

Enhancing Claims Lifecycle Management with Duck Creek: A Modern Insurance Solution

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Abstract

The Duck Creek Platform is a comprehensive ecosystem designed to streamline end-to-end insurance management through interconnected components such as Claims, Policy, Billing, Digital Engagement, and more. By integrating cloud-based and on-premise deployment options, Duck Creek Claims enhances workflow automation, scalability, and operational efficiency while ensuring regulatory compliance. The cloud-based Duck Creek OnDemand offers a secure, fully managed environment with AI-driven automation, seamless third-party integration, and cost-effective maintenance, whereas on-premise deployment provides greater control over data security and customization at the cost of scalability. The claims management system optimizes the entire lifecycle, from First Notice of Loss (FNOL) to automated claim assignments, policy data access, efficient adjuster workflows, negotiation management, and recovery lifecycle support. Additionally, robust analytics and reporting tools facilitate real-time monitoring and process optimization. By modernizing legacy systems and leveraging advanced technologies, Duck Creek empowers insurers to improve customer experience and accelerate digital transformation.

Keywords: Duck Creek Claims, Insurance Technology, Claims Processing, Security, Claims Management

I. INTRODUCTION

Claims management systems have advanced with latest technological solutions in the insurance sector to handle the entire claims lifecycle starting from initial filing of a claim (FNOL) to settlement and reporting[1]. As insurance companies strive for operational efficiency, enhanced customer experience, and regulatory compliance, the choice of claims management platform becomes imperative. Among the most available solutions in this space are Guidewire Claim Center and Duck Creek Claims, both recognized for their best innovative architectures, advanced claim management features, and strong market presence[2].

Guidewire Claim Center, known for its scalability for bigger enterprises and complex customization capabilities, is preferred by large insurance companies looking for comprehensive digital transformation. Duck Creek Claims[3], on the other hand, is modular, quicker to implement, and flexible, making it a great option for insurers looking for an extensible, cloud-based solution. Both platforms have gained global recognition, supporting diverse insurance lines across personal, commercial, and specialty sectors.

Duck Creek Claims is an integral component of the broader Duck Creek Technologies ecosystem, offering a modern solution for insurance claims management[4]. Designed with scalability, security, and performance in mind, Duck Creek Claims addresses the evolving demands of the insurance industry, where digital transformation and the growing need for operational efficiency are at the forefront. This platform is built to manage claims processing seamlessly from start to finish, empowering insurers to handle increasing claim volumes while ensuring quick, reliable service and data protection.

Efficient claims processing is crucial for insurance companies as it directly impacts customer satisfaction, operational costs, and overall business performance. A streamlined claims management system ensures faster settlements[5], reduces administrative overhead and minimizes the risk of fraud. By automating workflows and leveraging advanced technologies like AI and data analytics, insurers can enhance accuracy, improve decision-making, and ensure regulatory compliance. Additionally, a well-optimized claims process strengthens customer trust by providing transparency and reducing delays in claim approvals. As the insurance industry evolves, adopting robust claims management solutions like Duck Creek Claims becomes essential for maintaining a competitive edge.

A. Motivation of the Study

The growing complexity of insurance claims processing demands a robust, scalable, and secure system to ensure efficiency and customer satisfaction. Duck Creek Claims, a leading platform in the property and casualty insurance sector, offers a flexible architecture designed for seamless integration and high adaptability. However, understanding its scalability and security mechanisms is crucial for insurers looking to optimize performance, handle large claim volumes, and mitigate cybersecurity risks. This study aims to analyze Duck Creek Claims' architecture, its ability to scale with business needs, and its security measures to provide insights into its effectiveness in modern insurance operations. The key contributions of the study are as follows:

- This study provides an in-depth analysis of Duck Creek Claims, highlighting its role in optimizing claims processing and improving operational efficiency in the insurance sector.
- By exploring the integration of automation, real-time data insights, and AI-driven decision-making, this study showcases how insurers can leverage technology to minimize fraud risks and enhance accuracy.
- Bridges the Gap Between Legacy and Cloud-Based Solutions – The research outlines how Duck Creek Claims facilitates the transition from outdated legacy systems to modern, scalable, and cloud-based claims management platforms.
- The study discusses how Duck Creek Claims assists insurers in meeting regulatory requirements and mitigating compliance risks, ensuring legal adherence in a highly regulated industry.
- By analyzing the architecture and technology stack of Duck Creek Claims, this study contributes to the ongoing development of innovative solutions in insurance claims management.

B. Structure of the paper

This paper is structured as follows: Section II provides an overview of Duck Creek Claims, highlighting its significance in the insurance industry. Section III delves into CFS infrastructure alongside its main operational capabilities together with its system connectivity. Section IV analyzes the main execution barriers and implementation constraints connected to the system. The paper finishes with a summary of major findings while proposing directions for future research in its concluding section V.

II. UNDERSTANDING DUCK CREEK CLAIMS

Modern insurance operations need efficient claims management to preserve customer satisfaction together with operational effectiveness in the present-day environment. Duck Creek Claims works as a contemporary cloud-enabled claims management tool that helps insurers optimize their claim processing while decreasing payment duration and boosting accuracy levels. Real-time data insights together with automation and system integration with insurance systems, allow Duck Creek Claims to help insurers make better decisions[6], fight against fraud attempts and fulfill regulatory requirements.

The core operations of the insurance industry depend on Duck Creek software to modernize and optimize their procedures. Insurance operations require advanced technology solutions, including Duck Creek software, because complexity has increased, and operations need efficiency for delivering better customer experiences[7]. A list follows that identifies critical reasons for requiring Duck Creek software in the industry. The illustration in Figure 1 illustrates how Duck Creek delivers its advantages to the system:

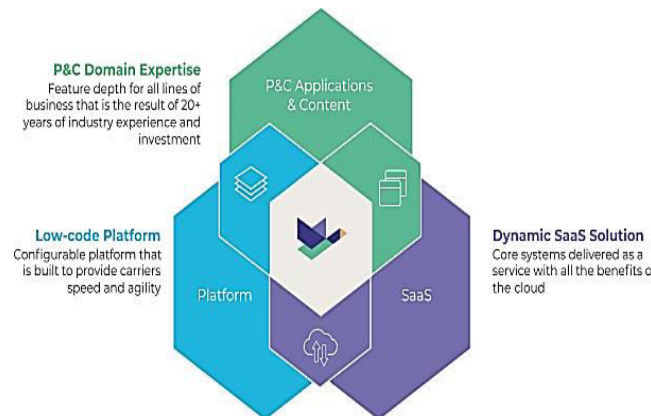


Fig. 1. Benefits of Duck Creek

A. Streamlining Core Insurance Operations

The Duck Creek platform integrates essential business operations through a system that takes care of policy administration alongside claims management and billing needs. The centralized system helps insurers oversee policy creation and maintenance and also enables smooth billing operations and correct claim management.

B. Improving Operational Efficiency

The automation of manual operations through Duck Creek enables companies to lower administrative expenses while cutting down on human mistakes and improving general efficiency[8]. The software system strengthens both data analytics and management features to enable insurers to base their decisions on accurate data through fast-paced evaluations.

C. Faster Time-to-Market

Duck Creek enables insurers to develop new products and deploy them faster while allowing them to immediately bring new insurance solutions to market. The no-code configuration tools in Duck Creek let insurers update their policies without needing programmers to write code, which enhances their product launch speed.

D. Enhancing Customer Experience

Insurers use Duck Creek to create tailored, user-friendly interactions with customers. Insurers enable customers to reach their policy details and claims status along with billing information through web and mobile channels so they can improve their satisfaction levels and engagement rate.

E. Modernizing Legacy Systems

Today, most insurance firms operate outdated legacy systems that reduce operational efficiency and generate excess maintenance expenses[9]. Duck Creek enables businesses to transition away from legacy systems using cloud-based solutions which helps insurers update their operations together with enhanced capacity for future growth.

F. Ensuring Compliance and Regulatory Adherence

The application enables insurance companies to maintain regulatory compliance through features that support changing rules, data protection needs, and report generation requirements. The software plays a crucial role in preserving system and regulatory compliance in environments where strict laws exist.

G. Enabling Data-Driven Decision-Making

The integration of analytics tools with Duck Creek provides businesses with performance insights into operational efficiency and customer behavior, along with business performance data. The use of data allows insurers to enhance their business strategies regarding pricing and underwriting but also claims handling which results in better financial outcomes and retaining customers.

H. Scalability and Flexibility

The Duck Creek solution works at different capacity levels to meet the needs of insurers from small to large companies. Duck Creek offers companies three deployment approaches - on-premise, cloud and hybrid deployment - to enable customization of the system according to individual organizational requirements.

I. Cost Savings

Through its modernization approach combined with operational efficiency enhancement, Duck Creek helps insurers decrease their operational expenses. The competitive insurance market reaches higher financial sustainability as businesses achieve greater profitability through these strategies.

J. Global Reach and Multi-Region Support

Through its multi-language and multi-currency support, Duck Creek delivers solutions that fulfill the requirements of international insurance organizations. Companies with international operations rely on this feature because it ensures they can run their global business activities effortlessly.

1) Duck Creek Claims Meets Modern Claims Solution Needs

As part of Duck Creek's insurance suite, Claims Management operates from cloud infrastructure [10]. The solution operates to speed up the claims process throughout its complete lifecycle. The platform presents automatic workflow adaptability alongside extensive reporting capabilities alongside easy interface compatibility, which makes it an all-inclusive solution for complete claims management requirements. Here's how Duck Creek Claims stands out:

a) Streamlining Claims Process for Efficiency

The Duck Creek Claims system makes handling the intricacies of insurance claims administration simple. With low-code configurability, a large ecosystem of integration partners, and pre-integrated solutions, their service not only automates the whole claims process but also transforms it for increased speed and efficiency, freeing up insurers to concentrate on strategic objectives. Thanks to improved accuracy in a contemporary claims service, claims adjusters may also better manage their caseloads.

b) Empowering Decision Making with Real-Time Data

The importance of making well-informed decisions cannot be emphasized. Duck Creek Claims gives you access to real-time data and analysis, which not only gives you insightful information but also enables you to recognize and respond quickly to new trends, which promotes company expansion. For quicker, more accurate, and higher-quality choices, carriers may include AI and machine learning models into their claims adjuster system using Duck Creek's claims intelligence interface.

c) Boosting Customer Satisfaction and Compliance

In the customer-first market of today, a happy customer refers your business to others and creates long-term business value. Through straightforward claim filing and ongoing communication that fosters confidence between their staff and consumers, Duck Creek Claims delivers exceptional customer satisfaction. The software's capability turns compliance obligations into a strategic advantage for the organization.

2) Duck Creek Software Products

The main business scope for Duck Creek Technologies consists of software suite products intended for insurance organizations. The company provides solutions that enable insurance companies to improve their core functions, including underwriting and policy management, as well as claims processing and billing operations through Figure 2. Duck Creek provides its customers access to these major software solutions:

- **Duck Creek Policy:** Standard Insurance employs a policy management system that assists insurers in handling insurance policies from initial quotation creation to renewal periods and documentary adjustments.
- **Duck Creek Billing:** The system supports insurers to handle their billing operations by streamlining payment strategies with invoicing options and collections features.
- **Duck Creek Claims:** The solution facilitates insurance firms to handle claims effectively via automated processing which leads to prompt resolutions together with better customer satisfaction.
- **Duck Creek Rating:** An insurance product pricing system that supports multipurpose business operations through complex calculation features while executing intricate rules.
- **Duck Creek Reinsurance:** A digitally signed system handles reinsurance program management with features for reinsurance agreement contract handling and claim processing operations[11].
- **Duck Creek Document:** The system assists insurers in making and controlling documents that require management across several communication points to maintain compliance standards.
- **Duck Creek Data & Analytics:** A collection of technologies that assist insurers optimize pricing, claims processing, and decision-making by offering actionable insights through data analytics.
- **Duck Creek Distribution Management:** This solution serves as a relationship platform to monitor distribution partnerships with agents and brokers alongside other business conduits in order to strengthen collaboration while improving sales metrics.

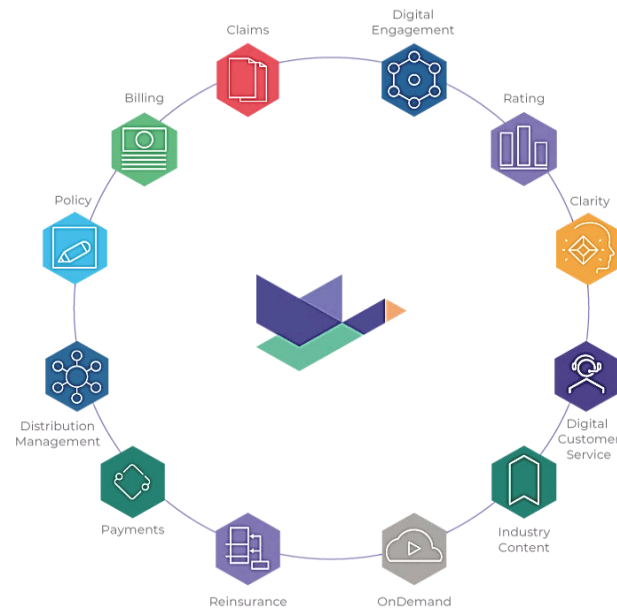


Fig. 2. Duck Creek Products

The Duck Creek Platform features multiple related elements and components that enable complete insurance management[12]. At the center, the Duck Creek logo represents the core platform, while surrounding hexagonal icons depict key modules, including Claims, Digital Engagement, Rating, Policy, Billing, Distribution Management, Payments, Reinsurance, OnDemand, Industry Content, and Digital Customer Service. These components work together to streamline insurance operations, ensuring efficient claims processing, policy administration, customer interactions, and data-driven decision-making. The circular arrangement signifies seamless integration, enabling insurers to enhance workflow automation, scalability, and overall efficiency in managing the insurance lifecycle.

III. ARCHITECTURE AND TECHNOLOGY STACK

The Duck Creek Platform is the epitome of Duck Creek's architectural and design philosophy and serves as the technological basis for all of the products. Common functionality, inherent openness, and configurability across Duck Creek apps facilitate transparency across functions, expedite and streamline processes, and provide more relevant information to inform every choice more rapidly. Benefits include:

A. Low-Code Configuration:

The basic tenet of the Duck Creek Platform is the dedication to externalizing the rules that distinguish your company from the main platform's code. Their product strategy is unified, and their technological architecture is driven by this underlying technical philosophy. Business users can simply modify the following areas:

- Release cycle management: requirements, testing, and documentation; quick configuration and upgrades for products; and task, project, and product management
- Management configuration: administration of funds, forms, assignments, and tasks; management of suppliers; and automated assignment.

B. Open Architecture:

In today's insurance market, data and information should underpin every transaction, workflow, and decision. The success of a carrier depends on their level of openness. In order to provide the best possible results for their insureds and companies, insurance vendors should make their data and services freely accessible to carriers so that they can make quick, easy, and affordable choices.

1) Single point of change:

The following business and IT users may quickly manage and alter areas across all solutions with just one entry:

- Complete product definition environment: Regression testing and product modeling; database, warehousing, and analytics support; rating, rules, screens, forms, and workflows.
- Management configuration: Rules, procedures, events, data, valid values, and expressions shown via the user interface[13].

C. A Three-Tiered Stack:

Duck Creek solutions are written in C#, built using the .NET Framework, and executed on a Windows Server environment. AJAX and JavaScript offer extensive consumer functionality. The Duck Creek Design System, a productized collection of CSS that supports customized styles, branding, and personalized themes, is what drives page styles.

The overall design is a contemporary, three-tiered stack that offers a web tier, an application tier, and a database tier, either logically or physically separated or unified. The rating user interface offered by the web tier is web-based. In addition to end-to-end claims processing, the application layer comprises business and application components and services that support every facet of selling and servicing insurance products. Through service level interactions, additional access channels may make use of the complete range of current business processing capabilities to reduce time to market and establish uniformity in business processing and rules. Point-to-point service level interactions and enterprise communications protocols provide integration with third-party suppliers or corporate systems. There is flexibility in automated testing solutions since view logic and business logic are loosely connected and may be tested separately. The data layer, which is powered by the Microsoft SQL Server platform, contains operational, transactional, and referential data for system functions.

D. Test Automation Centre:

A powerful and dependable toolkit that supports a variety of browser technologies for creating automated test scripts for Duck Creek Web applications. With no technical expertise, business users may easily build high-quality automated test scripts because of its top-down architecture[14]. Test automation becomes straightforward, reducing testing time and speeding up time to market. Benefits of a test automation center include:

- Prioritize test development above system architecture testing to get higher quality at a reduced cost.
- The test developer access to objects found in the Duck Creek solution Manuscript, removing uncertainty and expediting test creation to increase overall test coverage without raising expenses.
- Tests may be easily and painlessly changed at the same speed that developers deploy new features.
- Compared to other current technologies, it provides greater coverage while halving testing expenses.

- No coding or scripting is required.
- Utilize data tables to parameterize the data that test scripts utilize
- Create automated test scripts using Agile approaches while a product is being developed.
- To facilitate version management and maintenance, save each test script as a separate XML file.
- Batch Runner allows you to run sequences of test scripts.
- Support for command line execution of test scripts, which enables automation of the test script execution process or integration with other tools.

E. Duck Creek Technologies

Duck Creek Technologies prioritizes security through a multi-faceted approach:

1) SaaS Platform Security:

Their Duck Creek OnDemand platform, built on Microsoft's Azure cloud services, offers a secure and flexible architecture that supports various security and regulatory requirements[15]. Azure's extensive compliance offerings and physical security measures enhance this foundation.

2) Dedicated Security Team:

A specialized team, led by the Chief Information Security Officer from their Rosemont, IL office, oversees security operations, architecture, and governance.

3) Comprehensive Security Measures:

The OnDemand services incorporate multiple protection layers, incorporating sophisticated threat prevention, host-based firewalls, multi-factor authentication, network isolation, secure gateways, web application firewalls, and content filtering.

4) Regulatory Compliance Support:

Duck Creek actively monitors evolving regulatory requirements to ensure their offerings help customers maintain compliance with regulations like GDPR and CCPA.

F. Cloud-Based vs On-Premise Deployment

Duck Creek Claims delivers deployment solutions through both cloud infrastructure and self-hosted systems so clients can select the most suitable installation method for their organization.

1) Cloud-Based Deployment:

Duck Creek OnDemand offers insurers a cloud-based solution that provides them with fully managed, secure, scalable environments. The platform helps insurers operate without significant on-site infrastructure requirements, so they minimize maintenance expenses while boosting operational readiness[16]. The cloud deployment system ensures automatic update distribution and smooth operation with external programs alongside compliance with security regulations. This platform allows insurers to handle claims more efficiently by combining AI, big data analytics, and automation capabilities.

2) On-Premise Deployment:

Some insurance companies choose on-premise deployment to maintain full control of their data protection as well as regulatory compliance and system modification. Insurers that choose on-premise deployment need to dedicate IT workers to administer maintenance tasks along with system upgrade work and security duties[17]. The system modification flexibility comes with a cost that dims the benefits of cloud solutions due to lower scalability.

IV. CLAIMS LIFECYCLE MANAGEMENT WITH DUCK CREEK

A. *First Notice of Loss (FNOL)*

An enhanced toolkit for FNOL features is necessary for an ideal claims management system. To reduce the requirement for intervention, a quick information-gathering system should optimize automated Q&A sessions for claim data, predictive analysis for result prediction, omnichannel assistance choices, and automated claim processing enhancements.

B. *Automated Assignment*

The complexity and unpredictability of claims during evaluation necessitate that adjusters exhibit a variety of abilities. In order to optimize approval procedures, the software system must have automated claim assignment, which integrates claim-specific needs with adjuster skills and job demand. Salvage operations, Special Investigation Unit (SIU) functions, and subrogation activities should all be handled by the platform. It should also enable adaptations for disaster scenarios or large accounts.

C. *Instant Policy and Coverage Data Access*

In order to optimize claims processing, the software system needs immediate policy and coverage accessibility. The whole scope of the policy's coverage, including limitations and deductibles, should be made available, together with information on which coverages apply, reserve modifications, and policy snapshots for inspection.

D. *Efficient Adjuster Workflows*

The program should track claim statuses and deliver task notifications, streamlining adjuster operations. Depending on the kind and reason of the claim, it should drive claim procedures, enable collaborative file notes for speedy settlement, and facilitate fraud flagging and role-based assignment.

E. *Effective Negotiation and Payment Management*

A contemporary claims management program should effectively manage payments and negotiation data. The system should be able to confirm the user's role-based and entity-based authorization rules when they submit a payment[18] before elevating the payment for authorization.

F. *Recovery Lifecycle Support*

The program should automate referral capabilities, detect recovery chances early, and completely support the recovery process. It should facilitate the assignment of specialized performers and complete file ownership, allowing proactive processes to control the salvage process.

G. *Robust Reporting & Analytics*

A good claims management program should include strong reporting features. To monitor key performance indicators (KPIs), for example, it should provide self-service dashboards and real-time data access. This would allow for continuous claims process optimization by guaranteeing regulatory compliance as well as identifying and monitoring abnormalities and trends in real time.

V. LITERATURE OF REVIEW

The literature review examines key developments in Duck Creek Claims, highlighting industry recognition, upgraded functionalities, and agile technology in the claims management space.

Ogunnubi (2018) According to the report, there is a substantial correlation between the operational expenses of Nigerian non-life insurance businesses and claims handling. The study did find a substantial correlation between the profitability of Nigerian non-life insurance businesses and their claims handling practices. Since a well-managed claim results in profitability through recurring business, it is advised that the claims management department be appropriately organized with highly technical, skilled, and experienced personnel in order to handle insurance company claims[19].

Geeta, Muthu and Subramanian (2018) insurance against financial losses due to accidents, illnesses, disabilities, or unintentional death and dismemberment “It includes insurance for losses from accident, medical expense, disability, or accidental death and dismemberment.” Complementary and mandatory health insurance premiums are tracked by the health insurance premium index, which is the weighted average of the two sub-indices. The health insurance premium index may be used to determine how changes in premiums have affected the increase in families' disposable income. The Federal Statistical Office compiles the health insurance premium index for supplemental insurance in Switzerland, whereas the Federal Social Insurance Office does so for basic health insurance. Applications frequently employ claims-based identification to get the necessary identity data about users on the Internet, in other organizations, and inside their own companies. It offers a standardized method for both on-premises and cloud-based apps[20].

Pelton et al. (2017) Proposed a study on Students from University Wyoming conducted excavations at Duck Creek site in 2013 and 2015, revealing 694 flakes, 60 prehistoric and protohistoric tools, 2 stone circles, and historic artifacts. The site contains a diverse assemblage of Late Paleoindian projectile points and sedimentary deposits spanning 11,800 cal yr BP. The site could help clarify northwest Plains archaeology issues, including Late Paleoindian Foothills/Mountain chronology and upland land use shifts[21].

Pavlo and Aslett (2016) introduce the MBBB Claim Management System, a web-based platform designed to enhance the efficiency of processing mileage and overtime claims for MBBB staff. The system replaces the traditional manual claim method with a computerized approach, significantly improving approval speed, reducing human errors in calculations, and offering real-time claim status tracking. Developed using the Laravel framework and following the Model-View-Controller (MVC) architecture, the system utilizes PHP, JavaScript, jQuery, and MySQL for implementation. The system provides automated claim calculations, claim history tracking, and budgetary insights for financial managers. Overall, the study demonstrates how digital claim management solutions can streamline administrative processes, increase transparency, and improve financial oversight in organizational workflows[22].

David (2015) describes the basic ideas behind insurance pricing and goes over the primary statistical approaches used to allow for reasonable price discrimination. It appears more and more that they live in a culture where everyone is terrified of everything, and everything is viewed as a risk. Because of this sense of unpredictability and anxiety, many people show a strong need for security. The need for insurance is growing in importance in a dangerous environment, where an insured person's primary worry is ensuring their financial stability and safety in the event of a potential loss. All of the steps involved in insurance involve providing a fair means of risk transfer in return for a set rate or tariff[23].

The literature study summary based on Duck Creek assertions is given in Table I, along with the methods, main conclusions, restrictions, goals, and difficulties.

TABLE I. SUMMARY OF LITERATURE REVIEW BASED ON DUCK CREEK CLAIMS

References	Focus	Techniques Used	Key Findings	Objectives	Challenges and Future Work
Ogunnubi (2018)	Claims management in non-life insurance companies in Nigeria	Statistical analysis	Claims management significantly affects operating costs but not profitability.	Assess the impact of claims management on insurance companies' financial performance.	Need for trained staff and structured claims management department.
Geeta, Muthu and Subramanian (2018)	Health insurance premium index and claims-based identity	Index-based evaluation, statistical data collection	Health insurance premium index influences household disposable income	Analyze health insurance evolution and its impact on disposable income	Enhancing data accuracy in insurance premium tracking
Pelton et al. (2017)	Archaeological excavation at Duck Creek site	Field excavations, artifact analysis	Discovered prehistoric artifacts and Late Paleoindian projectile points	Clarify the chronology and land-use shifts in the Northwest Plains	Further research on sedimentary deposits and chronology validation
Pavlo and Aslett (2016)	Digital claims management for MBBJ staff	Web-based system using Laravel (PHP, MySQL, MVC architecture)	Automated claim processing improves efficiency and transparency	Improve efficiency in claims processing through digital solutions	System integration challenges and data security concerns
David (2015)	Insurance pricing and risk assessment	Statistical tools for pricing models	Insurance helps transfer financial risk in a risk-averse society	Examine fair insurance pricing and risk distribution	Addressing evolving risk perceptions and premium affordability

VI. CONCLUSION AND FUTURE SCOPE

Duck Creek Claims is a powerful cloud-based claims management solution that enhances efficiency, accuracy, and customer satisfaction within the insurance industry. By leveraging automation, real-time data insights, and seamless integrations, it optimizes claims processing while reducing settlement times and operational costs. The Duck Creek Platform provides insurance firms with a modern infrastructure that is scalable and low-code capable, enabling them to streamline core operations and increase

compliance while using data analytics to inform decisions. Insurers can achieve modernization of legacy systems and digital transformation through Duck Creek Platform's modular design together with its wide ecosystem. Deployment of the Duck Creek Platform comes with complex implementation needs and extensive resource requirements coupled with expensive initiation investment which demands customization work and creates obstacles regarding data security together with regulatory compliance needs.

The evolving insurance business will likely lead future improvements of Duck Creek Claims toward more advanced AI and ML features for better fraud detection and improved assessment decision-making. New innovation strategies will emerge through expanded integration between Duck Creek Claims with blockchain for secure claims processing as well as IoT systems for immediate risk assessments. Future research will examine the possibility of improving user experience through the creation of more intelligent chatbots powered by artificial intelligence and predictive analytics that can anticipate consumer wants.

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