

# Exploring the Impact of AI technology Adoption on Productivity of Agile Software Development Teams with High Attrition: A Pilot Study

Exploring the Impact of AI  
technology Adoption on  
Productivity of Agile  
Software Development  
97

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## Abstract

**Purpose:** This study explores the effect of the adoption of AI tools and frameworks on the productivity of Agile software development teams with high attrition rates.

**Design/methodology/approach:** For this study, uses a combined theory approach to build and test a model for the effects of productivity factors along with the impact of AI technology on to the Agile software development team's productivity having a high attrition rate. A web-based survey is used to collect the sample data, which was eventually tested with the help of SmartPLS using partial least square methods and Bootstrapping.

**Findings:** This study shows that the adoption of AI technology has a partial mediation effect on the Agile software development teams having a high attrition rate but could help sustain it by automating mundane tasks for predictable outputs.

**Research limitations/implications:** Limited availability of data regarding factors of productivity, inadvertent sampling bias, and selecting the appropriate size of a data sample

**Originality:** The study findings shows that the AI technologies and tools, will help teams to sustain their productivity even though there are constraints like high attrition.

**Keywords:** Agile, Artificial Intelligence (AI), Attrition, Productivity Factors, Software Development.

## 1. Introduction

Agile Software Development promotes iterative development where highly-collaborative, self-organizing, and cross-functional development teams work together towards target business goals. In recent years, the adoption of Agile methods in practice has increased from 40% in 2007 to almost 97% in 2018 (Hoda et al., 2018). As productivity is a measure of success for system analysis and hence several researchers have worked towards, determining ways to improve it as well as factors affecting productivity improvement (Shah et al., 2015). It is challenging to identify factors influencing productivity at the process level as there could be numerous distinct factors at the numerous levels of the execution (Fatema & Sakib, 2018). As of today, Artificial intelligence (AI) adoption in the software development world is a buzzing term. Artificial intelligence (AI) is increasingly being used in Agile development and other fields. The fast-developing domains of AI are ideal for Agile's speed and efficiency. Recently in post pandemic times, it is observed that these agile software development teams are dealing with high attrition and turn-over rates and which is certainly affecting the productivity of software development team. In this study, explores, whether AI technology adoption would influence the productivity of the Agile software development teams experiencing high attrition rates.

## 2. Objective of study

The present study investigates the impact of AI frameworks adoption on the productivity of the Agile software development team. To accomplish this a literature review was carried out based on the available literature and then the hypotheses were formulated to investigate the significance and impact of these factors on the productivity of Agile software development teams (Ambler, 2006) In further course, a proposed research model was created with the help



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### 3. Theoretical Background

Theory of Total Factor Productivity (TFP) is adopted to test the significance of AL tools implantation to improve the productivity in software development context. TFP estimates how much output can be created from a certain number of inputs, which is a measure of productive efficiency. (Comin, 2010) In the classical way, Productivity Theory of Industrial Engineering (PTIE) is focused on the physical productivity that allows a precise problem-solving approach based on cutting-edge technologies and have high productivity rates. (Usubamatov, 2017) The Technology-Organizations Environment (TOE) framework, is used to formulate the proposed model for the study. This study also adopts the technology acceptance model (TAM) that is an information systems theory, derived from the theory of Diffusion of Innovation (DoI) and theory of reasoned action (TRA), to understand the Perceived Usefulness (PU) i.e. a degree to which software developers believe that AI tools adoption would enhance their job performance or productivity. (Katebi et al., 2022)

### 4. Literature Review

In this study, authors have adopted Kitchenham and Charters (2007) guidelines for conducting a Systematic Literature Review (SLR). Research papers from past ten years from EBSCO, SCOPUS, IEEE Explore and Web of Science database were referred to retrieve a primary data by searching the keywords like- "Agile", "Productivity", "Factors"," contract types", "Artificial Intelligence" etc. Upon excluding duplicate papers, and after applying insertion and exception criteria, relevant Sixty-three research papers articles were selected, close to the research subject (Luke et al., 2004), out of which forty-eight papers indexed in Scopus database, which used for morphological analysis. To achieve a comprehensive search output, an organic search is performed to identify supplementary papers which were cited in previously filtered papers (Zorzini et al., 2015). The paper identified broader key themes , which were categorized in to eight factors or dimensions based on the judgements of researchers and practitioners (Ritchey, 2011). A research model is formed which justify the objectivity clause of morphological analysis and defines its strength (Zwicky, 1967).

This review was driven through phased of systematic review protocol and classification framework. The Systematic literature review is one of the crucial scientific activities for reviewing previous research work (Tranfield et al., 2003). We referred to several research papers from the past twenty years with the help of repositories like EBSCO, SCOPUS, IEEE Explore, and Web of Science. After applying insertion and exception criteria we were able to select relevant research articles to receive research work as close as the research subject. To achieve a comprehensive search output, we also performed an organic search to identify supplementary papers which were cited in previously filtered papers (Zorzini et al., 2015). A fundamental classification of referred research articles and journal papers based on the available primary information in which major themes which are emerging out of the review were identified, establishing border dimensions. A literature was referred to get insights regarding measuring agile productivity, the contributing factors, influencing productivity, details regarding the research process in a subject area, and theoretical background supporting research findings. The literature review suggests that, the classification framework revealed that significant work in this area was carried out in many countries. Most of the theoretical research papers were composed of conceptual papers, case studies and review papers These papers were found to be mainly using survey methods, qualitative analysis, and experimental studies.

Out of 48 shortlisted studies, research papers were 27 (56%), Conceptual articles were 18 (38%), Case studies were 10 (21%) and reports were 3 (6%). Most of the studies were from Americas (50%) followed by the Europe (25%), and Asia Pacific region (15%), while contribution of the other regions was at last (8%). Considering the publication wise distribution, IEEE has published most studies (27%) followed by Emerald (21%), Springer (15%) and others (13%). When main these of these studies are considered then it was found

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that, most of these studies were from project management area (48%) followed by Information Technology Management (27%), Organisational Management (15%) and Strategic Management (6%)

### 5. Hypothesis Formulation

Several literature reviews list down factors which are having significant impact on software productivity (De Barros Sampaio et al., 2010; Jiang et al., 2007). A detailed review was carried out with an intent to identify factors impacting productivity in software engineering (De Barros Sampaio et al., 2010; Trendowicz & Münch, 2009; Wagner & Ruhe, 2018). Some of the earlier surveys in this field suggested that an extent of adopting Agile development methods, are positively correlated with quality and productivity improvements (Ambler, 2006). Researchers have also noted that there is a certain productivity improvement, experienced by the team deployed Agile methods than productivity of the team using traditional methods (Dybå & Dingsøyr, 2008). Several studies carried out by software engineers and researchers implied that productivity of software development team can improve by implementing best practices like DevOps, AI & Machine Learning, Advanced data analytics & Agile ecosystems (Varma, 2015; Ilieva & Nikolov, 2019; Lui et. al., 2019; Schöttle, 2019). Salient features of the Agile Software Engineering construct are- Requirement Stability, Extensive Release Planning, Feature Driven Development (FDD) Design patterns, Code Reusability and Code complexity. (Damodharan & Muralitharan, 2020; Lliuhin, 2020; Ojha, 2021) By the means of these, a team could achieve Agility in the software development process.

Several studies have advocated how transforming business by adopting several agility principles in various areas of organizational culture, stakeholders, business operations and services will help in improving overall software engineering processes (Beck et al., 2001; C. O. De Melo et al., 2013; Ghayyur et al., 2018) These factors form the Agile ecosystem that consists of Agile business operations, Agile portfolio management, and Agile working culture in the enterprise context and those are being supported by studies exploring the benefits for Agile transformation of portfolio management would help in achieving success (Stettina et al., 2015, Bushuyev et al., 2021) Based on this we could form the following hypothesis as-

**H1:** There is a significant impact of the Agile Ecosystem on the Agile Software Engineering process;

Previous studies have confirmed that the adoption of application lifecycle management (ALM) tools would help in improving the software engineering process (Özkan et al., 2019; Shaikh et al., 2021). Melo (2013) has stated in the study that Software Methods, and Tools usage are helpful in improving software engineering processes (C. O. De Melo et al., 2013). Later studies have also stated that adopting ALM tools throughout the software development lifecycle would help to achieve agility in software development process (O'Regan, 2021). Similar to the tool's adoption, studies have also indicated that implanting lean practices would also help in achieving agility the in-software development process (Przybylek et al., 2021; Manzoor et al., 2021) in further addition to the lean practices, some studies have also referred to Value Stream Mapping (VSM) which is a lean technique that designs and illustrates each stage of the process. Many lean practitioners consider VSM to be a crucial tool for identifying waste, speeding up process cycles, and enacting process change. As VSM analyses the information flow and focuses on waste removal, it adds to the process agility in context with software development. (Tripathi et al., 2021; Tankhiwale et al., 2020) Hence the following hypothesis is formed-

**H2:** There is a significant impact of Process Agility on Agile Software Engineering

As many organizations are extensively going for agile methodologies for software development, they should also be focusing on delivery excellence. Delivery excellence is a client-focused strategy for planning, developing, and distributing a steady stream of worthwhile goods and services to users and customers which is necessary for attaining organizational agility. Organizational agility could be characterized by building a capability toward change response and organizational adaptability, Agile business operations and Leadership transformation (Ulrich et al., 2019; Koçyigit et al., 2020; Tallon et al., 2019;

Mrugalska et al., 2019; Akkaya et al., 2020) Hence the following hypothesis is formulated -  
**H3:** There is a significant impact of organizational agility on delivery excellence for Agile software development projects.

These researchers advocated the significance of factors related to people or teams influencing productivity (Brooks, 1975; DeMarco & Lister, 2014). These studies have identified factors associated with several stakeholders which contribute to achieving the delivery excellence for Agile software development projects. Out of these factors, the most relevant factors are as follows - Team's Skill levels (Aghina et al., 2017; Prechelt et al., 2016; Taylor, 2016; Hasnain et al., 2013; McHugh et al., 2012, Digital.ai Team, 2020). Collaboration within the software development team members (L. Holbeche, 2018; Kakar, 2017; Inayat et al., 2015) and rapid feedback from the customers (Iqbal et al., 2019; C. O. De Melo et al., 2013; Cardozo et al., 2010) that impacts delivery excellence function in Agile software development projects and hence the hypothesis would be.

**H4:** There is a significant impact of stakeholders adopting the Agile principles on achieving delivery excellence in context with Agile software development

Many studies have explained that- requirement stability, complexity index of Software code, and several programming languages will have a significant effect on software development productivity and how adopting to the Agile practices will help to excel in customer satisfaction i.e., delivery excellence. (Beam et al., 1987; Ahmed et al., 2010; Kumar & Bhatia, 2012; Oliveira et al., 2018) also several researchers have stated that Feature-driven Development (FDD), code reusability, and design patterns will also lead to delivery excellence for the software development process as they would optimise the actual efforts for designing and coding. (Budoya et al., 2019; AlOmar et al., 2020; Mor et al., 2015)

**H5:** There is a significant impact of Agile software engineering practices on delivery excellence function.

Agile software development methodologies and practices are being rapidly embraced by software development companies all around the world, hence there is unquestionably a need to measure the productivity of the Agile software development process in a changing business environment. (Shah et al., 2015; Yu et al., 1990) A Delivery Excellence is a collective function consists that focuses on customer satisfaction. It can be achieved through Digital Transformation, Design thinking for customers, Continuous Delivery pipeline & DevOps (Pereira et al., 2018; Hechler et al., 2020) Productivity in the context of software development is just the ratio of ROI to cost, but the difficulty here is in identifying an output parameter that is both qualitative and quantitative. According to prior research, measures like the Done Index, Velocity, and Cycle time reduction of Software Deliverables, may be used to determine the productivity of Agile software development. (Ramírez?Mora et al., 2017; Kropp & Meier, 2015) Hence the following hypothesis is formulated-

**H6:** There is a significant impact of the Agile delivery excellence function on productivity of the Agile software development team.

Many studies puts that by adopting AI technologies will help with effectively managing agile software development projects (Dam et al., 2019; Panesar et al, 2021). Implementation of AI/ML technology would be termed as emerging milestones in software development. (Nath et al., 2018) and once the processes are mature enough for AI application adoption, it is possible to utilise AI to improve internal business processes and productivity of team, Hence it implies that the condition in which, if Agile software development projects have delivery excellence capabilities, it would have a significant impact on AI/ML tools and framework adoption abilities of these projects. Hence the formulated hypothesis is-

**H7:** There is a significant impact of delivery excellence capabilities of Agile software development teams on their ability to adopt AI tools and framework

Several recent studies have discussed about AI technology having a favourable impact on productivity. (Yang, 2022) The objective of AI adoption is to maximize the advantage of the potential that AI offers in terms of teams' performance and productivity improvement and hence adopting technology may be a crucial tool for any business as AI aids in goal-setting and goal-achievement for both people and organizations. (Ramachandran et al., 2022) which is also supported by the literature regarding Agile software development. Many studies

suggests that the AI tools' adoption will help in Agile software development teams significantly to improve their productivity and performance (Münch, 2022; Ameta et al., 2022) Here, the study has a focus on Agile software development team with high attrition rate i.e., turnover ratio. Workflow disruptions and knowledge and skill deficiencies might result through high rates of attrition within the development teams. These development teams can swiftly adjust to the changes and ensuring that work continues effectively by preserving agility, which reduces the effect of attrition on current initiatives. (Aly, 2022; Pereira et al., 2023) Hence based on the empirical evidences, a hypothesis is formulated as following-

**H8:** Implementation of AI tools and framework adoption will have significant impact on productivity of Agile software development team with high attrition rates.

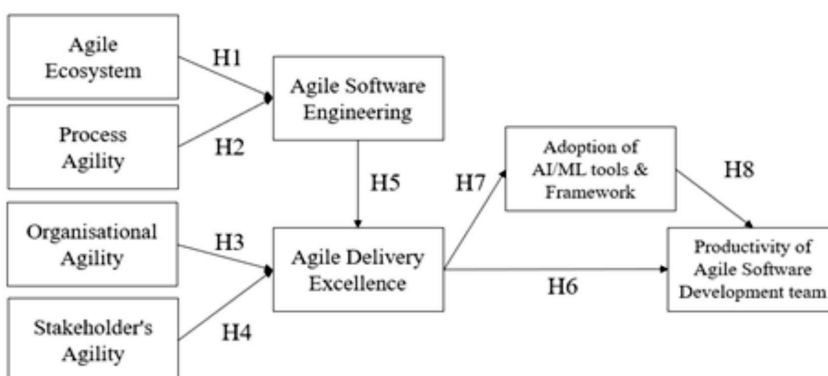
### 6. Research Methodology

This study was conducted in three stages- (A) The objective is formed by reviewing available literature like research papers, books and scholarly articles etc (B) A formed questionnaire for the survey is targeted towards the Agile software development practitioners, and it gathers qualitative data through a web-based survey based on the seven pointer Likert scale with following loadings- 7-Strongly Agree, 6- Agree, 5- Somewhat Agree, 4- Can't Say, 3- Somewhat Disagree Agree, 2- Disagree, 1- Strongly Disagree. The Questionnaire included 39 questions designed for specific process productivity factors of Agile software development emerging out of literature review. For data collection and a convenience sampling method is used to collect responses from respondents working with Agile software development in selected organisations, having added years of experience. Collected data is then analysed using Smart PLS4 data analysis tool.

For the study, the responses collected from 435 participants which were selected from the teams with high turnover rates for last 6 months. The web-based Google form with questionnaire was made available to the participants. through the email notification was sent to intended 600 participants. Agile software professionals for selected organisations, out of which 424 have submitted the survey. Agile practitioners from varied Roles and Professional expertise, were targeted for the study. Out of total respondents, 56 % respondents are Development Team Members (TM), 32% were Scrum Masters/Project Managers (SM/PM), 11% of the participants were Product Owners (PO) and only 1% of respondents were in DevOps Engineer Role. The authors used Cochran's sampling formula to determine the optimised size of the sample size. This study is limited to the members of Indian Agile Software Development teams because of the proximal availability of the authors. Here, a sizable population can be regarded as genuine responders, hence the authors used Cochran's equation in the below-mention technique to determine that a minimum sample size of 385 was needed (Cochran, 1977).

$$n0 = z^2 pq / e2$$

Here, Z= 1.96, P=0.5 and q=(1-p)=0.5 and e=5%, hence the optimum size of the sample will be 385 respondents.



**Figure 1.**  
Proposed Research Model

6.1 Measurement Model

While formulating the measurement model, after evaluating the entire sample, we have eliminated the items with factor loadings <0.6 (Anderson & Gerbing, 1988) After that the factor loadings for the remaining items are computed along with the reliability and validity findings. To establish the reliability in the study model, constructs value for alpha or CR is computed and which is found > 0.7 for all the constructs. Hence the model is reliable (Henseler et al., 2009). As a measure of the convergence of several variables into its fundamental construct, we have used the average variance extracted (AVE) value. Ideally, a construct's AVE value should be > 0.5 to indicate that it is convergent with its respective variables and that the factor is appropriate for the study model (Bagozzi & Yi, 1988).

| Constructs   | Variables  | Factor Loading | Cronbach's Alpha | Composite Reliability (CR) | Average Variance Extracted (AVE) |
|--|--|----------------|------------------|----------------------------|----------------------------------|
| Agile Software Engineering (ASE)                                       | Requirements Stability (AES1)  | 0.909          | 0.869            | 0.885                      | 0.721                            |
|  | Extensive Release Planning (AES2)                                      | 0.906          |                  |                            |                                  |
|  | FDD, Code Reuse & Design Patterns (AES3)                               | 0.828          |                  |                            |                                  |
|  | Complexity of Software code, Programming language and Code Size (AES4) | 0.745          |                  |                            |                                  |
| Agile Ecosystem (AES)  | Agile Culture (AES1)   | 0.820          | 0.804            | 0.822                      | 0.717                            |
|  | Agile Business Operations (AES2)                                       | 0.838          |                  |                            |                                  |
|  | Agile portfolio Management (AES3)                                      | 0.881          |                  |                            |                                  |
| Organizational Agility (OA)  | Change Response and Adaptability (OA1)                                 | 0.849          | 0.802            | 0.825                      | 0.716                            |
|  | Agile Operating Environment (OA2)                                      | 0.896          |                  |                            |                                  |
|  | Leadership Transformation (OA3)  | 0.791          |                  |                            |                                  |
| Stakeholders Agility (SA)  | Team Skills (SA1)  | 0.758          | 0.753            | 0.759                      | 0.670                            |
|  | Team Collaboration (SA2)   | 0.851          |                  |                            |                                  |
|  | Rapid Customer Feedback (SA3)  | 0.844          |                  |                            |                                  |
| Agile Delivery Excellence (ADE)  | Design Thinking (ADE1)   | 0.841          | 0.763            | 0.765                      | 0.679                            |
|  | Digital Transformation (ADE2)  | 0.813          |                  |                            |                                  |
|  | Continuous Delivery pipeline & DevOps (ADE3)                           | 0.818          |                  |                            |                                  |
| Process Agility (PA)   | ALM Tools Infrastructure (PA1)   | 0.738          | 0.798            | 0.882                      | 0.602                            |
|  | Lean Process Management (PA2)  | 0.812          |                  |                            |                                  |
|  | Value Stream Mapping (PA3)   | 0.745          |                  |                            |                                  |
| Adoption of AI tools & Frameworks (AI)                                 | Workflow Automation (AI1)  | 0.902          | 0.792            | 0.801                      | 0.714                            |
|  | AI based predictive Data Analytics (AI2)                               | 0.911          |                  |                            |                                  |
|  | Cloud Computing (AI3)  | 0.708          |                  |                            |                                  |
| Agile Development Teams Productivity (with high attrition rates) (ADP) | Done Index (ADP1)  | 0.879          | 0.845            | 0.848                      | 0.763                            |
|  | Velocity (ADP2)  | 0.879          |                  |                            |                                  |
|  | Cycle Time Reduction (ADP3)  | 0.862          |                  |                            |                                  |

**Table 1.**  
Confirmatory Factor Analysis

Note: N= 424, Coefficient of reliability i.e., Cronbach's  $\alpha > 0.7$  and CR  $> 0.8$  for all the constructs, which is recommended

The evaluation the model's discriminant validity is performed as below-. The square root of each construct's AVE score is larger than its correlation with other constructs, indicating a strong inter-correlation between the dimensions. As a result, multi-co-linearity is not a possibility, and the model has reliability, convergent validity, and discriminant validity.

| Constructs | ADE   | ADP   | AES   | AI    | ASE   | OA    | PA    | SA    |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|
| ADE        | 0.824 |       |       |       |       |       |       |       |
| ADP        | 0.795 | 0.873 |       |       |       |       |       |       |
| AES        | 0.811 | 0.819 | 0.852 |       |       |       |       |       |
| AI         | 0.750 | 0.692 | 0.808 | 0.845 |       |       |       |       |
| ASE        | 0.708 | 0.752 | 0.847 | 0.842 | 0.849 |       |       |       |
| OA         | 0.698 | 0.639 | 0.709 | 0.672 | 0.666 | 0.846 |       |       |
| PA         | 0.729 | 0.621 | 0.708 | 0.837 | 0.717 | 0.671 | 0.776 |       |
| SA         | 0.581 | 0.560 | 0.541 | 0.503 | 0.516 | 0.472 | 0.508 | 0.819 |

**Table 2.**  
Discriminant Validity  
Analysis

**6.2 Structural Model**

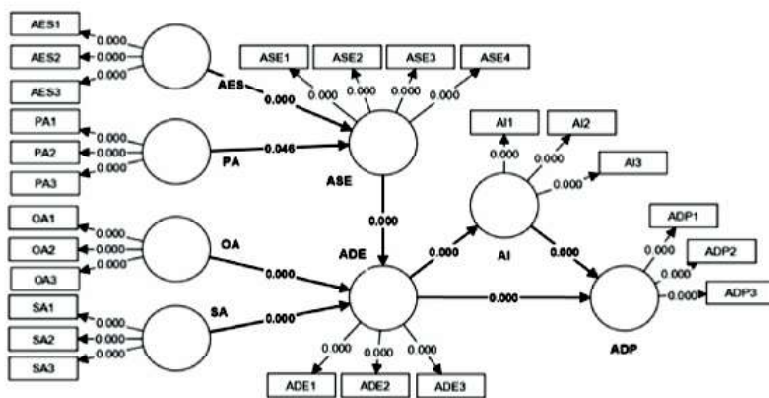
To have any significant impact from the dependent variable in this case, the least 10% significance threshold must be satisfied. The Q2 is assessed using the blindfold process, which examines the predictive significance of the model, and the R2 discusses how much variance in the dependent variable can be explained by the independent variable. Here, with the help of R2 variance in the adoption of AI can be determinate.

| Endogenous Latent Variables                                    | R <sup>2</sup> | Q <sup>2</sup> |
|--|----------------|----------------|
| Agile Delivery Excellence (ADE)                                | 0.632          | 0.629          |
| Agile Development Teams Productivity with high attrition (ADP) | 0.653          | 0.652          |
| Adoption of AI/ML tools, techniques & Frameworks (AI)          | 0.562          | 0.561          |
| Agile Software Engineering (ASE)                               | 0.752          | 0.751          |

**Table 3.**  
Predictive Model Analysis

Note: The value of R<sup>2</sup>  $> 0.10$ , for all the latent variables. Also, the value of Q<sup>2</sup> is  $> 0$ . This indicate that the model has demonstrates substantive explanatory power and it has predictive relevance.

Further seven hypotheses are examined using a bias-corrected bootstrapping approach, which amplifies our current data into several samples, in order to assess the validity of the route proposed in the model. According to a structural model, all the suggested routes for the model in this study are significant since they have weights larger than 0.20, T-values greater than 1.96, and P values less than 0.05. For the bootstrapping, we have used resampling size as 5000 with test type as two tailed with level of significance at 0.05.



**Figure 2.**  
Structural Model

| Path      | Path Coefficient | T-Value | P-Value |
|-----------|------------------|---------|---------|
| AES-> ASE | 0.691            | 18.071  | 0.000   |
| PA-> ASE  | 0.228            | 6.279   | 0.000   |
| OA-> ADE  | 0.354            | 8.168   | 0.000   |
| SA-> ADE  | 0.231            | 5.476   | 0.000   |
| ASE-> ADE | 0.353            | 7.662   | 0.000   |
| ADE-> APD | 0.631            | 11.669  | 0.000   |
| ADE-> AI  | 0.750            | 19.415  | 0.000   |
| AI-> ADP  | 0.219            | 3.951   | 0.000   |

**Table 4.**  
Hypothesis Testing

104

GBR  
Vol. 19

In this study, the direct effect without mediation of the designed path is significant ( $P > 0.005$ ), however, upon applying the mediation analysis, we found that the AI is mediating between ADE and APD. The direct effect is significant at 0.631 along with the mediating effect of 0.164, which signifies that there is a partial mediation effect between ADE and APD (Zhao et al., 2010).

| Hypothesis     | Direct Effect |       |          | Mediating Effect |       |          | Total Effect  |       |          |
|----------------|---------------|-------|----------|------------------|-------|----------|---------------|-------|----------|
|                | $\beta$ Value | Sig.  | t- Value | $\beta$ Value    | Sig.  | t- Value | $\beta$ Value | Sig.  | t- Value |
| ADE-> APD      | 0.631         | 0.000 | 11.669   |                  |       |          |               |       |          |
| ADE-> AI-> APD |               |       |          | 0.164            | 0.000 | 3.792    | 0.795         | 0.000 | 21.749   |

**Table 5.**  
Mediation Analysis

Note: ADE is Agile Delivery Excellence, AI is AI tools and framework adoption and APD is Agile Productivity of software development teams with high attrition rates. The mediation relationship by AI between ADE and APD is partial mediating as direct effects and total effects are significant along with the mediating effect.

## 7. Implications

Amongst several limitations of the literature review, limited availability of data regarding factors of productivity is the most prime limitation of this study and hence the SEM model is limited to identified factors only. There could be inadvertent sampling bias and selecting appropriate size of data sample could be other limitations. Another limitation is that there are very fewer case studies available in software engineering literature regarding quantification of affecting productivity factors using methods like structural modelling, and hence as there is lack of evidence from available studies, findings cannot be made applicable to all Software development organizations implementing agile methods. Most of the reviewed studies which were carried out in this context were of qualitative or theoretical in nature and has not provided any quantitative results with a basis. Many studies were limited to very smaller data samples, future studies may collect sizable data samples which will be helpful to appraise for its statistical significance and validity.

### 7.1 Practical Implications

During Agile software development life-cycle, automating redundant and complicated tasks like code development, documentation, and code testing is possible using AI tools and technologies. As a result of this automation, Agile teams' productivity could be increased. These predictive abilities may be used by agile development teams to determine project schedules, spot possible dangers, and allocate resources appropriately. Teams may proactively handle issues, reduce risks, and maximize project delivery by foreseeing challenges and possibilities. By automating common processes, AI systems can lessen the need for specialized personnel. The team can more efficiently redistribute duties when turnover happens thanks to this automation. In order to properly distribute and balance

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duties among team members, AI algorithms may evaluate abilities, availability, and job needs. This ensures continuity and productivity despite of attrition within the team. Predictive analytics performed by AI algorithms enables teams to take pre-emptive action and lessen the effects of high turnover.

### **Conclusion**

The result of this study shows that there is a partial mediation effect of AI between Agile software development process and Agile software development teams' productivity with high attrition rates. The finding reveals that if projects teams are using AI tools and frameworks, it may improve the productivity of software development teams. This study underlines the various factors that could be affecting the productivity of Agile software development teams. To improve the productivity, team should be looking to implement the AI tools and frameworks throughout the entire software development lifecycle. The study will assist the software engineering teams while planning and strategizing. Based on the current findings of the studies it is clear that the AI technologies and tools, digitization would help Agile software development teams to sustain their productivity even though there are constraints. This research indicates that the adoption of advanced technologies like-AI are critical for Agile software development projects in terms of sustaining the productivity especially while teams are facing high attrition but it is not the only factor which will be helpful for improving the productivity of software development team experiencing high attrition.

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