Assessment 1 – Blockchain Implementation Analysis on Prudential plc

Topic: Slow and Complex Insurance Claims

Executive Summary

Prudential plc operates in various markets in Asia and Africa, offering life and health insurance products that rely heavily on efficient and reliable claims processing. Complexity in claims, such as in the case hospitalization, surgeries, and long-term illness patients cases further need extensive evidence collections, multiple times of verifications, and coordination among the hospitals, internal teams, customers, and regulatory bodies. These processes are currently facing slow document exchange, inconsistency in data formats, limited transparency and repeated manual authentication. As a result, Prudential deals with long processing times, high administrative costs, increased dispute rates, and regulatory scrutiny over fairness and timeliness.

The main issue is the lack of a single, trusted, real-time source of truth that all stakeholders can rely on. Each party keeps separate records, which leads to duplicated checks, conflicting information, and avoidable delays. A permissioned blockchain network offers a practical and compliant solution by creating a shared, tamper-evident ledger for claims evidence, document timestamps, and workflow events. Smart contracts can automate coverage validation and claims logic, which reduces manual tasks while improving transparency and auditability.

Expectation in benefits includes a 20% to 40% reduction in complex claiming cycle times, a 15 to 25% decrease in administrative workload, more accurate fraud detection, and a significant boost in customer trust and regulatory confidence. Challenges will exist, especially around the protection of data, integration with systems of hospital, governance, and incentives for adoption but these can addressed with strict privacy controls and off-chain medical storage, phased rollout, and strong governance models.

The report suggestions that Prudential plc should initiate a phased consortium blockchain pilot with digitally advanced hospitals, followed by gradual expansion across markets. This method will build the trust, enhances the operational efficiency, and meets emerging regulatory expectations for transparency and traceability.

Problem Analysis

Prudential plc is a major international financial services group that operates in Asia and Africa. It serves millions of customers with life, health, and protection insurance. In these markets, the claims process plays a crucial role in building trust, keeping customers, and maintaining a good regulatory reputation. Normal simple claims like outpatient reimbursements can be process quickly. still complex claims that involve hospitalization, surgery, expensive treatments, or chronic conditions require a lot of coordination between hospitals, customers, third-party administrators, and Prudential's internal departments. These cases repeatedly become slow and resource-heavy, leading to disputes.

Lack of Trust and Transparency Between Stakeholders
Who trusts whom and why?

Prudential does not fully trust the accuracy of the documents submitted by hospitals or customers. Hospitals repeatedly send medical reports, bills , discharge summaries, and test results through inconsistent channels, such as PDFs, email attachments, WhatsApp messages, or uploads to partner portals. Many smaller hospitals do not have standardized electronic medical record (EMR) systems. They often produce handwritten or scanned documents that can be easily mistaken or tampered with.

At the same time, hospitals and customers do not trust Prudential's internal processing. They cant see which step is pending or why the additional evidence is needed for the claim. This lack of transparency will lead to repeated submissions of documents and frequent follow-ups, and will make confusion between what stakeholders think has been provided and what Prudential's teams have confirmed.

Operational Complexity involves
Complex claims need multiple layers of verification:
- genuineness of medical invoices
-validity of diagnosis codes
-alignment of treatment details with policy coverage
-fraudulent risk assessment
-regulatory compliance checks
-coordination with third-party administrators

Since all parties keep their own data, Prudential must repeatedly verify documents and seek clarifications. This will create a loops that can add days or

weeks to processing times. Internal teams depends heavily on manual tasks, such as email updates, document trackings,follow-ups in phone , and checking multiple internal systems. Even the small inconsistencies may lead to prolonged communication with hospitals, causing further delays.

We look on to Business Impact
The impact is significant.
Processing delays harm Prudential's brand and customer trust scores, especially in health insurance where customers may feel vulnerable and expect quick support. Slow claims handling is a major cause of policy cancellations in the insurance industry.

Administrative costs rise because of the many staff needed to handle manual verification, reconciliation, and customer communications. A small reduction in rework and verification could save millions each year across Prudential's regional markets.

Disputes increase when hospitals and customers can't see the status or reasons for delays. These disputes will take more time of staffs and lengthen regulatory reporting cycles.

Fraud risks will grow in markets with the weak digital infrastructure. Without secure verification, Prudential has to apply broad fraud controls to legitimate claims, which slows down the entire process.

Regulatory risk is also a concern. Insurance regulators are now expecting clear audit trails and fair handling of claims. A fragmented process makes compliance checks slower and riskier.

Ultimately, the main issue is structural misalignment. Prudential and its partners do not have a shared, trusted, tamper-proof view of claims data, which creates unnecessary friction and inefficiency.

2. Benefits of Blockchain

Distribution of Ledger will Reduces Verification Work

A permissioned blockchain allows Prudential, hospitals, and authorized third parties to share a synchronized ledger of claims events. Each evidence submission, such as invoices, diagnosis codes, or approvals, is hashed and recorded permanently.
This eliminates:
• duplication of document checks.
• version confusion
• questions about whether a document has been modified

Since all participants share the same tamper-evident record, Prudential no longer needs to verify authenticity repeatedly. This lets underwriters focus on medical judgment instead of administrative tasks.

Immutability will reduce fraud

Fraudulent behavior, such as fake bills, reusing of documents, and inflated charges, is easier when participants depend on fragmented, private records. Blockchain's immutability ensures as follows
-each document submission has a permanent fingerprint
-invoices cannot be quietly adjusted
-a document cannot be reused for multiple claims without detection

This reduces fraud costs and improves Prudential's ability to prioritize investigations.

Smart Contracts Automate Time Consuming Steps

Smart contracts can automate predictable, rules based parts of complex claims:
-coverage verification
- policy exclusions
-waiting periods
-co-payment calculations
-flagging missing documentation

Automating these steps reduces human error, shortens processing time, and frees staff for medical review.

Traceability will Improve the Accountability

All claim events are timestamped and auditable:
-hospitals uploads
- customer submissions
- Prudential approvals or rejections
- fraud team reviews
- regulatory checkpoints

This supports the regulatory inspections and speeds up dispute resolution and strengthens Prudential's compliance position.

Customer Transparency Increases Trust

Customers can view real-time claim status without needing to call support repeatedly:
-which stage is complete
- which document is missing
- which party is responsible for the next step

This improves the customer experience and reduces incoming contact volume.

Quantified Business Impact:

A blockchain-enabled process can realistically help to achieve as follows:
-20%–40% faster claims compared before processing due to reduced verification
- 15%–25% lower administrative effort as manual check decline.
- 30%–50% fewer disputes driven by shared evidence
- significant savings related to fraud especially in high risk markets
- higher quality analytics as data becomes structured and trustworthy

Blockchain can truly simplify Prudential's complicated claims process. By eliminating repetitive manual checks and providing a shared, tamper-proof record, claims can move 20 to 40% faster than they do now. Administrative effort will drop by 15% to 25% because teams no longer they have to chase documents or verify the same data many times. Disputes decrease by 30% to 50% since every party can see the same evidences. It also makes fraudulents harder, especially in high risk markets, which directly lowers costs. Prudential also benefits from cleaner, structured data that improves analysis, forecasting, and risk assessment. Overall, the company achieves a faster, cheaper, and more transparent claims operation with stronger oversight, better audit trails, and increased customer trust.

3. Challenges and Issues

Prudential faces several real challenges in integrating blockchain into its claims process. The main issue is regulation. Insurance and healthcare are highly regulated fields, particularly regarding medical information. Many of the Asian markets have rules which are similar to GDPR, which may conflict with how blockchain operates. Patients have the rights to correct or delete their data but blockchain dont allow changes to information once it is recorded and Therefore Prudential plc cannot store any identifiable health data directly on chain. The company would need to use other indirect methods like hashes or anonymized references which may complicate the system.

Cross-border regulations add to the difficulty. Some countries require medical data to stay within their borders. Others demand full access to audit trails for oversight. Creating a single blockchain network that meets every country's requirements is nearly impossible. Prudential would need multiple configurations for different markets, each with its own permissions and data controls. This raises costs, slows the rollout, and increases long-term maintenance challenges.

Smart contracts may also bring risks otherside . If smart contract denies a valid claim or delays an approval, Prudential will remain fully responsible for the issue . Regulators requires a human oversight at key points because insurance decisions impact people's lives. This means blockchain can be helpful automate processes but cannot replace human judgment. The company must strike the right balance between automation and accountability.

Technical and integration issues are another significant challenge. Hospitals and clinics in Prudential’s network do not all operate at the same level of digital maturity. While some use advanced EMR systems, many still depend on scanned PDFs or manual entry. Blockchain cannot fix poor data. Prudential would need to set up data-cleaning processes, integration tools, and verification steps before blockchain can work effectively. This leads to added costs and delays.

Blockchain is not meant for storing large documents. Medical hospitals' scans, detailed bills, and lengthy reports cannot be placed on the chain without causing slowdowns. A more practical approach is a hybrid model where documents stay off-chain in secure storage while the blockchain holds the verification hash. This method works, but it adds complexity and requires strong security and access control.

Prudential also needs every internal system to be integrate smoothly with the blockchain layer. This includes claims processing, fraud detection engines, underwriting tools, and customer apps. If data cannot flow easily between systems, the

entire setup becomes unreliable. Achieving this needs significant engineering effort.

Adoption is another challenge. Hospitals have little incentive to join a blockchain network unless Prudential helps with integration, regulators demand participation, or the system clearly cuts down their workload. Without these commitments, blockchain loses an important benefit. Also, Prudential staff might push back against new processes due to worries about job changes, more monitoring, or added complexity. Good change management is crucial.

lastly, governance needs to be clear about the system. A blockchain consortium should specify who controls the network, how the new members can join to this, how disputes are resolved, and who covers the costs. Poor governance can quickly undermine trust.

Solution & Ethical Evaluation

Prudential can only make blockchain work for claims if the setup is realistic, compliant, and easy for hospitals to use. A permissioned consortium network is the only model that meets those needs. In this arrangement, Prudential runs the core nodes, while selected major hospitals, trusted third-party administrators, and, where regulators allow, read-only regulator nodes join the network. This structure shares responsibilities without losing control. It avoids the confusion of a public blockchain and aligns with regional data protection rules.

The biggest challenge is the data privacy things . Medical records are very sensitive, so storing them on-chain is not considerd as the good option. The best approach is to separate what goes on the blockchain from what stays off it. All detailed medical documents, such as scans, invoices, and reports, should be stored in a secure off-chain repository controlled by Prudential. The blockchain will only keep hashed references, timestamps, workflow updates, and provenance logs. This creates an audit trail without exposing personal information. It also supports the rights to delete and correct data, as regulators require, since the sensitive information never reaches the chain.

Smart contracts can help to handle the repetitive checks that slow down complex claims. They can automatically verify coverage, apply exclusions, calculate co-payment rules, confirm required docs , and began approval workflows. still, their logic needs to be upgradable and supervised by humans. If a contract mistakenly denies a claim, Prudential is still responsible. Automation should speed up decisions, not replace human judgment.
There is no need for a cryptocurrency token. That would create regulatory challenges. Instead, Prudential should use digital certifications for documents, identity tokens for hospital authentication, and optional non-financial reputation tokens to encourage faster and cleaner submissions. These choices align with our course teachings on the necessity of tokens and simplify the process.

Ethically, blockchain promotes fairness everyone sees the same evidence, which reduces disputes. Still, Prudential must ensure that smaller hospitals with weaker digital systems are not left behind. Privacy is major no personal data on-chain, encrypted storage off-chain, and strict role-based permissions. Accountability should stay with Prudential plc, not with the code. Customers must have the right to question and appeal decisions. Inclusion is also important: older customers and low-tech hospitals should have simple ways to submit claims and access support.

The implementation should be done in stages. Starting with a large rollout will likely

result in failure. Prudential should begin by testing with three to five digitally mature hospitals in a single market. Once they confirm performance, compliance, and user experience, they can slowly expand to more hospitals and then enter new markets. Smart-contract automation should also be introduced gradually, beginning with simple checks before moving on to more complex decision-making processes. The final stage involves creating a governance model that all stakeholders can support.

This step by step will approach helps manage risks while offering a clear route to faster claim processing.

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Declaration of AI Use

Portions of this report were generated with assistance from OpenAI's ChatGPT to support structure, clarity, and grammar . All ideas were critically reviewed, edited, and finalised by the student.