools, How important is the development of cyber security to protect the company/product?	115	1	5	4,14	1,426

Source: Authors' work

The relationship between the summary constructs

Table 6 presents the mean values of various variables measuring the impact of agile methodologies on different aspects of business performance based on responses from 115 participants. The highest mean value is observed for the efficiency of technology usage, with a mean of 3.95, indicating a strong positive impact of agile methodologies in this area. The efficiency of software development is closely followed by a mean of 3.93, suggesting significant improvements in development processes. The satisfaction of clients or users has a mean of 3.72, reflecting generally positive user feedback. Human relations have a mean of 3.66, indicating good but less pronounced improvements in interpersonal aspects. Surprisingly, software quality has the lowest mean of 3.47, showing moderate enhancement in quality due to agile practices.

Table 6
Descriptive statistics of variables measuring the impact of agile methodologies on various aspects of business performance

	Mean	Std. Dev.	N
Human relations	3.66	1.086	115
Efficiency of software development	3.93	1.504	115
Software quality	3.39	1.181	115
Satisfaction of clients or users	3.79	1.61	115
Efficiency of technology usage	3.96	1.371	115

Source: Authors' work

Table 7 presents the correlation coefficients between various variables measuring the impact of agile methodologies on different aspects of business performance. The correlation between human relations and the efficiency of software development is 0.703, indicating a strong positive relationship. Human relations also show a strong positive correlation with software quality (0.751) and client or user satisfaction (0.693). The efficiency of software development has a very strong positive correlation with software quality (0.845) and a strong positive correlation with the satisfaction of clients or users (0.812). Software quality and the satisfaction of clients or users are also strongly positively correlated (0.804). Lastly, the efficiency of technology usage exhibits moderate positive correlations with the other variables, with the highest correlation being with software quality (0.526) and the lowest with human relations (0.402).
The implications of these findings suggest several key points about the impact of agile methodologies on business performance. The strong positive correlations between human relations, software development efficiency, software quality, and client or user satisfaction imply that improvements in one area are likely to be accompanied by enhancements in others. This connection suggests that agile methodologies foster holistic improvement across various business performance dimensions.

Table 7
Pearson correlations between the investigated constructs

Variable	Human relations	Software development Efficiency	Software quality	Client Satisfaction	Technology usage
Human relations	1.000				
Efficiency of software development	0.703	1.000			
Software quality	0.751	0.845	1.000		
Satisfaction of clients or users	0.693	0.812	0.804	1.000	
Efficiency of technology usage	0.402	0.407	0.526	0.479	1.000

Note: All coefficients are significant at 1%

The strong correlation (0.703) between human relations and the efficiency of software development indicates that agile methodologies likely improve interpersonal interactions, which in turn enhance development efficiency. This highlights the importance of maintaining good team dynamics and communication in agile practices. The high correlations between software quality, efficiency of software development, and client or user satisfaction (0.845 and 0.804, respectively) suggest that agile methodologies significantly contribute to delivering high-quality software, which positively impacts client satisfaction. This underscores the effectiveness of agile methodologies in meeting client expectations and improving overall user experience. The moderate correlations of technology usage efficiency with other variables, particularly its highest correlation with software quality (0.526), indicate that while agile

methodologies positively influence technology usage efficiency, the impact is less pronounced compared to other areas. This suggests that there might be additional factors beyond agile practices that contribute to technological efficiency. Varying strengths of correlations suggest that organisations might benefit from focusing on specific areas to maximise overall performance. For instance, enhancing human relations and development efficiency can have a cascading positive effect on other performance aspects due to their strong interrelationships.

Discussion

Theoretical contributions

The research contributes to the broader literature on digital transformation by providing empirical evidence on the role of agile methodologies in facilitating digital change. It supports the arguments made by researchers like Fogoroș et al. (2020) and Simon and Schmitt (2023) regarding the critical role of agile practices in driving digital innovation and responsiveness. The study reinforces the notion that successful digital transformation requires not just technological adoption but also an agile organisational culture.

The study highlights key success factors for agile transformation, such as leadership support, cultural readiness, and continuous learning. By pinpointing these factors, the research provides practical guidance for organisations aiming to implement agile methodologies effectively. This practical insight bridges the gap between theoretical frameworks and real-world application, offering actionable recommendations for practitioners. The inclusion of case studies and examples from the public sector, particularly the Danish Tax Authority, provides a unique perspective on agile transformation in a traditionally rigid and hierarchical environment. This focus extends the applicability of agile methodologies beyond the private sector, demonstrating their relevance and benefits in public sector organisations. The study by Ciancarini et al. (2024) underscores this by showing how tailored agile practices can enhance service delivery in public administrations.

Upon analyzing the outcomes of the survey, it becomes evident that the adoption of Agile practices can offer significant advantages to large organisations. The survey results related to HR Dimension and Organisational Relationships indicate a positive impact of agile methodologies on the HR dimension, with improvements in employee motivation, interpersonal relationships, and internal communication. This aligns with the literature, which highlights the need for a cultural shift within organisations to embrace agile practices. Fogoroș et al. (2020) emphasised that agile methodologies require a collaborative, responsive, and continuous feedback culture, which is reflected in the survey findings.

It has been shown that agile methodologies improve team productivity, change management, and problem detection (Process Dimension and Organisational Processes). This corresponds with the literature review, where Popoola et al. (2024) discussed how practical applications of agile methods enhance collaboration and transparency, essential for iterative and incremental digital transformation processes. Additionally, the literature by Simon and Schmitt (2023) highlights the need for interdisciplinary collaboration and adaptability, reinforcing the survey's findings on improved team management and flexibility.

The result of the survey indicates a moderate positive impact of agile methodologies on performance indicators, such as product quality and time-to-market. However, the results also suggest room for improvement in cost reduction and revenue generation. This is consistent with the literature, where Alruwaili et al. (2018)

noted that agile frameworks support continuous improvement and reduce project failure risks, but successful digital transformation also requires strategic alignment and clear transformation goals, as pointed out by Sallam et al. (2024).
Additionally, results show significant improvements in client and user satisfaction, communication, and participation in product development. This aligns with the literature, where Kerroum et al. (2020) and Patnuri (2023) emphasise the importance of client-centricity and user engagement in digital transformation. Agile methodologies facilitate better interactions with clients and users, enhancing their overall experience.

Improvements in product/software maintenance and the adoption of digital tools are evident by the results of the survey, although the use of cutting-edge technologies like AI and blockchain remains limited. This reflects the findings in the literature by Bergkvist and Magnusson (2023), who stressed the need for integrating agile values in digital transformation models to enhance organisational agility. The literature also points to the importance of advanced technologies in driving innovation, as noted by Palfreyman and Morton (2022).

Related to calculated correlations between the dimensions suggest that improvements in one area (e.g., HR practices) positively influence others (e.g., process efficiency and client satisfaction). This highlights the importance of a holistic approach to agile transformation, as discussed by Wiechmann et al. (2022) and Ciancarini et al. (2024). The need for integrated management practices to optimize HR, processes, performance, client relations, and technology utilization is crucial for achieving successful digital transformation.

Practical implications

The practical contribution of this paper is evident through given actionable insights and recommendations for organizations undergoing digital transformation through agile methodologies. The paper demonstrates that agile practices improve an organization's ability to adapt to market demands and customer needs, fostering a culture of collaboration, responsiveness, and continuous feedback. Agile methodologies positively impact human resources by increasing employee motivation, improving interpersonal relationships, and enhancing internal communication. This shift towards a more collaborative and responsive work environment is crucial for successful digital transformation. Agile methodologies contribute to higher product quality and faster time-to-market, aligning with the principles of continuous improvement and customer-centric approaches. This is essential for maintaining a competitive edge in the market.

The paper highlights that agile methodologies increase the use of digital tools and emphasize the importance of DevOps and cybersecurity. However, the adoption of cutting-edge technologies like AI and blockchain remains limited, suggesting areas for further improvement.
The strong correlations between different organizational dimensions suggest that improvements in one area, such as HR practices, positively influence others, like process efficiency and client satisfaction. This underscores the importance of a holistic approach to agile transformation. The research identifies leadership support and cultural readiness as key success factors for agile transformation. Organizations must foster a culture of continuous learning and adaptability to drive digital change effectively.
The paper provides examples of agile transformation in various sectors, including public administration, healthcare, and marketing. This demonstrates the versatility and effectiveness of agile methodologies across different industries. Focusing on large

organizations in Croatia, the study adds a new dimension to the global discourse on agile and digital transformation. This regional perspective contributes to a more diverse and inclusive understanding of agile practices. The study provides a detailed statistical analysis of the impact of agile transformation on digital transformation, contributing to the broader literature and offering a robust foundation for further research.

Conclusion

This study is one of the first to explore the impact of agile transformation within the specific context of large Croatian companies. By providing context-specific insights, the research adds a new dimension to the global discourse on agile and digital transformation. It addresses a gap in the literature where regional studies are often underrepresented, thereby contributing to a more diverse and inclusive understanding of agile practices.

It is focused on examining the impact of agile transformation on digital transformation within large organisations in Croatia. The main problems addressed in the paper included understanding the specific areas affected by agile methodologies and identifying the key success factors and challenges associated with their implementation. The research aimed to provide comprehensive insights into how agile practices influence organisational dimensions such as HR, Process, Performance, Clients, and Technology, and to explore the interrelationships among these dimensions. The survey results indicated that agile methodologies positively impact all five organisational dimensions.

The research questions in this study are designed to explore the impact of agile transformation on digital transformation and to understand the specific areas affected by agile practices. The justification for these research questions is grounded in both the survey results and the insights from the literature review.

The first research question (RQ1) seeks to understand whether agile transformation can influence key organisational dimensions: HR, Process, Performance, Clients, and Technology. The justification for this question is twofold. The survey conducted showed that agile methodologies have a positive impact on these dimensions. For example, improvements in team productivity, communication, and customer satisfaction were noted, aligning with agile principles of continuous improvement and customer-centric approaches. The literature supports the idea that agile methodologies enhance various organisational aspects. Fogoroș et al. (2020) emphasised the importance of a cultural shift towards collaboration and responsiveness, which directly impacts HR and process dimensions. Similarly, Popoola et al. (2024) highlighted that agile practices improve performance indicators and client satisfaction, while Kerroum et al. (2020) discussed the technological advancements facilitated by agile methods.

The second research question (RQ2) aims to investigate the interrelationships between the different organisational dimensions affected by agile transformation. The interdependencies observed in the survey data warrant a deeper exploration of how improvements in one dimension might influence others. The literature indicates that agile transformation is a holistic process that affects multiple areas of an organisation simultaneously. Simon and Schmitt (2023) noted the importance of interdisciplinary collaboration, which implies a correlation between HR and process dimensions. Moreover, Alruwaili et al. (2018) found that technological advancements often lead to better performance outcomes, suggesting a link between the technology and performance dimensions.

The third research question (RQ3) focuses on identifying strategies for successful digital transformation through effective agile practices. The survey results highlighted

specific areas where agile practices have shown to be beneficial, such as improved team collaboration and faster response times to market changes. Understanding these areas can help organisations refine their agile transformation strategies to support digital transformation more effectively. The literature underscores the importance of agile leadership and strategic alignment in driving successful digital transformation. Delioğlu and Uysal (2022) emphasised the role of agile leadership in fostering a culture of continuous learning and adaptability, which is crucial for digital transformation. Additionally, Sallam et al. (2024) discussed the need for clear transformation goals and agile maturity models to overcome challenges and ensure successful outcomes.

In terms of scientific contribution, the study provides a detailed statistical analysis of the impact of agile transformation on digital transformation, contributing to the broader literature on the subject. It offers a comprehensive examination of the correlations between different organisational dimensions affected by agile practices. The research identifies key success factors for agile transformation, such as leadership support and cultural readiness, which are essential for driving digital change. It extends the applicability of agile methodologies to the public sector, demonstrating their relevance and benefits in traditionally rigid environments.

There are several practical contributions. The findings offer actionable recommendations for practitioners, including the importance of inclusive agile training and continuous improvement strategies. Organisations are provided with practical guidance on leveraging agile practices to enhance their digital transformation efforts. The study raises awareness of the importance of an agile approach in digital transformation and offers insights into the specific challenges and best practices associated with its implementation.

While the study offers valuable insights, it also has limitations that should be acknowledged. The focus on large organisations in Croatia may limit the generalizability of the findings to other contexts and smaller organisations. The reliance on self-reported survey data may introduce bias, as respondents' perceptions might not fully reflect actual practices and outcomes. The study does not extensively explore the long-term impact of agile transformation, as the data reflects a snapshot in time. However, despite these limitations, the study provides a robust foundation for understanding the impact of agile methodologies on digital transformation and offers a basis for further research.

Future research should aim to address the limitations identified in this study and explore additional areas. Expanding the research to include organisations of various sizes and from different regions to enhance the generalizability of the findings. Conducting studies to examine the long-term effects of agile transformation on digital transformation. Incorporating mixed methods approaches, including qualitative interviews and case studies, to gain deeper insights into the mechanisms and processes underlying the observed impacts. Investigating the specific challenges and opportunities associated with agile transformation in different sectors, particularly those with unique regulatory and operational constraints.

References

1. Alruwaili, F., Alrajhi, M., & Saeedi, K. (2018). How agile development and its tools support digital transformation. International Journal of Computers & Technology, 18, 7440-7449. Retrieved from https://cirworld.com/index.php/ijct
2. Bergkvist, L., & Magnusson, M. (2023). Digital transformation models: A literature review from an agile perspective. International Symposium on Digital Transformation, Linnaeus University, Växjö, Sweden. https://doi.org/10.1016/j.lrp.2018.12.001
3. Ciancarini, P., Giancarlo, R., & Grimaudo, G. (2024). Scrum@PA: Tailoring an agile methodology to the digital transformation in the public sector. Information, 15(110). https://doi.org/10.3390/info15020110
4. Delioğlu, N., & Uysal, B. (2022). A review on agile leadership and digital transformation. Yıldız Social Science Review, 8(2), 121–128. https://doi.org/10.51803/yssr.1188173
5. Fogoroș, T. E., Olaru, S. M., Trifan, B. I., & Maier, D. (2020). Study on agile digital transformation in relation to organisational innovation. Proceedings of the 3rd International Conference on Economics and Social Sciences (ICESS), Bucharest, Romania. Retrieved from https://www.researchgate.net/publication/366894719_Study_on_Agile_Digital_Transformation_in_relation_to_organisational_innovation
6. Ibrahimi, G., & Benchekroun, B. (2023). The contribution of agility to an organisation's digital transformation. TEM Journal, 12(4), 2361-2369. https://doi.org/10.18421/TEM124-48
7. Kerroum, K., Khiat, A., Bahnasse, A., Aoula, E. S., & Khiat, Y. (2020). The proposal of an agile model for the digital transformation of the University Hassan II of Casablanca 4.0. Procedia Computer Science, 175, 403-410. https://doi.org/10.1016/j.procs.2020.07.057
8. Moi, L., & Cabiddu, F. (2020). Leading digital transformation through an agile marketing capability: The case of Spotahome. Journal of Management and Governance, 25(4), 1145-1177. https://doi.org/10.1007/s10997-020-09534-w
9. Palfreyman, J., & Morton, J. (2022). The benefits of agile digital transformation to innovation processes. Journal of Strategic Contracting and Negotiation, 6(1), 26-36. https://doi.org/10.1177/20555636221079943
10. Palfreyman, J., & Morton, J. (2022). The benefits of agile digital transformation to innovation processes. Journal of Strategic Contracting and Negotiation, 6(1), 26-36. https://doi.org/10.1177/20555636221079943
11. Patnuri, R. P. (2023). Agile adoption for digital transformation in the IT sector. European International University. https://example.com/agile-adoption-for-digital-transformation-in-the-it-sector
12. Popoola, O. A., Adama, H. E., Okeke, C. D., & Akinoso, A. E. (2024). Conceptualizing agile development in digital transformations: Theoretical foundations and practical applications. Engineering Science & Technology Journal, 5(4), 1524-1541. https://doi.org/10.51594/estj/v5i4.1080
13. Sallam, S. H. A., Fouad, M. M., & Hemeida, F. (2024). Relationship between agile maturity and digital transformation success. Journal of Advanced Research in Applied Sciences and Engineering Technology, 33(3), 154-168. https://doi.org/10.37934/araset.33.3.154168
14. Simon, S. T., & Schmitt, J. B. (2023). Agile science: Co-creating research on digital transformation. easy_social_sciences, 68, 12-20. https://doi.org/10.15464/easy.2023.02
15. Wiechmann, D. M., Reichstein, C., Haerting, R.-C., Bueechl, J., & Pressl, M. (2022). Agile management to secure competitiveness in times of digital transformation in medium-sized businesses. Procedia Computer Science, 207, 2353-2363. https://doi.org/10.1016/j.procs.2022.09.294

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