

E-ISSN: 2582-8010 • Website: <u>www.ijlrp.com</u> • Email: editor@ijlrp.com

# The Role of Agile Methodologies in Transforming Insurance Product Development Lifecycles

# **Rajesh Goyal**

Rajesh.goyal@ibm.com

#### Abstract

The insurance industry is experiencing consistent change due to the rise of customer demands, advancement of technology and change in the legal frameworks. Since the insurance product development process in the past involved the traditional waterfall model and the implementation of IT systems that may have been inherited from earlier projects, the cycle is no longer suited to the current needs. This paper aims to understand how incorporating Agile methodologies in Insurance product development creates an opportunity to reduce delivery time, enhance the involvement of key partners and consistently deliver value. Based on the current industry practices, the study explores the background and history of Agile, its principles, and different frameworks such as Scrum, Kanban, and SAFe, as well as what has been done in practice for a large Fortune 100 insurance company. Furthermore, the research outlines an agile improvement of the development lifecycle aided by DevOps integration and iterative data analysis for practical and tactical depictions. In addition, it identifies the principal advantages of the framework, which are minimal project cycle time, flexibility, and customer satisfaction; it also discusses typical difficulties of the implementation of the concept, which include cultural resistance, integration with legacy systems, and compliance with regulations. Lastly, the areas for further research are presented first by relating Agile to AI then by looking into various types of hybrid with Agile, and lastly with the potential roles of Agile in claims processing and fraud detection. The results highlighted the need for insurers to consider Agile as a tool for change and competitive advantage.

Keywords: Agile Methodologies, Insurance Product Development, Scrum, Kanban, Time-to-Market, Insurance

#### 1. Introduction

The insurance industry has traditionally measured its success by avoiding risks, following strict rules, and supporting aging technological systems. Accelerated by digitization, new customer demands and expectations and intensified competition from Insurtech entrants are changing the way that insurance products are designed, underwritten and distributed. [1-3] The more conventional approaches to product development are often linear or waterfall due to the very structure of the process, long development cycle, and lack of preparedness to deal with change. Insurers are now considering the use of agile methodologies in regard to product development lifecycles as a way to stimulate innovation.



E-ISSN: 2582-8010 • Website: <u>www.ijlrp.com</u> • Email: editor@ijlrp.com

The principles of agile, originating from the IT domain, emphasize flexibility, initial delivery, and improvement throughout several cycles in collaboration with project stakeholders. To the same extent, it has relevant principles that promote efficiency in the contemporary insurance industry, specifically focusing on speed to market, customer orientation, and capacity for responding to regulatory change. Through implementing the Scrum, Kanban, and Scaled Agile Framework (SAFe), insurers can quickly develop, iterate, and build solutions that meet compliance requirements and are valuable to the policyholders. Agile is not just about the change of reality, and business practices but about a culture change. When implementing AI, the insurance industry must break the mold, decentralize decisionmaking, and adopt a culture of coaching and feedback. Also, Agile enhances the coupling of business and IT more than it separates, which is a barrier to innovation in organizations, especially in the insurance industry. As useful and beneficial as Agile is for the insurance industry, the approach is not devoid of primary impediments. Challenges that can be encountered include restrictions posed by regulations, engrained hierarchies and conventional approaches, and lack of staff engagement with Agile-related concepts. Nonetheless, early experiments show that with the appropriate management and determined leadership, Agile can be a powerful tool for improving the responses and competitiveness of insuring products. Agile methodologies are playing an increasing part in the insurance industry, and this paper examines how they are changing the way the product lifecycle is developed, allowing insurers to better meet the twenty-first-century market's requirements. It analyses best practices, case studies and industry insights to describe a holistic understanding of Agile's transformational potential to the traditionally conservative industry.

#### 2. Background and Related Work

#### 2.1. Overview of Traditional Insurance Product Development Lifecycles

Traditionally, product development for insurance products has followed a sequential, phase-gated approach that may require a few months or even a few years to complete. Typically, this linear lifecycle includes market research, product design, actuarial analysis, compliance review, system configuration, and marketing rollout. Each stage typically has its team and little cooperation among divisions, which means the wheels come off frequently, and tension invariably results. [4-6] For example, it takes an average of 313 days from inception for a new life insurance product to hit the market or 400 days for more complex products like annuities. The company ships a great product, but minor changes like repricing or adding features have long lead times due to extensive internal reviews and system limitations. However, this extensive development process restricts insurers from quickly meeting market needs, regulatory tweaks, and technological innovations.

#### 2.2. Challenges in Legacy Systems and Waterfall Models

Agility in insurance is a continued use of legacy IT systems. While these systems are often inflexible, challenging to integrate with today's technologies, and expensive to maintain, converting from analogue to digital manuals is quite difficult. Combined with the waterfall model, these systems, a project management approach that moves linearly through clearly defined stages, contribute to inefficiencies and slow adaptation to change. The waterfall model assumes that all requirements can be defined in advance, which is rarely the case in a fast-changing environment. That rigidity in insurance, where new regulations, customer expectations and competitive threats show up all the time, can lead to outdated and misaligned products being released by the time they hit shelves. Also, silo model departments whose



priorities are conflicting complicate coordination even more, leading to costly handoffs, redundant work, and slow decisions. These challenges hinder the capacity for innovation and responsiveness by structurally and procedurally obstructing them.

Feature	Traditional (Waterfall) Model	Agile Methodology
Project Structure	Sequential, phase-gated	Iterative and incremental
Flexibility to Changes	Low	High
Customer Involvement	Limited to start/end	Continuous through feedback loops
Time-to-Market	Long (300+ days)	Shorter, incremental releases
Risk Management	Delayed risk identification	Early and continuous risk visibility
Team Collaboration	Departmental silos	Cross-functional, integrated teams
Feedback Frequency	Infrequent	Frequent (per sprint)

# Table 1: Comparison of Traditional vs Agile Product Development in Insurance

# 2.3. Literature Review on Agile Methodologies in Other Industries

In the software development industry, agile methodologies emerged as a response to the limitations of traditional ways of project management. These principles were eventually used across dissimilar sectors, such as manufacturing, education, healthcare and technology. In every case, Agile has proven to increase flexibility and decrease the time it takes to develop and promote collaboration. Core to the philosophy of Agile is iterative development, continuous delivery of working solutions with continuous feedback and self-organising teams. Scrum, Kanban, Lean-Agile, etc., are frameworks that create a principles-based and coach-based environment that promotes transparency, accountability, and a customer-first approach. For example, Agile has allowed for quicker development of patient-centric solutions in healthcare. It has supported lean operations and just-in-time delivery in manufacturing. Consistently, literature reports benefits such as higher productivity, stakeholder engagement, and a better alignment between development's outputs and user needs.

# 2.4. Agile in Financial Services: Recent Trends

Recently, the financial services industry is recognizing the ability of Agile to transform the legacy of financial products and leaping the futility of product development outcome. Agile is becoming a common choice for banks, fintechs and insurers who need to accelerate innovation, shorten feedback loops and build more customer-centric products. Agile methodologies are being used in insurance to shift away from extremely rigid, product-oriented development and towards less rigid, value-driven approaches. This is evident in the increased adoption of Agile frameworks like SAFe (Scaled Agile Framework), which allows Agile to be scaled within the organization, despite being part of a large company, without falling out of alignment with company goals. Moreover, Agile accommodates utilising emerging technology such as artificial intelligence, Data Analytics, and Cloud computing, which are now critical to modern insurance operations. Insurers using agile deliverables tend to have increased collaboration, shorter time-to-market, and more flexibility in reacting to external pressures, such as regulatory changes and modifications to customer behavior. It follows that these trends imply that just like any other industry, Agile can also be a strategic enabler for transformation in the financial services domain.



**Agile Development Lifecycle** 

#### 3. Agile Methodologies Overview



#### Traditional Development Lifecycle

## **3.1.** Core Principles of Agile (from the Agile Manifesto)

Agile methodologies are built on the foundation of the Agile Manifesto, penned in 2001 by a group of software developers looking for an adaptation that was people rather than project-oriented. Originating in software, the principles have since been used throughout the industry, even in insurance. [7-10] Four core values of the Agile Manifesto are: Processes and tools, working solutions instead of comprehensive documentation, customer collaboration over contract negotiation, and responding to change over following a plan. It supports the values of iterative development, regular, ongoing delivery of valuable products, continuous customer involvement, and empowered, self-organizing teams. For insurers, applying these ideas entails moving away from rigid, compliance-centric workflows in favor of a more agile feedback-driven culture that puts customer needs and rapid delivery of value delivery.

#### 3.2. Common Frameworks: Scrum, Kanban, SAFe

Agile methodologies are then carried out through frameworks that contain different practices and structures based on particular organizational contexts. This makes Scrum one of the most well-knownagile frameworks. It works in short development cycles, known as sprints, lasting between two to four weeks, and has specific roles, e.g. Product Owner, Scrum Master and Development Team. Sprint planning, daily stand-up, and sprint review are the Scrum ceremonies that bring transparency, accountability, and continuous improvement. Kanban is about visualizing the work, limiting Work In Progress (WIP), and managing flow. It gives real-time visibility to teams from tasks through Kanban boards, to help them find bottlenecks and improve throughput. Kanban is often an excellent solution for maintenance tasks, service oriented teams, or work environments with changing priorities. Scaled Agile Framework (SAFe) is a solution for the scaled implementation of Agile for large organizations or insurers with multiple departments and a complicated hierarchy. Agile practices in SAFe are integrated



across teams, programs, and portfolios to stay aligned with strategic goals and continue to be agile at the execution level. It presents roles like Release Train Engineer and introduces concepts like Agile Release Train (ART) to synchronize feature delivery between multiple teams. Again Disciplined Agile Delivery (DAD), LeSS (Large Scale Scrum) and other models are gaining momentum in enterprise that requires balance in flexibility and governance.

# 3.3. Agile Metrics and KPIs in Product Development

Continuous improvement and accountability are why we measure the effectiveness of agile practices. Agile methodologies use a set of metrics and Key Performance Indicators (KPIs) about team performance, product quality, and delivery efficiency. Some common agile metrics include velocity (how much work you get done in your sprint), Cycle time, the time between the start and completion of a task, and burndown charts, which track progress toward the goal of a sprint. These help the teams to check their pace and accordingly change the workload.Lead time, defined as the time from product ideation to delivery, and cumulative flow diagrams, which visualize work status at various stages, comprise additional KPIs. Such metrics can be modified to measure compliance checks in insurance product development, where regulatory review and testing are part of the cycle, actuarial modeling progress, and customer feedback loops. Advanced Agile implementations include team health indicators like engagement, collaboration and stakeholder satisfaction. By tracking both quantitative and qualitative measures, insurers can see that agile adoption increases operating efficiency, product quality, and customer value.

# 4. Application of Agile in Insurance Product Development

# 4.1. From Product-Centric to Customer-Centric Development

Agile has one of the biggest impacts on insurance product development, being one of the biggest shifts from product-centric to customer-centric. Typically, insurers created products with little input from end users at the early development stages by designing those using actuarial models and internal business goals. [11-13] In a way, Agile flips this model by enabling continuous customer feedback during the development lifecycle. The engagement with policyholders, agents, and brokers is earlier and more often than ever through techniques such as user story mapping, prototype testing, and feedback loops. It allows for the generation of products more in line with customer's needs and expectations, for example, personalized coverage choices, usage-based insurance and on demand policies. Insurers can then leverage real-time insights to adjust features or pricing to stay relevant and competitive in fast-moving markets.

# 4.2. Agile Teams and Cross-Functional Collaboration

Agile implementation in insurance fosters the creation of cross-functional teams that consist of members from underwriting, actuarial, IT, marketing, and compliance from point zero. This structure is integrated in place of this siloed model, where handoffs between departments would frequently mean delays and miscommunication. In an Agile environment, faster decision-making and a better understanding of requirements benefit product development. Instead, teams work in short iterations (sprints), delivering the working features in increments, and constantly refining the product, following the feedback. Collaboration itself is one such factor that helps parties to improve mutual understanding between business and technical stakeholders, this eventually helps to reduce the risk of misaligned objectives or



unrealistic timelines. Scrum Masters or Agile Coaches play key roles in many insurers in facilitating team dynamics and removing obstacles so that the team remains productive.

#### 4.3. Accelerated Time-to-Market and Continuous Improvement

Insurers have been able to slash the time to market for new and updated products with the help of agile methodologies. Minimum Viable Products (MVPs) can be launched quickly, tested, and iteratively developed through market testing, customer input, and data analytics. This advantage is tremendous in the insurance industry, where demand can change quickly due to regulatory changes or market trends. For instance, for example, during the COVID-19 pandemic, agile insurers were able to launch new products, such as pandemic travel or health insurance, in weeks instead of months. Moreover, Agile also championed continuous improvement, featuring regular retrospectives during which the teams can reflect on past accomplishments and make the necessary process changes to become more efficient, effective and of high quality.

#### 4.4. Integration with Digital Tools and Platforms

Agile insurance success often requires modern digital tools and platforms which help with collaboration, automation and, more importantly, data integration. Agile teams have been using tools like Jira, Confluence, and Trello to manage backlogs, track progress and promote honest dialogue. Real-time data sharing between underwriting, claim and policy administration systems can happen in cloud-based environments and through API integrations. And, Agile teams are leveraging their use of analytics and machine learning tools to test hypotheses, predict customer behavior, and personalize products. Technologically, they enable Agile's value to insurance product development by bridging operations and the drive towards innovation and agility.

# **5. Benefits of Agile Transformation**

#### 5.1. Improved Time-to-Market

Agile transformation in insurance product development has one of the most prominent benefits: time-tomarket is significantly reduced. Agile compresses traditional product development cycles, frequently taking over 9 to 12 months or longer. With working product increments deployed in short sprints, insurers can instead bring Minimum Viable Products (MVPs) to market faster and obtain market share sooner. [14-17] Insurers can also use agile methodologies to have the opportunity to prioritize and deliver the most valuable features first rather than suffer from the delays that typically come with sequential, waterfall processes. A quicker delivery cycle is most helpful in highly competitive markets or circumstances where change occurs quickly, like changes in regulatory mandates or emerging risks which distinguish market leaders from laggards.

# 5.2. Enhanced Collaboration and Stakeholder Involvement

Agile brings departments closer together, leading to enhanced collaboration while the key stakeholders are involved in the development process. Agile teams of underwriters, people in actuarial sciences and IT, and people in product management, compliance, and marketing all collaborate and share accountability. Regular Agile ceremonies like sprint planning, daily stand-ups, and reviews are habitual opportunities to engage and align stakeholders. This collaborative model helps you avoid late-stage surprise miscommunications and avoid the 'meeting on the way to the meeting' scenario by considering a



variety of perspectives from the start and all the way through. In turn, products are more likely to fulfill both business objectives and customer needs, and inner teams feel stronger ownership and a sense of cohesion.

#### **5.3. Increased Flexibility and Adaptability**

Agile offers the agility to adjust to change, no matter a shift in customer preferences, regulatory changes, or competitive pressures. Unlike waterfall, where the requirements get locked up from the beginning, Agile accepts change as its core principle. Product features are something teams will frequently revisit and refine, making it easy to pivot or re-prioritize based on new information or feedback. In the insurance application, this adaptability is especially important in regulatory compliance, where product terms or policy documentation may need to be updated quickly. Agile allows insurers to try out innovative product offerings like usage-based or on-demand insurance without investing time and resources.

#### **5.4.** Continuous Feedback and Iterative Improvements

One more essential positive aspect of Agile is that it focuses on continuous feedback and improvement. Review and retrospectives are done after each sprint, allowing teams and stakeholders to see where they stand and elicit key observations and refinement opportunities. The constant back to the beginning of this cycle of frequent evaluation keeps development aligned with user needs and business goals. User testing, a small pilot or some analytics tools can gather client feedback and incorporate it into the product roadmap in hours or minutes. This iterative approach improves product quality, lowers the risk of huge mistakes, and develops a more nimble, resilient development process. Refinement, both ongoing and in small steps, is a huge strategic advantage in the insurance business, where the whole game is built around customer trust and regulatory accuracy.

#### 6. Challenges and Limitations

#### 6.1. Resistance to Cultural Change

Insurance is the organizational resistance to cultural change; implementing Agile in insurance is challenging. Many traditional insurance companies operate with deeply embedded hierarchies, fixed ways of working and a strong accent towards compliance, which is inherently different from the decentralized, collaborative model Agile was intent upon. [18-20] Agile can pose a significant hurdle for employees and leaders comfortable and accustomed to top-down management, where teams are self-organizing and working in iterations. Furthermore, the successful shift from a driving approach to a value-driving one demands shifts in attitudes with respect to experimentation and failure. Overcoming this resistance will require significant executive sponsorship, a complete change management strategy, and an ongoing commitment to training to create an agile culture.

# 6.2. Complexity of Legacy Systems Integration

However, to Agile in the insurance industry, the legacy IT infrastructure represents a major technical limitation. Many insurance core platforms used for underwriting, claims processing, or policy administration are decades old and have tightly coupled architectures that are hard to modify or integrate with more modern tools. These legacy systems are incompatible with Agile's iterative cycles, which utilize continuous delivery and integration pipelines. However, this causes friction between agile teams



wanting to work quickly and speed up innovation versus backend systems that hinder progress. Agile methodologies promise speed and flexibility, but without major investment in modernization or middleware solutions, insurers may struggle to fully capture the benefits of producing in this manner.

#### 6.3. Regulatory and Compliance Constraints

Agile is fast and adaptive but sometimes imposes a conflict with strict regulatory requirements, which is a common theme in insurance, as it is such a highly regulated industry. An example is that insurers have a large amount of documentation, actuarial validation and audit trails to adhere to, which is not an easy fit with Agile's minimal documentation and constant change. Additionally, the regulatory approval process for new products or features is rigidly time-boxed to specific (often fixed) timelines and processes that are difficult to compress or iterate easily. As a result, Agile teams have to find a way of balancing the need to maintain regulatory compliance with the desire to embrace Agile principles, and often, this involves running hybrid models or even additional compliance oversight as part of Agile workflows.

#### **6.4. Scaling Agile Across the Enterprise**

Agile can be very powerful at a team level, but scaling Agile across an entire insurance organization is tremendously difficult. Consequently, large insurers tend to operate in multiple regions across multiple lines of business with multiple regulatory jurisdictions, limiting the ability to coordinate agile practice consistently. Agile efforts can become fragmented without a unified framework or governance model to the point of misalignment between teams and strategic goals. However, implementing frameworks (Scaled Agile Framework, SAFe) is complex and needs a lot of resources. Moreover, the structural adjustment required to maintain alignment of budgeting, portfolio management, and performance evaluation with agile principles remains challenging for many insurers.

#### 7. Proposed Agile-Enhanced Insurance Product Development Lifecycle

The Agile Product Development Team is at the heart of this model and works iteratively through sprint planning, execution and retrospectives. The team is cross-functional and has roles like developers, testers, and analysts and is driven by a Scrum Master with the support of a Product Owner acting in a customer proxy. Product vision and customer requirements are broken down into user stories and prioritized for development in tools like JIRA or Azure Boards, and you manage to work with them.

They have a robust DevOps and CI/CD pipeline that supports this agile team and allows continuous integration, testing, and deployments. Repositories like GitHub can automatically trigger source code changes, route the changes through automated testing frameworks (e.g. JUnit, Selenium), and post validated builds into staging and production environments. Tools like Terraform used for Infrastructure as Code (IaC) ensure consistent deployment. With this pipeline, manual effort is reduced, traceability is improved, and faster and more reliable delivery cycles are ensured. At the same time, development, the Data & Insights systems feed critical information back into the lifecycle. Data warehouses and visualisation tools like Power BI process internal and external data (customer behavior and marketing trends), allowing product teams to make smart decisions. Dashboards offer product teams insights that feed into the product owner's backlog prioritization process to keep the backlog continuously aligned with real-world usage and demand. Through tools like Grafana and Prometheus, Operations & Monitoring functions are embedded into the lifecycle, track system performance and provide alerts.



Exceptions are handled by incident management systems like ServiceNow and PagerDuty, which also reflect learnings into retrospectives. The real-time operational feedback also closes the loop between development and delivery, ensuring product teams are always aware of how the system behaves post-deployment.

Collaboration & Documentation, and Governance & Risk Management complete the picture of how, at last, agility doesn't come at the expense of compliance or knowledge sharing. The cycle includes regular knowledge-sharing sessions, wikis (e.g., Confluence), and capability improvement initiatives. While this happens, security scans and release gate reviews, along with automated audits to satisfy regulatory requirements, are performed by risk and compliance teams. The image overall depicts a full, scalable model to show how Agile could be successfully rooted in insurance product development to deliver responsiveness, compliance and innovation.



E-ISSN: 2582-8010 • Website: <u>www.ijlrp.com</u> • Email: editor@ijlrp.com



Figure 2: Agile-Driven Insurance Product Development Lifecycle Architecture



# 8. Case Study: Agile Transformation in Insurance Product Development 8.1. Background of the Transformation

The situation was a Fortune 100 insurance company in the United States that started a strategic Agile transformation initiative to bring back life into its product development process. For many years, the organization had been built to run phase-gated, waterfall-style project management, which, while predictable in form, had become increasingly inadequate to the speed of the world in which they now operated. While customer expectations had evolved and competitive pressures mounted, the company was hindered by excessively long cycle times. Typically it could take months to bring a new insurance product across the finish line from conception to market, resulting in missed opportunities and delayed reaction to changes in regulations or the market.

# 8.2. Core Challenges

The company's biggest challenge was to decrease its time to market across a billion-dollar portfolio of insurance products and services. There were project startup delays, long development lifecycles, and minimal customer feedback loops. Furthermore, the IT, business, and compliance teams were working in silos, leading to misaligned priorities and redundant work. Leadership recognized that if they didn't fundamentally change how work was delivered, customer satisfaction would continue to decline. They risked being left behind by more nimble competitors investing in different delivery of work that enabled technology.

## 8.3. Agile Implementation Strategy

In response, the company chose the Scrum framework as it is the basis for its Agile transformation to deal with these systemic issues. Instead of a top-down mandate, the organization created an internal Agile coaching program that provided targeted training, tools, and long-term mentoring to new Scrum teams. The developers, analysts, business stakeholders, and testers worked as cross-functional teams and were empowered to deliver value incrementally in short sprints. Teams were able to respond quickly to change and make data-driven decisions by focusing on continuous feedback and releasing incrementally. Sprint planning, daily stand-ups, reviews and retrospectives were agile ceremonies that suddenly became central to team operations.

#### 8.4. Measurable Business Impact

Agile had both an immediate and significant impact. At least 20% of project cycle time reductions are estimated to result in \$5 million of cost savings. Moreover, customer satisfaction scores increased by 30 percent over internal benchmarks 18 months ahead. They also dramatically improved key delivery metrics: Times fell from 10 weeks down to 3 weeks for project startup and from 20 weeks down to 7 weeks for time to first solution delivery. But perhaps most compelling was the improvement in project performance, as 90% of Agile led initiatives were completed on time and within budget versus 50% under the old model.

#### 8.5. Enterprise-Wide Expansion

Based on these results, executive leadership championed the expansion of agile practices across the broader enterprise. The approach adopted agile governance structures to scale, and the company began incorporating agile principles into strategic planning, budgeting and regulatory compliance processes.



The successful transformation illustrated how Agile could modernize legacy systems and processes and shift the entire organisation's orientation towards customer-centric, value-driven delivery. This case highlights the potential of Agile to bring real business benefits in the right conditions, with clear objectives, committed leadership, a supportive culture, etc.

#### 9. Discussion

Agile development methods have quickly become a new way to work on insurance product development. They are used as an alternative direction to such sequential, complicated systems where work rules are set in stone. This transformation enables the insurance provider to tackle the issues accrued over time, including slow time to market, compartmentalization of teams, and poor client interactions through agility, iteration, and feedback. This paper used the case of a Fortune 100 insurer as a real-life example to demonstrate how Agile can make a difference in terms of the speed of delivery, the quality of service delivery, and customer satisfaction. These gains underscore the importance of Agile not only as a methodology, but as a culture and an enabler for strategy within the insurance industry. However, it is important to understand that switching to an agile environment is not simple. Lack of adaptability, resistance to change, and potential issues with Agile at scale attempt to be dealt with at Shore Mint through thorough planning, executive support, and knowledge Management. Moreover, Agile can only work well in insurance where it interfaces with large and legacy systems, compliance models and actuarial requirements that naturally occur in long time horizons and are inherently cautious in their approach. Therefore, despite tackling the need for quality insurance product development with various tools, Agile needs to be adapted to the insurance industry's environment. Based on the future perspectives of insurers' digital transformations, agile frameworks are expected to contribute more to transforming the insurer's corporate model into a more customer-oriented one.

#### **10. Future Work and Research Directions**

Thus, as the insurance business is developing under the influence of digital disruption and customer preferences, Agile frameworks must accommodate the novel tools and approaches in their insurance operation. The following directions show potential for further innovation and development, especially for insurers looking to elevate agility in creating their products and across the entire enterprise.

# 10.1. AI and Agile in Insurance Product Development

The use of Agile practices in developing insurance products and integrating with AI could be the most attractive future trends. AI can be used to drive decision-making by applying predictive models, conducting risk evaluations, and providing instant consumer data. Implementing AI in the software development process is also useful in providing the agile team with a better understanding of the available data, hence making better sprint planning and prioritization. Similarly, there is a backlog of data in unstructured text that natural language processing and machine learning could use to inform the current state of backlog and customer patterns or changes in regulated statutes and limits. Organisations could tap into the next level of performance improvements by exploring various AI-enhanced Agile teams in the insurance industry, especially in understanding underwriting, pricing, and risk modeling.



# 10.2. Agile in Claims Processing and Fraud Detection

Apart from development, the Agile methodology is yet to be exemplified in claims processing and tracking fraud. Heavy reliance on rules, manual records, and reviews generally characterizes these areas. Yet, Agile could help distil the adoption of new fraud procedures quicker and meet emerging regulatory standards. Redesign claims journeys from the customers' perspective, iterative development of fraud detection algorithms and integrating real-time data from outside areas such as medical records/repair invoices can well be supported by the concept of Agile sprints. Possible future research can explore an in-depth analysis of how multiple teams of actuaries, data scientists, and claims specialists can implement Agile to enhance the sustainability of the already achieved improvements in the claims cycle time and the effectiveness of fraud-detection mechanisms.

# 10.3. Hybrid Models: Combining Agile with DevOps or Lean

Although Agile focuses on continuous planning and delivery, its capability can only be maximized when integrated with other frameworks such as DevOps and Lean. There is a consistent integration and delivery process that can help the organisation promote the level of technical flexibility needed to support a rapid delivery model within the regulatory landscape. In its principle to eliminate waste and enhance the flow of value, lean perfectly reflects the goals of Agile. Further research can be dedicated to designing solutions for insurance companies that allow flexibility, compliance, and system scale. More specifically, research can provide information on the level of adoption of agile integration with DevOps automation processes in inherited insurance environments or on the application of Lean in Agile decision-making and prioritization.

#### **11.** Conclusion

The Agile way of working entails a new revolution in how insurance products are thought, created and delivered. If insurance companies are to break the cycle of reliance on historical practice and market structures, they must consider employing more cyclic and customer-oriented models. Agile enhances the abilities of cross-functional teams to adapt to customers' requirements, changes in regulations, and business opportunities in the market to minimize the project's timeline and improve product quality. As depicted in the trends and examples used in various industries, Agile positively impacts cost control, organizational culture, and the implementation of innovations. Therefore, it is clear that changing to agile involved not just the use of certain well-defined processes but the need to change how organizations think and operate. Another concern for insurance companies requiring their attention is the integration of Agile with the existing legacy applications, compliance requirements, and niche areas such as underwriting and actuarial sciences. Further on, the connection between Agile and new technologies like AI, DevOps, and analytics transforms insurance product creation and service potential. Agile will remain an indispensable tool in constructing this new, more customer-oriented and flexible insurance industry in the age of digitalization.

#### References

1. Munandar, K. Y. P., &Raharjo, T. (2023). Agile adoption challenges in insurance: a systematic literature and expert review. Computer Science and Information Technologies, 4(3), 268-278.



E-ISSN: 2582-8010 • Website: <u>www.ijlrp.com</u> • Email: editor@ijlrp.com

- Lemieux, A. A., Lamouri, S., Pellerin, R., & Tamayo, S. (2015). Development of a leagile transformation methodology for product development. Business Process Management Journal, 21(4), 791-819.
- 3. Understanding the Product Development Process of Life Insurance and Annuity Companies Overview, online. https://www.soa.org/4937cd/globalassets/assets/files/research/understanding-product-development-overview.pdf
- 4. Gholami, M. F., Daneshgar, F., Beydoun, G., &Rabhi, F. (2017). Challenges in migrating legacy software systems to the cloud—an empirical study. Information Systems, 67, 100-113.
- 5. Stavru, S. (2014). A critical examination of recent industrial surveys on agile method usage. Journal of Systems and Software, 94, 87-97.
- 6. Common Pitfalls in Legacy Insurance System and How to Avoid Them, inude, online. https://inubesolutions.com/resource/common-pitfalls-in-legacy-insurance-system-and-how-to-avoid-them/
- 7. What Is Agile Product Development?, PTC, 2023. online. https://www.ptc.com/en/blogs/corporate/what-is-agile-product-development
- 8. Kupiainen, E., Mäntylä, M. V., &Itkonen, J. (2015). Using metrics in Agile and Lean Software Development–A systematic literature review of industrial studies. Information and software technology, 62, 143-163.
- 9. Anifa, M., Ramakrishnan, S., Kabiraj, S., &Joghee, S. (2024). Systematic Review of Literature on Agile Approach. NMIMS Management Review, 32(2), 84-105.
- 10. Campanelli, A. S., & Parreiras, F. S. (2015). Agile methods tailoring–A systematic literature review. Journal of Systems and Software, 110, 85-100.
- 11. Mnkandla, E., &Dwolatzky, B. (2004). A survey of agile methodologies. Transactions of the South African Institute of Electrical Engineers, 95(4), 236-247.
- Otero, T. F., Barwaldt, R., Topin, L. O., Menezes, S. V., Torres, M. J. R., & de Castro Freitas, A. L. (2020, October). Agile methodologies in an educational context: a systematic review. In 2020 IEEE Frontiers in Education Conference (FIE) (pp. 1-5). IEEE.
- 13. Agile Adoption by the Financial Services Industry, cprime, online. https://www.cprime.com/resources/blog/agile-adoption-financial-services-industry/
- 14. The agile product development process & methodology explained, maze, online. https://maze.co/collections/product-development/agile/
- Marjanovic, O., & Murthy, V. (2016). From product-centric to customer-centric services in a financial institution–exploring the organizational challenges of the transition process. Information Systems Frontiers, 18, 479-497.
- Lundene, K., &Mohagheghi, P. (2018, May). How autonomy emerges as agile cross-functional teams mature. In Proceedings of the 19th International Conference on Agile Software Development: Companion (pp. 1-5).
- 17. Org agility at a Major Insurance Firm by bringing Inter-Functions Fluidity using SPOTIFY Agile, benzene online. https://benzne.com/case-study/agile-case-study-for-insurance/
- Johne, A. (1993). Insurance product development: managing the changes. International Journal of Bank Marketing, 11(3), 5-14.
- 19. Palfreyman, J., & Morton, J. (2022). The benefits of agile digital transformation to innovation processes. Journal of Strategic Contracting and Negotiation, 6(1), 26-36.



- 20. Almeida, F., Simões, J., & Lopes, S. (2022). Exploring the benefits of combining DevOps and Agile. Future Internet, 14(2), 63.
- Papadakis, E., &Tsironis, L. (2018). Hybrid methods and practices associated with agile methods, method tailoring and delivery of projects in a non-software context. Procedia computer science, 138, 739-746.