Module 3: The AI/ML Opportunities for the WCF

From Data to Decisions, from Prevention to Payment

Exploring how artificial intelligence and machine learning can transform operations at the Workers Compensation Fund. .

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Bridging Technology and Mission

We've learned what AI is and the blueprint for an ML project. Now, let's explore **where** these tools can be applied.

Goal

Move from theory to a list of concrete, high-value projects that support the WCF's mandate.

Approach

Identify specific use cases across departments that leverage AI to enhance our core functions.

Outcome

Leave with actionable project ideas that can be implemented using our AI project blueprint.

How AI Creates Value for the WCF

Operational Efficiency

- Automate repetitive tasks
- Reduce processing times
- Minimize human error

Risk Management & Sustainability

- Detect fraud and non-compliance
- Predict and prevent accidents
- Optimize financial management

Enhanced Service Delivery

- Provide 24/7 support
- Ensure timely and fair payments
- Personalize rehabilitation

These three pillars align perfectly with the mandate to protect workers while ensuring the fund's sustainability.

The AI Toolkit

Computer Vision (OCR)

Reading documents and images to extract structured data from unstructured sources like claim forms and medical reports.

Natural Language Processing (NLP)

Understanding text and language to analyze feedback, automate responses, and extract meaning from documents.

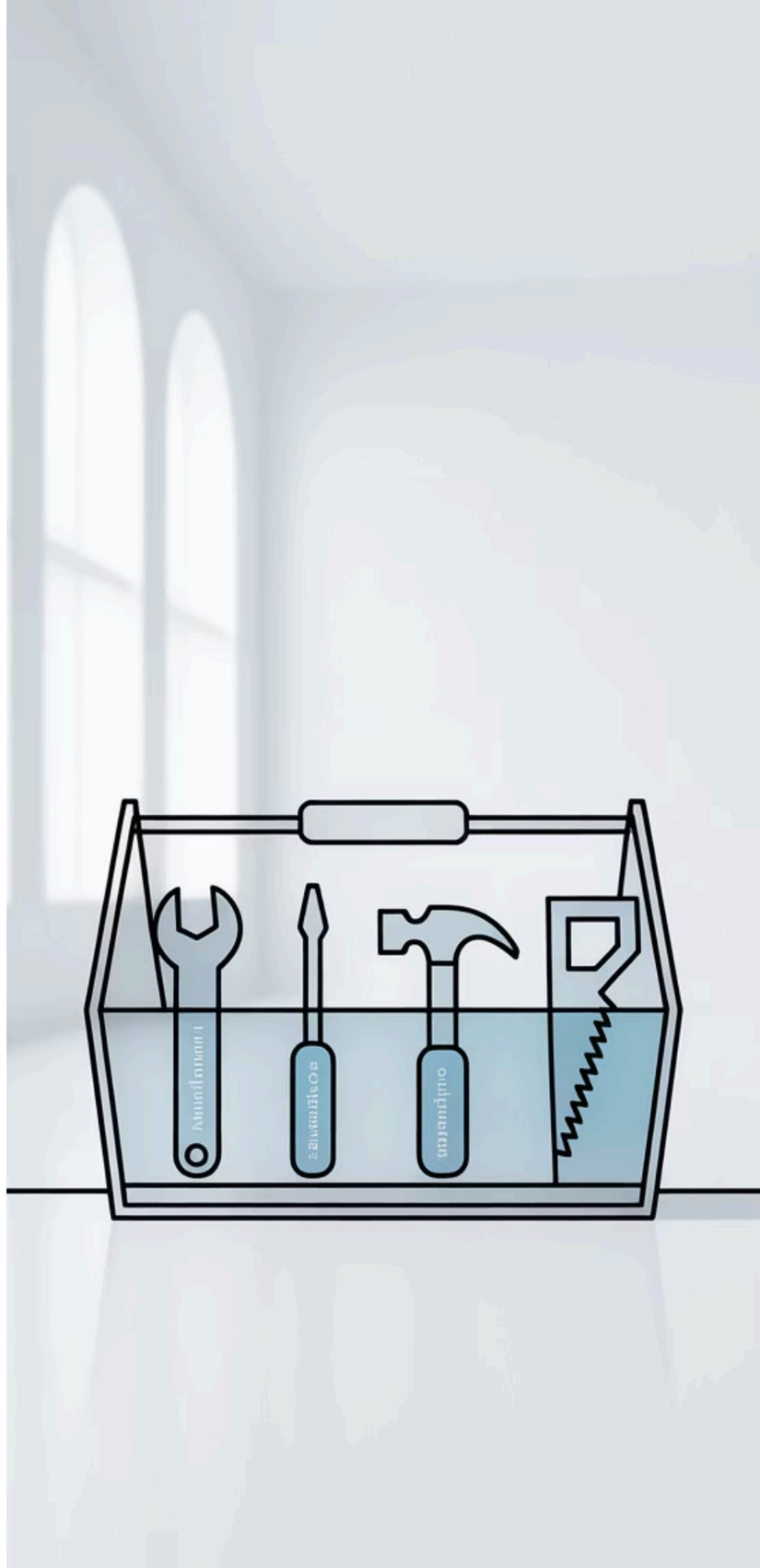
Predictive Analytics (ML)

Forecasting and identifying patterns to predict risks, detect fraud, and optimize operations based on historical data.

Generative AI

Summarizing and creating content to distill complex information and automate routine communications.

As we explore use cases, consider which of these tools would be most appropriate for each scenario.



Theme 1

Revolutionizing the Claims Process

From Paper Stacks to Smart Data

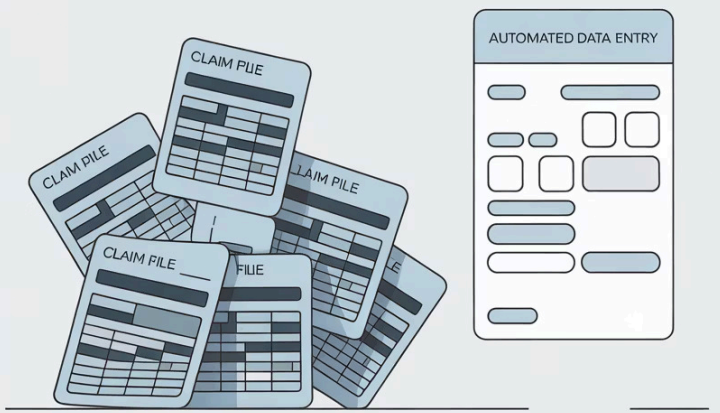
Use Case 1: Intelligent Claims Processing

Employ **Computer Vision (OCR)** and **NLP** to automatically read and extract data from claim forms, medical reports, and accident reports.

Benefits:

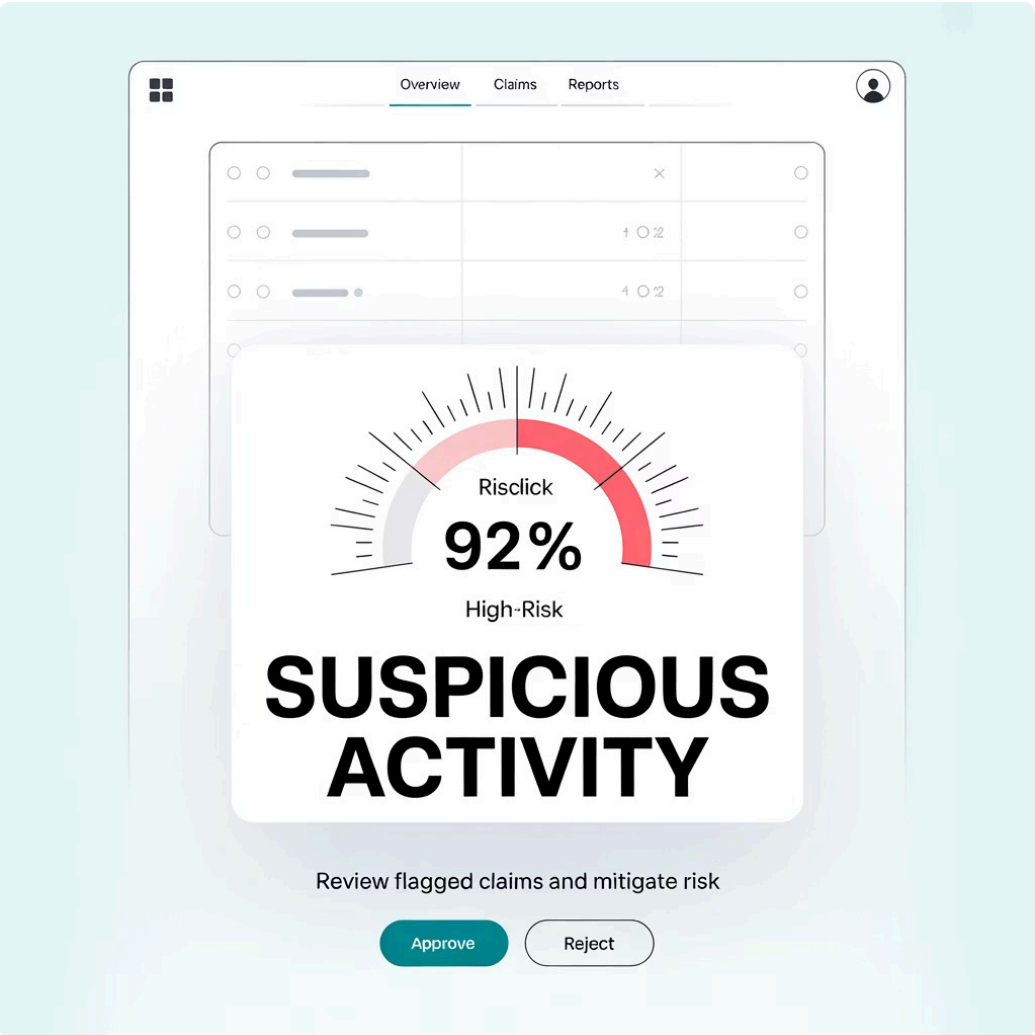
- Drastically reduce manual data entry time from hours to minutes
- Minimize costly human errors that delay processing
- Create a fully digital, searchable archive for future analytics

Impact: **Faster payments for injured workers, reducing financial stress during recovery.**



Protecting the Fund with Predictive Analytics

Use Case 2: Fraud Detection & Anomaly Identification



Train **Supervised Learning** models to detect patterns indicative of fraud by learning from thousands of past audited cases.

Benefits:

- Assigns a risk score to every new claim, prioritizing investigations
- Allows investigators to focus their limited time on highest-risk cases
- Continuously improves as more cases are reviewed and added to training data

Impact: Ensures the long-term sustainability of the Fund by protecting resources.

Listening at Scale

Use Case 10: NLP on Feedback & Legislation

Use **Natural Language Processing** to analyze thousands of comments from:

- Beneficiary satisfaction surveys
- Call center interaction notes
- Social media mentions

Use **Generative AI** to summarize complex new court rulings or legislative changes affecting WCF operations.

Benefits:

- Instantly identify recurring problems or emerging issues
- Keep staff updated on regulatory changes without reading lengthy documents

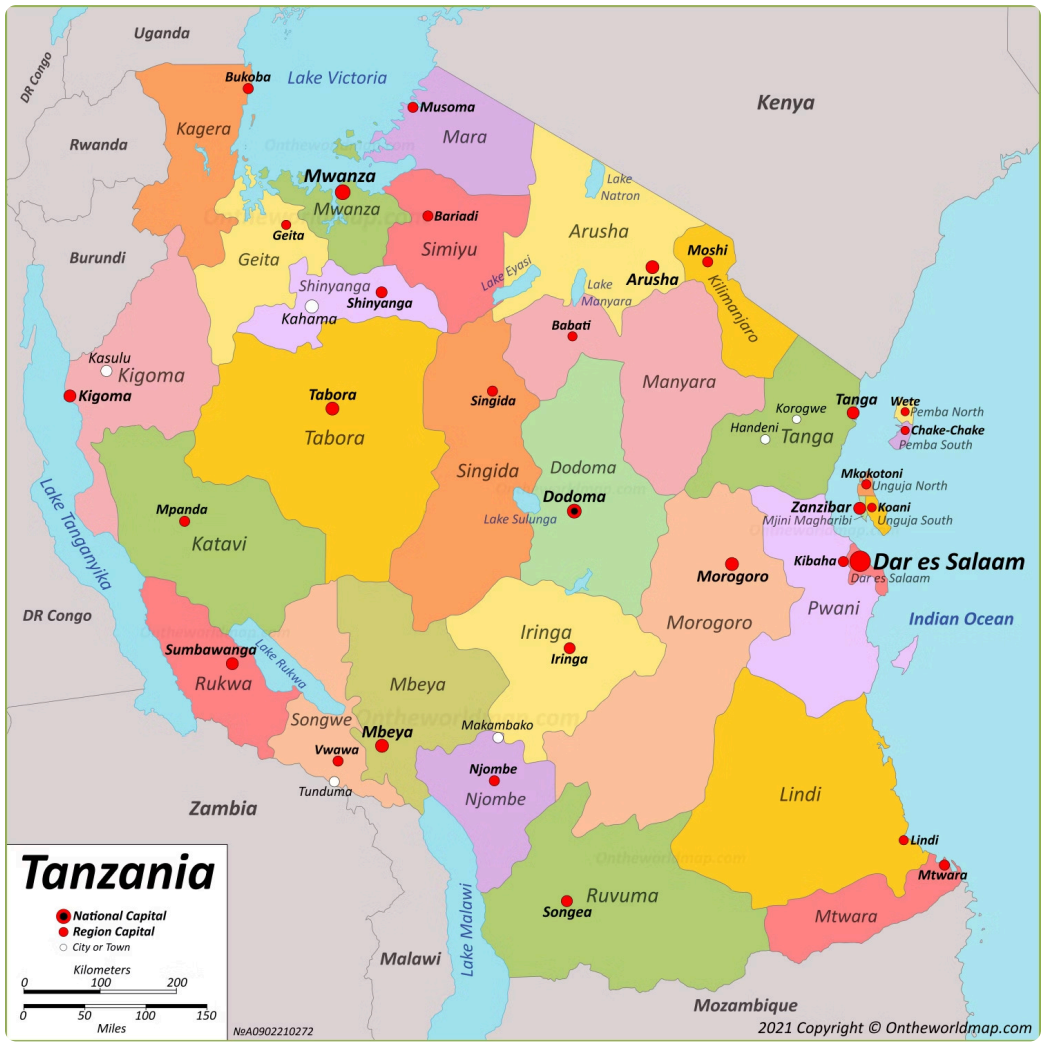
Impact: Improves service delivery based on real feedback and ensures compliance.

Theme 2

Proactive Risk Management and Prevention

From Reactive Payments to Proactive Prevention

Use Case 3: Predictive Risk Assessment for Premium Setting



Use historical data on claims, industries, and accident causes to build **Predictive Models** that forecast injury probability and severity across sectors.

Benefits:

- Identify high-risk sectors for targeted safety campaigns
- Inform risk-based contribution rates to incentivize employer safety investments
- Optimize resource allocation for prevention programs

Impact: Fewer accidents, healthier workers, and lower long-term costs.

An Extra Set of Eyes for Safety

Use Case 4: AI for Workplace Safety

Deploy **Computer Vision** systems in high-risk workplaces to:

- Monitor for safety compliance (e.g., wearing Personal Protective Equipment)
- Detect near-miss incidents in real time
- Identify unsafe behaviors before they lead to injuries

Benefits:

- Prevent accidents *before* they happen
- Collect invaluable data on real-world safety behaviors
- Create objective safety performance metrics

Impact: **Directly reduces injuries and long-term compensation costs.**

Finding the Needle in the Haystack

Use Case 8: Proactive Compliance Monitoring

Use **Unsupervised Learning** (anomaly detection) to analyze employer contribution data and automatically flag suspicious patterns:

- Irregular payment timing
- Unusual fluctuations in workforce size
- Contribution amounts inconsistent with industry norms

Benefits:

- Allows for proactive engagement before payments are defaulted
- Makes compliance audits more targeted and effective
- Reduces revenue leakage from undetected non-compliance

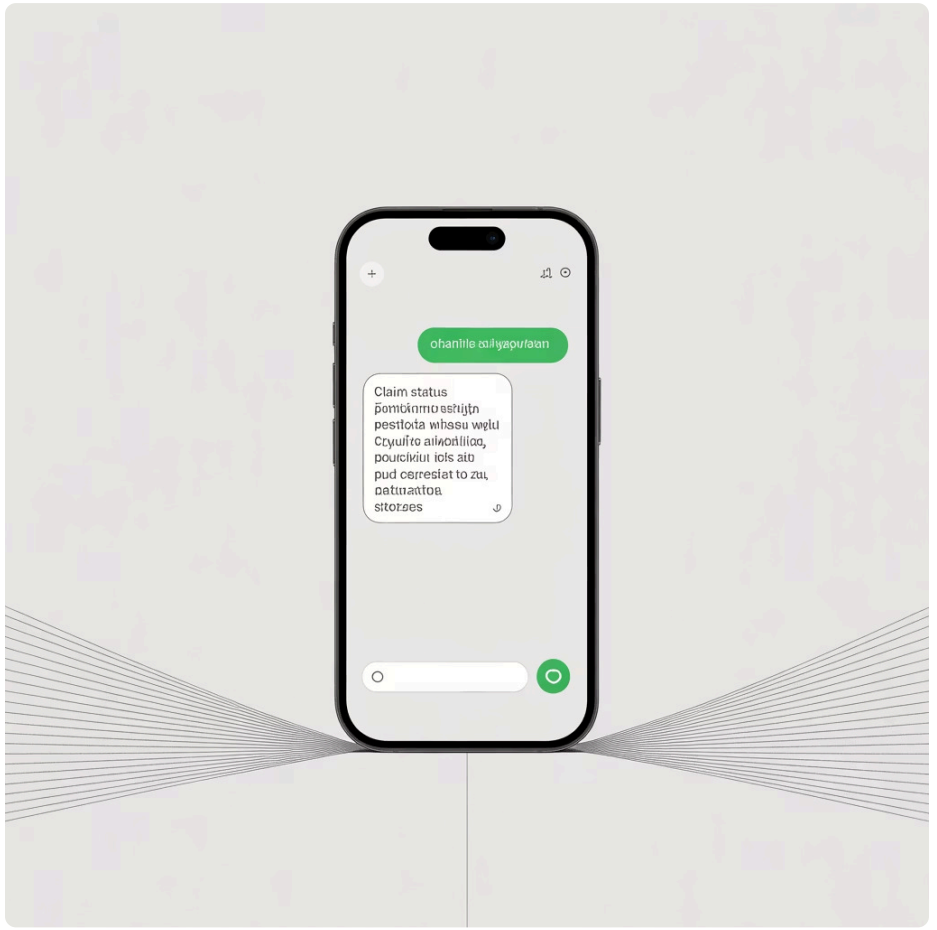
Impact: Increases compliance and protects Fund revenue.

Theme 3

Enhancing Stakeholder Experience

Instant Answers, Anytime

Use Case 5: 24/7 Customer Service Chatbots



Implement an **NLP-powered chatbot** to:

- Answer common questions about registration and contributions
- Provide real-time claim status updates
- Guide users through form completion processes
- Operate in both English and Swahili

Benefits:

- Provides immediate support to employers and employees 24/7
- Reduces the workload on call center staff, freeing them for complex cases
- Collects valuable data on common stakeholder concerns

Impact: Improved customer satisfaction and accessibility.

Personalized Paths to Recovery

Use Case 6: Data-Driven Rehabilitation

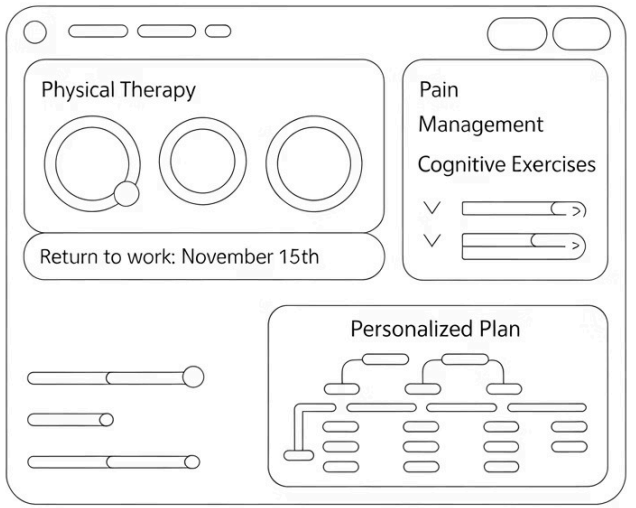
Apply **Predictive Models** to medical and rehabilitation data to:

- Identify factors that lead to faster recovery
- Recommend personalized rehabilitation plans
- Monitor progress and adjust interventions accordingly
- Predict potential complications before they arise

Benefits:

- Better health outcomes for injured workers
- Reduces long-term pension liabilities
- Optimizes resource allocation to rehabilitation providers

Impact: **Helps workers return to work faster and safer.**

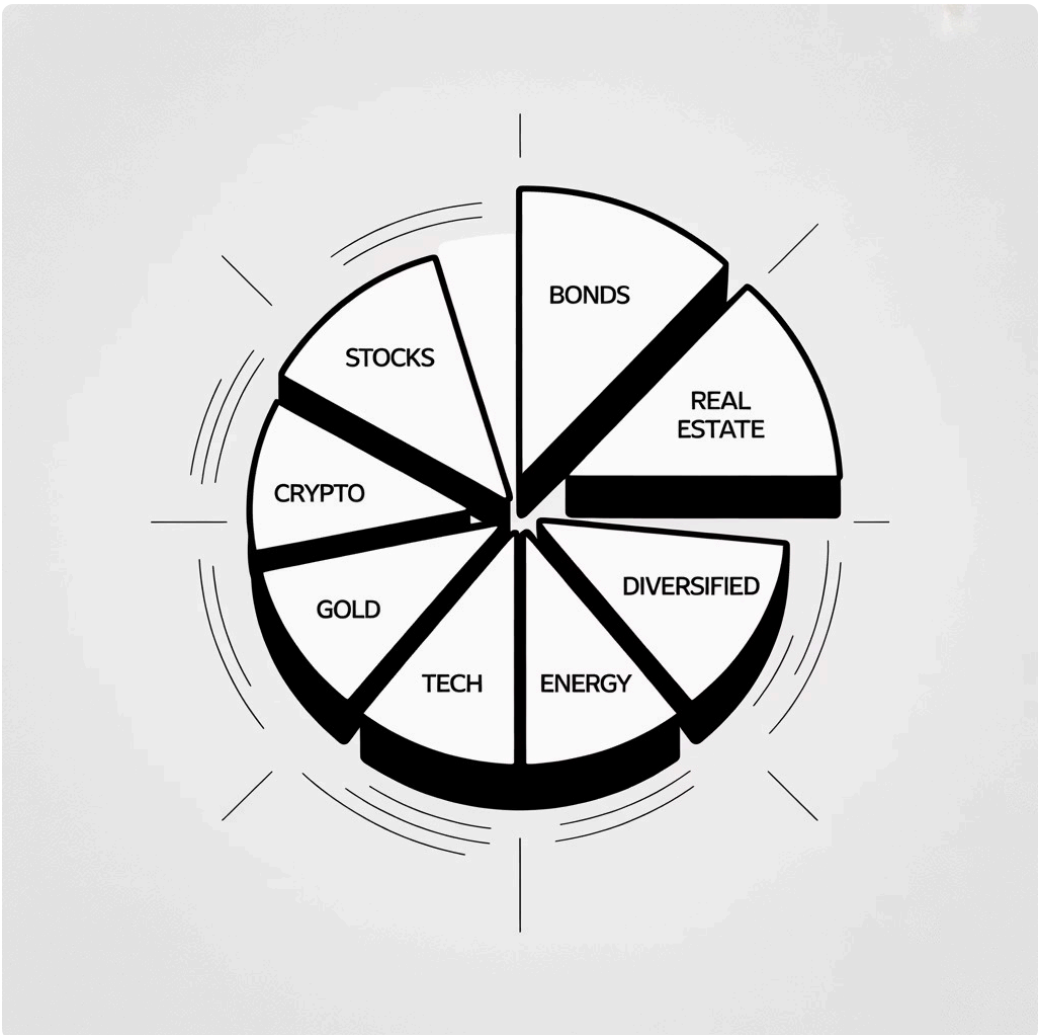


Theme 4

Strategic and Financial Optimization

Optimizing the Fund's Financial Health

Use Case 7: Investment & Fund Management



Utilize **Machine Learning** for advanced portfolio optimization:

- Forecast market trends based on economic indicators
- Recommend optimal asset allocations to balance risk and return
- Perform stress testing under various economic scenarios
- Monitor for investment opportunities that match WCF's risk profile

Benefits:

- Improved investment returns
- Reduced exposure to market volatility
- Data-driven investment decision making

Impact: Enhances the Fund's ability to pay benefits and keep rates stable.

Testing the Future, Today

Use Case 9: Policy Evaluation & Simulation

Build **Simulation Models** to evaluate the impact of potential policy changes:

- Adjusting contribution rates across different sectors
- Extending coverage to the informal sector
- Modifying benefit structures or eligibility criteria
- Testing different investment strategies

Benefits:

- Allows policymakers to see the financial and social impact *before* implementation
- Reduces risk of unintended consequences
- Supports strategic planning with quantifiable projections

Impact: **Data-driven, evidence-based policymaking.**

Summary: Claims Process Opportunities

Intelligent Claims Processing

OCR + NLP to extract data from forms and reports, reducing manual entry and errors

Fraud Detection

ML models that score claims based on risk patterns, targeting investigations

Feedback Analysis

NLP to analyze stakeholder feedback and summarize regulatory changes

These opportunities directly address pain points in the current claims workflow, reducing processing time while improving accuracy and compliance.

How to Start Smart: Crawl, Walk, Run

Crawl (Low Risk, Quick Win)

A small, internal project that proves value and builds momentum. Focus on a single, well-defined problem with readily available data and clear success metrics.

Walk (Core Process Automation)

Automate a single, high-volume, painful process that affects multiple stakeholders. Build on lessons from the crawl phase while expanding technical capabilities.

Run (Strategic Prediction)

Implement a complex, high-value predictive model that fundamentally changes how a department works. Leverage the organizational trust and technical foundation built in earlier phases.

We can't do everything at once. The key is to start with a 'Crawl' project to learn from experience and demonstrate quick, tangible value before scaling up.

A Potential Roadmap for WCF

1 CRAWL

An internal chatbot to help WCF staff find policy documents quickly. This builds AI familiarity within the organization while solving a real pain point.

Timeline: 2-3 months

2 WALK

Automate data entry from **one specific medical form** using OCR. This targets a high-volume process with immediate efficiency gains and clear ROI.

Timeline: 4-6 months

3 RUN

Build the **fraud detection model** to score all incoming claims. This advanced application addresses a critical business need with significant financial impact.

Timeline: 8-12 months

This progression allows us to build capacity, confidence, and capabilities while delivering increasing value at each stage.

Questions & What's Next

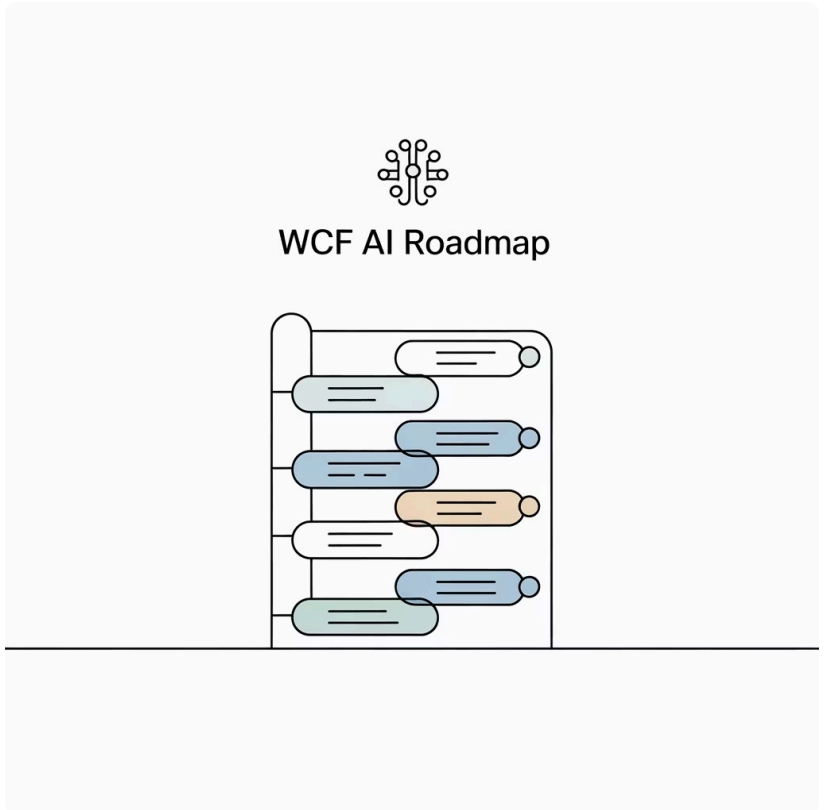
Open Floor for Questions

Now is the time to ask about:

- Specific use cases discussed today
- Technical feasibility of your ideas
- Implementation considerations
- Resource requirements

Next Steps

The next step is to take our top idea and begin **Step 1 of our Project Blueprint**: Framing the business problem in detail.



This is the start of an exciting journey to make the WCF a data-driven leader. By focusing on practical applications that address real business needs, WCF can deliver tangible value while building our AI capabilities.