

https://journalwjarr.com/sites/default/files/fulltext_pdf/WJARR-2025-0184.pdf

- Agile methodology revolutionized software development
- Focusing on high quality products through iterative processes and feedback
 - Adapt to changing requirements, improve collaboration
 - Agile is preferred method for modern projects
- Advancement in recent year is cloud-native devops strategy powered by AI
 - Enable organizations to redefine enterprise architectures allowing scalability and adaptability for changing business needs
- Development of hybrid kanban frameworks
- Agile methodology application in diverse domains
 - In high tech industry highlight effectiveness in accelerating development of advanced technologies
 - Iterative design and testing principles can support faster innovation cycles
 - Refine solutions rapidly while minimizing delays and improve overall project outcomes
- Proven to be critical in managing complexities of digital transformation
 - As business transition from hierarchical to flexible, technology driven processes, agile provides a foundation for adapting to dynamic market demands
 - Research shows combining agile framework with DX strategies help enterprise be competitive and responsiveness to change
- Agile relevance extend to distributed team environments, where maintaining communication and workflow consistency
- Hybrid framework
 - Gained traction for specific project needs
 - Allow flexibility while retaining benefit of agile,
 - Hybrid framework are valuable in high-resilience environments, where ability to respond quickly to unforeseen change is critical
- Agile methodology also play significant role in fostering digital leadership within organizations
 - Underline how agile principle in iterative problem solving, adaptability and collaboration empower leaders to navigate the complexities of technological advancements
 - Enabling organization to cultivate innovative forward-thinking management teams
- Quality assurance and testing, foundational components of agile workflow, also benefit from technological advancements
 - Integration of ML algorithms transform testing processes
 - Enable identification of issues with great accuracy
- Strategic implications of agile methodology in context of DX and organizational ability
 - Reveal agile when integrated with cloud and AI, enable organizations to achieve sustainable growth by optimizing workflow and enhancing decision-making processes
 - Adaptability of agile makes it a valuable framework for navigating complexities of modern business environments where responsibility

- Another study highlights how agile principles can support tailored learning solutions

<https://japan-dev.com/blog/agile-in-japan>

- Agile is a dominant methodology
- Over 70% of US companies use this method as primary system to operate and develop products
- Background of agile
 - Agile is an approach of breaking up project into distinct cycles and phases
 - Instead of finishing each cycle and moving on to next, method allows for multiple cycles in development to continue simultaneously allowing for greater flexibility
 - Methodology approach the development process as continuous cycle consisting of planning, executing and evaluation
 - Centered around constant collaboration during development process, involving customer
 - Method allows for multiple cycles in development
- Waterfall method
 - Top to bottom approach in management and development
 - Predominant strate in business and still popular in japan
 - Each development process is worked on individually completing before moving to next phase
 - Agile encourages failure as part of the process
 - Waterfall requires more caution and less room for failure
 - Also means waterfall method requires more planning,
 - Not reliable in today's volatile development environment
- Benefit of agile methodology
 - Individual and interaction over process and tools
 - Agile method favors communication and interpersonal relations to tailor processes according to specific needs
 - Working software over comprehensive documentation
 - Another strong suit rely not on paperwork but software solution to handle data and perform enial tasks
 - Documentation slows down process
- Customer collaboration over contract negotiation
 - Agile methdolgy includes the customer in production process
 - Recieve regular update and open line of communication
- Respond to change over following a plan
 - While it may be listed,
 - Flexibility above everything else
 - No need for strict protocol
- Toyota Production System
 - Emergence of Agile

- Origin in Toyota Production system
 - Relied on few basic principle
 - Lean manufacturing system
 - Emergence of lean gained traction
 - Agile Manifesto
- Since then many other customized systems have been born out of agile methodology after Agile Manifesto

Why Agile hasn't caught in Japan

- Culture of outsourcing
 - Outsourcing of software development
 - Japanese company outsource development teams rather than in house team for task and processes - not ideal for agile system
 - Traditional companies have a tendency to outsource their system
 - Common in Japan to outsource IT resources (known as System Integrators)
 - 70% of IT workers in japan are outsourced from third parties
 - Agile methodology doesn't work well in outsourcing
 - Especially lack of communication
 - Can't be done without eliminating practice of outsourcing
- Risk aversion
 - Agile method allows multiple process to run simultaneously
 - Waterfall methodology allows certainty -
 - Japanese companies prefer risk-adverse environment
- Hierarchy
 - Agile hard in rigid company
 - Budget, delivery time and scope of project needs to be clarified as soon as possible
 - Because system development involves contract agreement,
- Hardware centricity
 - Hardware investment success
 - But lack of software engagement
 - Major only considered importance of software until very late
 - Japanese firm focus on cost-cutting and profit did not want to switch to agile

Agile today,

- Agile adoption are gaining momentum in Japan in recent years especially in different sectors
- Government promotion of agile itself especially by METI and DX
 - Nudge the use of digital technology and analysis to respond to rapid changes in volatile business environment
 - Recommend utilizing data and technology
- Tech world
 - Agile is becoming a predominant methodology for leading tech firm

- Rakuten (e-commerce company) is among companies implementing Scrum
 - Companies switching project managers with Scrum Masters overseeing development process and ensure success, also utilizing daily meetings to review day to day processes
 - Mercari (first unicorn startup in japan), C-to-C market place , quite vocal about utilzing program amangersna and agile based approaches to success
- Benefit of agile for japanese companies
 - Improve efficiency and productivity
 - Adoping an agile in long run improves workflow
 - Open communication and collaboration aspect of methodology can significantly help issues
 - Fleible team structure and adapting to change as you go most japanese companies' workflow and productivity can be significantly improved with help of systems like Scrum or Lean
 - Enhance project delivery
 - Current waterfall approach, project are worked and delivered on linear timeline, not only doesnt allow mistakes to happen, but fails when something goes wrong
 - Agile helps with this
 - Projects aren't handled in lienar fashion but continuous cycle
 - If, things go wrong, agile methodology helps because it includes customer in process
 - Allow managers to be up to date with the issue, and takes load of of quality control processes significantly

https://www.bain.com/contentassets/1dc6fd99ee6642bd9665707d28142416/bain_brief_agile_innovation.pdf

- Agile methodologies have transformed software industry over past 25 or 30 years
 - Tackling customer demand