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A Bibliometric Analysis of Research Papers Related to AI-Powered Agile Project Adoption by Extending UTAUT

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Abstract

The use of artificial intelligence (AI) is progressively permeating various aspects of peoples' life. AI is designed to make life easier for individuals and to help them in several circumstances. The study looks at the influencing variables that affect consumers' behavioural intentions and use of items incorporating or utilising AI for project management agile way. The Technology Acceptance Model is a well-known method for studying how new technologies are received (TAM). For investigations on the intention to act or use and the use behaviour of new technologies, several studies use this fundamental model of acceptance and/or extensions (TAM2, TAM3, UTAUT, and UTAUT2). There are not many studies that apply these theories to people's behavioural intentions to utilise items with AI in them. Studies on agile project management are among them.

Introduction

The use of artificial intelligence (AI) is progressively permeating various aspects of peoples' life. AI is designed to make life easier for individuals and to help them in several circumstances. The study looks at the influencing variables that affect consumers' behavioural intentions and use of items incorporating or utilising AI for project management agile way. The Technology Acceptance Model is a well-known method for studying how new technologies are received (TAM). For investigations on the intention to act or use and the use behaviour of new technologies, several studies use this fundamental model of acceptance and/or extensions (TAM2, TAM3, UTAUT, and UTAUT2). There are not many studies that apply these theories to people's behavioural intentions to utilise items with AI in them. Studies on agile project management are among them.

Research Questions

AI, Agile and Technology Adoption space has grown exponentially in last few years due to advancement in technology. However, considering the penetration and use of AI in India, it becomes importantto check the overall publication trends in this space so that one can develop comprehensive understanding around the past research.

This research was conducted to understandfollowing research questions.

- Which are the different publication trends in the AI, Agile and Technology Adoption space?
- How are the publication trends differing across past 25 years?
- Which is the connection between researches on AI in different countries across globe?
- Which is the networking / interlinking trend across different publications as per co-occurrence of

keywords?

Methodology

Search Strategy

We have begun scanning relevant research publications in the well-known database SCOPUS based on the initial literature evaluation (Donthu, Kumar, Pandey, et al., 2021). We searched SCOPUS extensively for keywords. This analysis has given an in-depth understanding of how Artificial Intelligence can aid Agile Project management and adoption of the same can be understood using UTAUT model until July 2022. The following keywords were looked up.

- Artificial Intelligence
- Agile Project Management
- UTAUT

Analysis techniques

In order to uncover various trends and insights from previously published literature, bibliometrics is a method of literature analysis (Donthu, Kumar, Mukherjee, et al., 2021). We have used VOS viewer as one of many analytical tools for bibliometric study. In order to analyse the literature, extracted SCOPUS data was imported into the VOSviewer software (Martinez-López et al., 2018). We conducted the analysis listed below using the previously reviewed literature.

- **Publication trends:** The frequency of studies published over the previous 25 years was identified and displayed against time. According to Krishnamoorthy et al. (2009), this frequency was also utilised to determine a growth in the quantity of research papers.
- **Country-based publication:** Country-based frequency was generated from the research article that was searched. It was investigated how different cross-border collaborations while authoring different research publications (Chahrour et al., 2020).
- **Keyword analysis:** Based on information retrieved from SCOPUS, keyword research was done on all keywords.

Results

Publication trends:

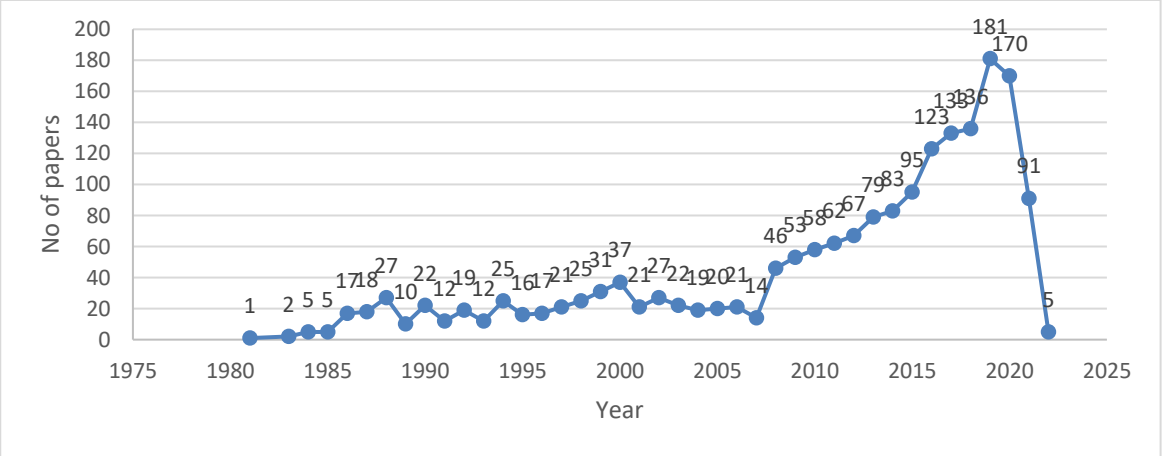

Chart 1: Publishing Trend for Artificial intelligence keyword

Total **1848** papers have been found on the topic in Scopus database. The concept is AI is the oldest among

the three concepts studied here, the research papers can be seen from 1980, with constant trend till 2007, post that there has been increasing trend of research in the given field.

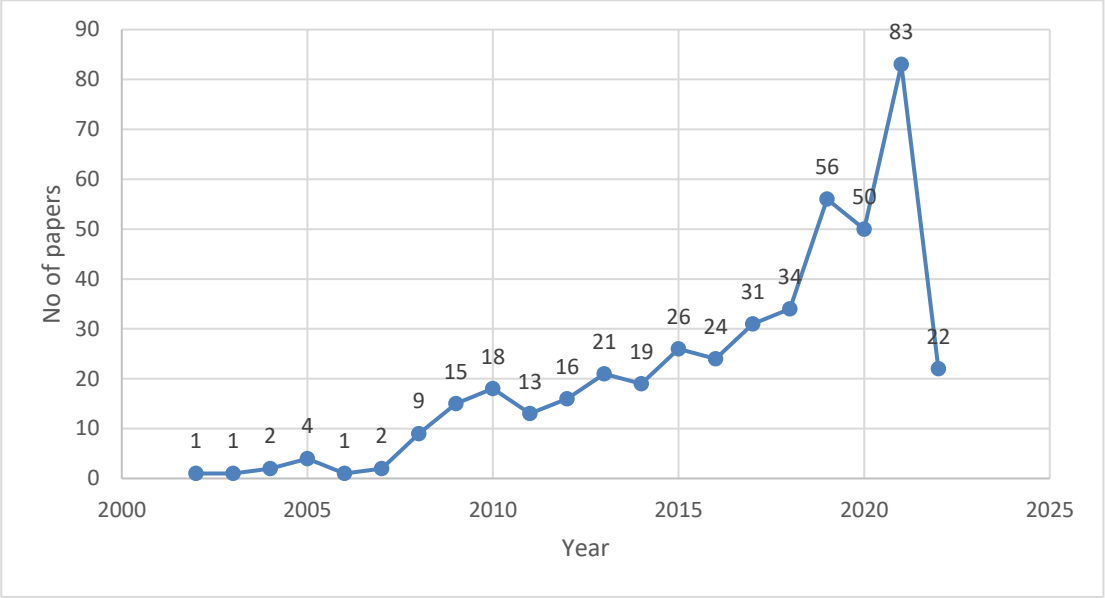

Chart 2: Publishing Trend for Agile Project Management keyword

Total **448** papers were found in Scopus Database, the Agile was invented in the spring of 2000 and ever since its growing and trending, the number of research work is also showing an upward trend, the trend is high post COVID pandemic shows people studied this framework during the time of disruption due to pandemic as one of the solutions to be nimbler and more resilient.

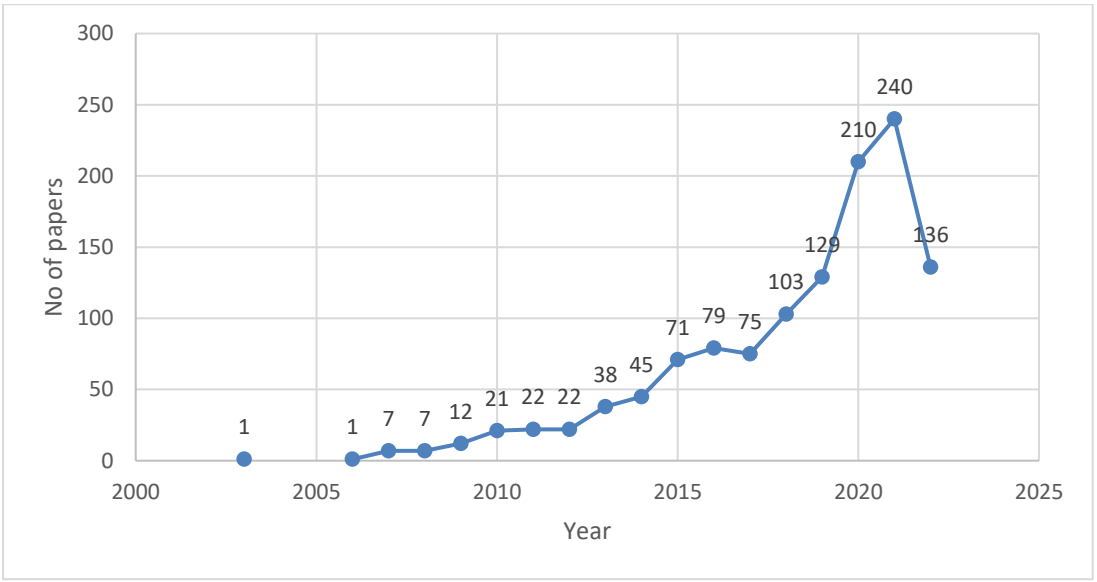

Chart 3: Publishing trend for UTAUT keyword

The UTAUT model is used to understand the adoption of technology for the usage, there is an increasing trend in research on this topic because of advancement of technology, post COVID pandemic we have seen digital disruption in domains like education, banking, and web conferencing etc.

Country wise publications:

Maximum papers were published (30%) from United States. United Kingdom and Canada are other two top countries with maximum papers. Also, all these countries are very well linked with each other while considering the co-author and co-citation analysis as shown in chart 2. From the below diagram, using Artificial Intelligence as keyword on Scopus data, it is discovered that not much work done in India, there is still scope to research on this artificial intelligence topic.

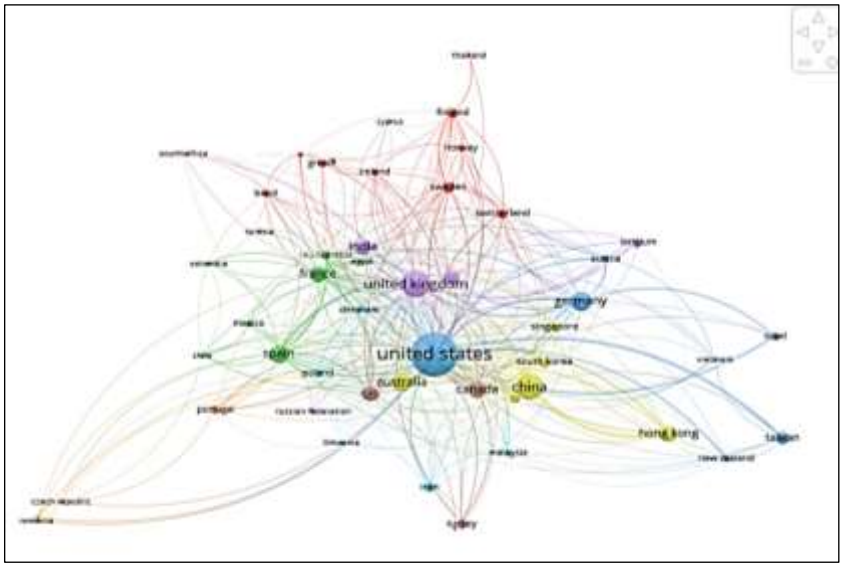

Chart 4: VOSviewer chart with networking country-wise research on AI

Key word analysis:

4 major clusters i.e., AI, Agile Project Management, UTAUT, AI with Agile Project Management and COVID related research are emerging while doing the keywords analysis and finding networking.

From the below image Chart 5, using agile project management to find the co-occurrence with other key words, the co-occurrence with AI is not found significantly, there is a research gap in this area which can be further explored.

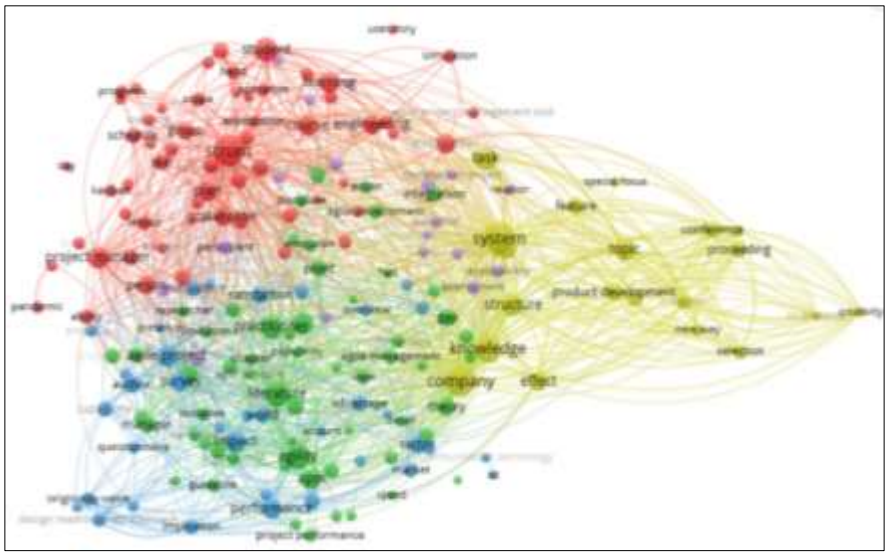

Chart 5: Network Map on Agile project Management

From the below Chart 6 co- occurrence of keywords from the search result of Agile project Management we can see, artificial intelligence linked to Project management and project management linked to Agile management, the research on agile project management and AI is still not observed majorly and can be explored from understanding application of AI techniques to support Agile project management.

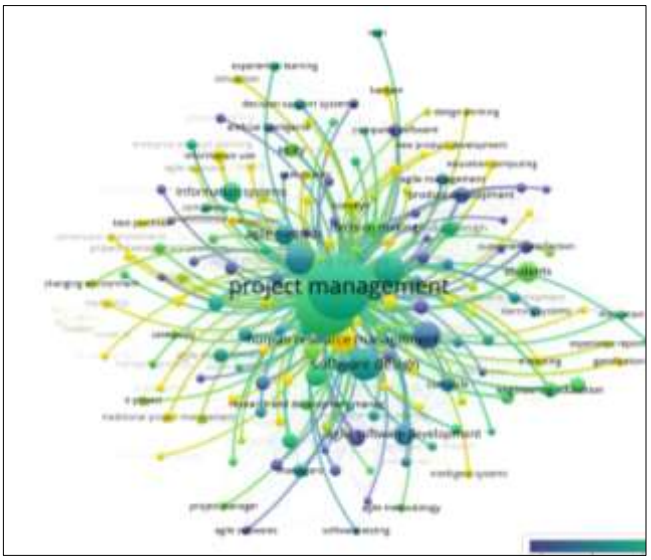

Chart 6: Network Map on Agile project Management

The below diagram Chart 7 represents occurrence of UTAUT model with other keywords, there is not much research from agile project management perspective as well as from AI technology adoption study. As we can see mobile banking, learning system, covid 19 research but nothing as of now majorly from AI point of view.

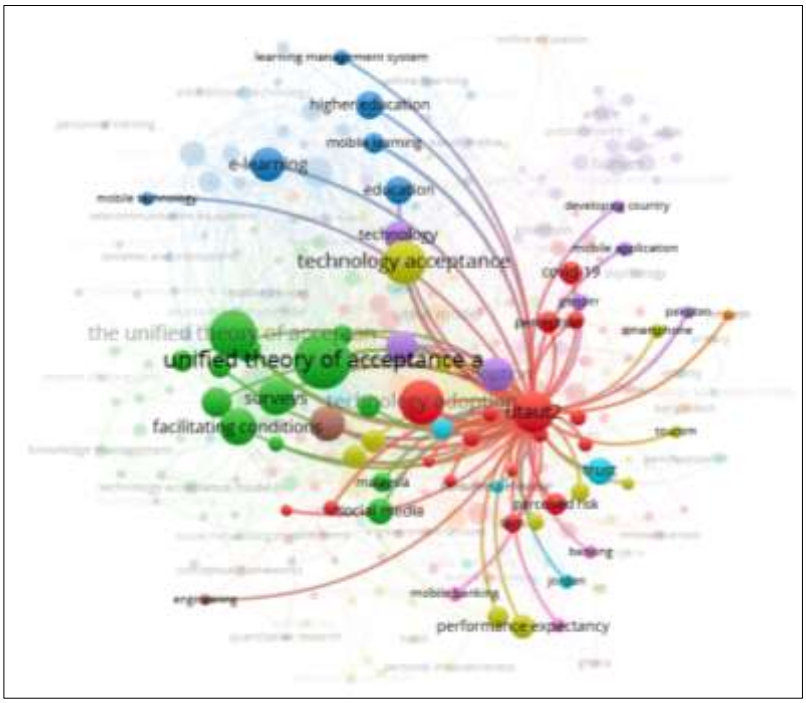

Chart 7: Network Map on UTAUT keyword

From the below diagram Chart 8, it shows that when checking the occurrence of keyword with artificial intelligence, the agile project management is nowhere to be found and same is the case with UTAUT keyword only small part of technology adoption word can be seen, so we can explore the acceptance of AI technology in project management domain especially agile as no co- occurrence is found.

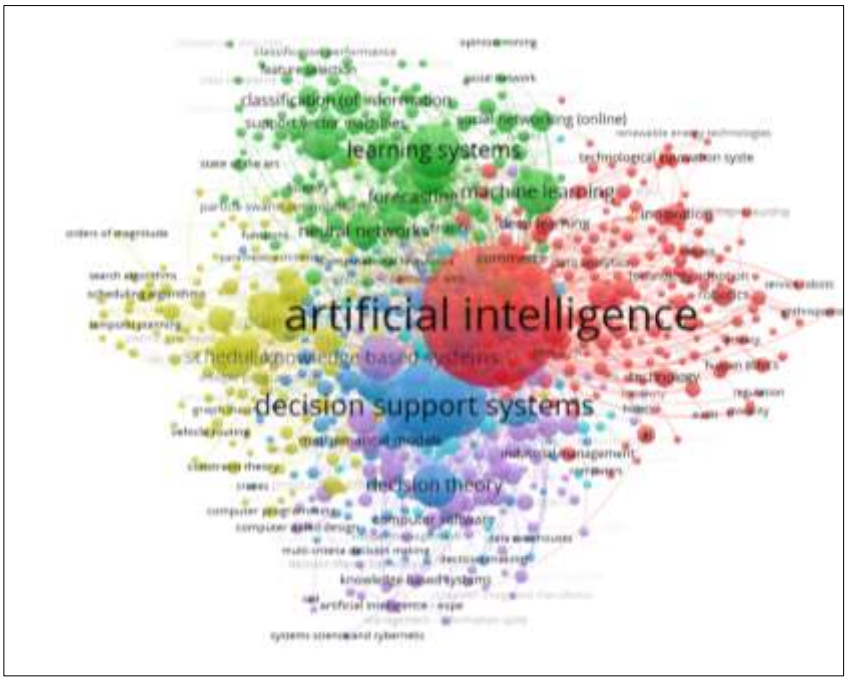

Chart 8: Network Map on Artificial Intelligence

Discussion

This study has analyzed publication trends,country wise publication and keyword analysis as a part of Bibliometric analysis. Publication trend analysis has shown exponential growth in AI, Agile Project Management and Technology adoption (UTAUT) space. This is due to increasein consumer base of smart users across globe and covid pandemic.

Country level publication data indicate thatthe high-income countries like UnitedStates and United Kingdom have more research publications may be due to advancement in technology and adoption rate of new technology.

While doing Keyword analysis as per (Donthu et al., 2020), 4 important clusters were emerging with very weak networkingbetween AI and Agile Project. AI is one of the oldest forms of Technology which got evolved over the period but Agile is still new compared to AI ,but combination of both is still the area which needs to be studied and new develop around this area is more promising. UTAUT is the technology adoption model which can be further adopted by extending it with factors related to AI like sustainable AI, responsible AI, AI self -efficacy. The study shows that COVID pandemic period shows high number of research conducted in all the three areas.

Limitations

Only the SCOPUS database was used in this investigation. We can look through more databases like Web of Science. Additional keywords can also be utilized. Primary research can also be planned, however secondary data are used for most of the analysis. This study excludes other forms of literature

like books and websites.

Conclusion:

This study intended to provide holistic viewof research publication in the digital healthspace. This analysis has showed some significant finding like

- Exponential growth in research around AI, Agile Project Management and Technology adoption model (UTAUT)
- UTAUT has been used extensively for understanding acceptance and use of technology like mobile banking, online teaching especially during COVID period
- Agile methodology is robust enough which can be used for virtual project management and its showing most studied framework as per trend analysis

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