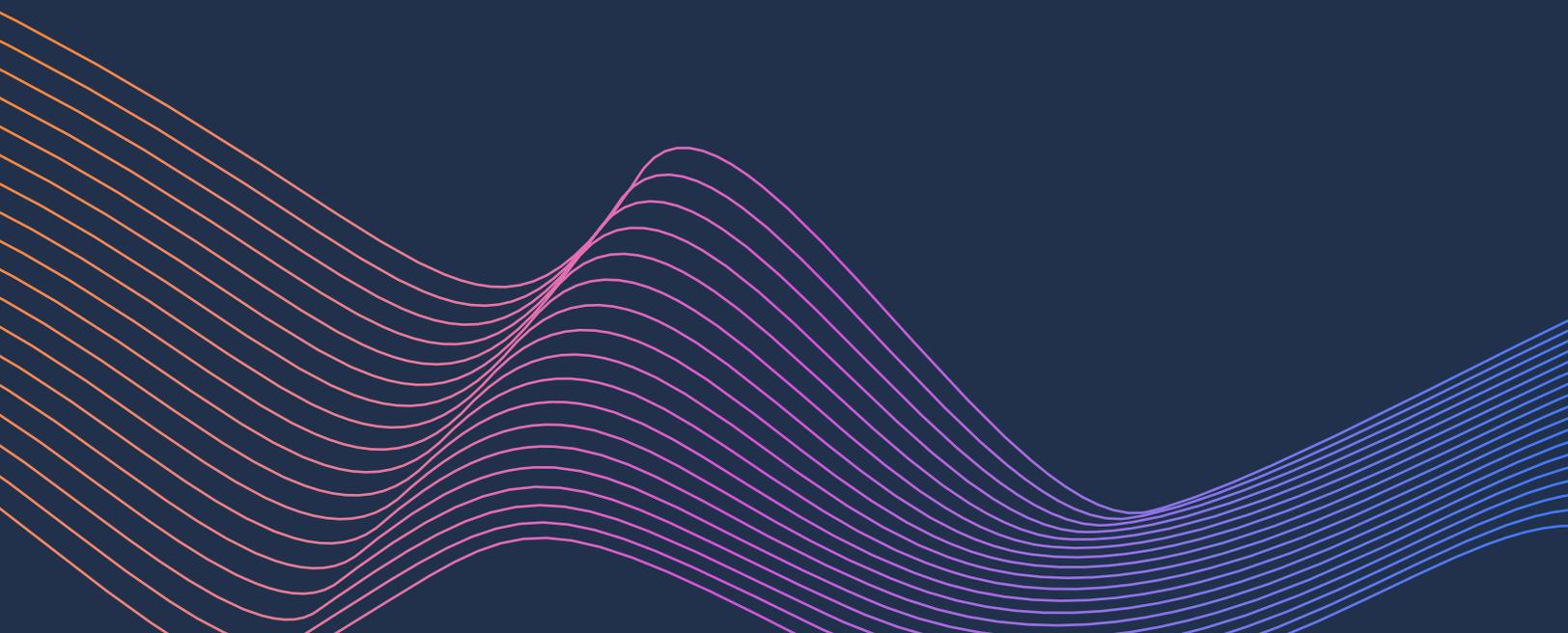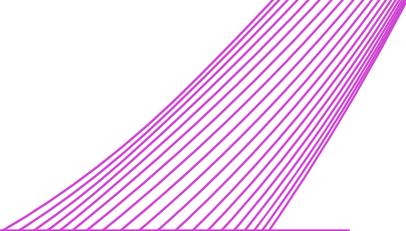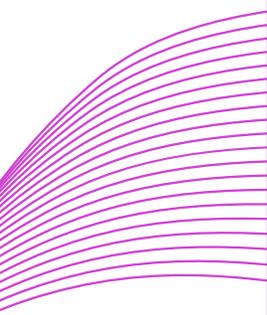# Data Driven Risk Analysis to Prioritize Expense Claim Review

**Using Machine Learning to detect
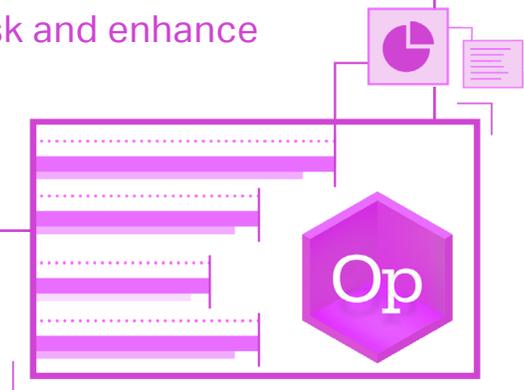possible expense claim fraud worldwide**

Optyks

Data-driven prioritization is all about using your data to cut through the noise and focus on activities that will provide the highest business value. Using data and analytics to prioritize activities allows organizations to uncover ways to reduce cost, expose risk and enhance productivity.

Managing Efforts & Risk with Analytics Capabilities

A great example where data prioritization can drive tangible value is managing risk analysis efforts. Particularly, in the highly regulated and complex world of employee expense claims. Companies require a high ethical threshold in in their spending with clients to protect their reputation and stay on the right side of regulations.

Company Profile

The company is one of the largest technology solutions and consulting firms in the world, employing over 300,000 people across the globe.

The Challenge

The company handled 4-5 million expense claims annually in which only 1% were randomly selected for review. Violations committed included claiming personal purchases, additional mileage and false submissions on tips and overall claim amount. However, the vast majority of the claims inspected were problem free, wasting the reviewers time and leaving other, higher risk, claims uninspected.

01

Dispersed and Varied Sources

Information was spread across different systems, in multiple currencies and jurisdictions with differing rules.

02

Inefficient processes

Reviews and audits were manual, tedious and resource intensive; making it an expensive effort.

03

Substantial volume

4-5 million expense claims were submitted annually from across the globe.

04

High risk claims not detected

Claims were randomly selected for review by region, resulting in many acceptable claims being included for review rather than problem claims.

The Solution

Looking for help to address this challenge, this Fortune 100 company's Chief Analytics Office – a small team responsible for designing their company's risk assessment factors and providing direction - turned to Indellient for help. The Indellient team investigated the client's existing procedures and business rules related to expense and recommended a multi-phase project:

01 | Data Repository and Simple Prototype

With a central data repository, we combined expense, client data and staff data and enabled their original spreadsheet-based solution to retrieve all such information using existing rules. By using their current system with the newly consolidated data, we could offer a proof-of-concept quickly that validated our data model and cleaning steps. This allowed the client to become comfortable with this phase of the analytics-based solution.

02 | A More Advanced Solution

The next phase was to increase the capabilities of the solution which included:

- A more sophisticated risk model that combined several factors to help prioritize which claims should be reviewed based on risk level

- Advanced visualizations to help reviewers quickly understand the risk factors associated with each claim

- Cloud based processing that improved speed and performance of the solution

- Workflow and reporting capabilities to simplify and streamline the claim review process

- Tracking of results and logistics to analyze the validity of the risk model

03 | **Machine Learning Algorithm**

The last phase incorporated the resulting feedback through a machine learning algorithm (Bayesian network) to continuously optimize the weighting and interpretation of risk factors for greater accuracy.
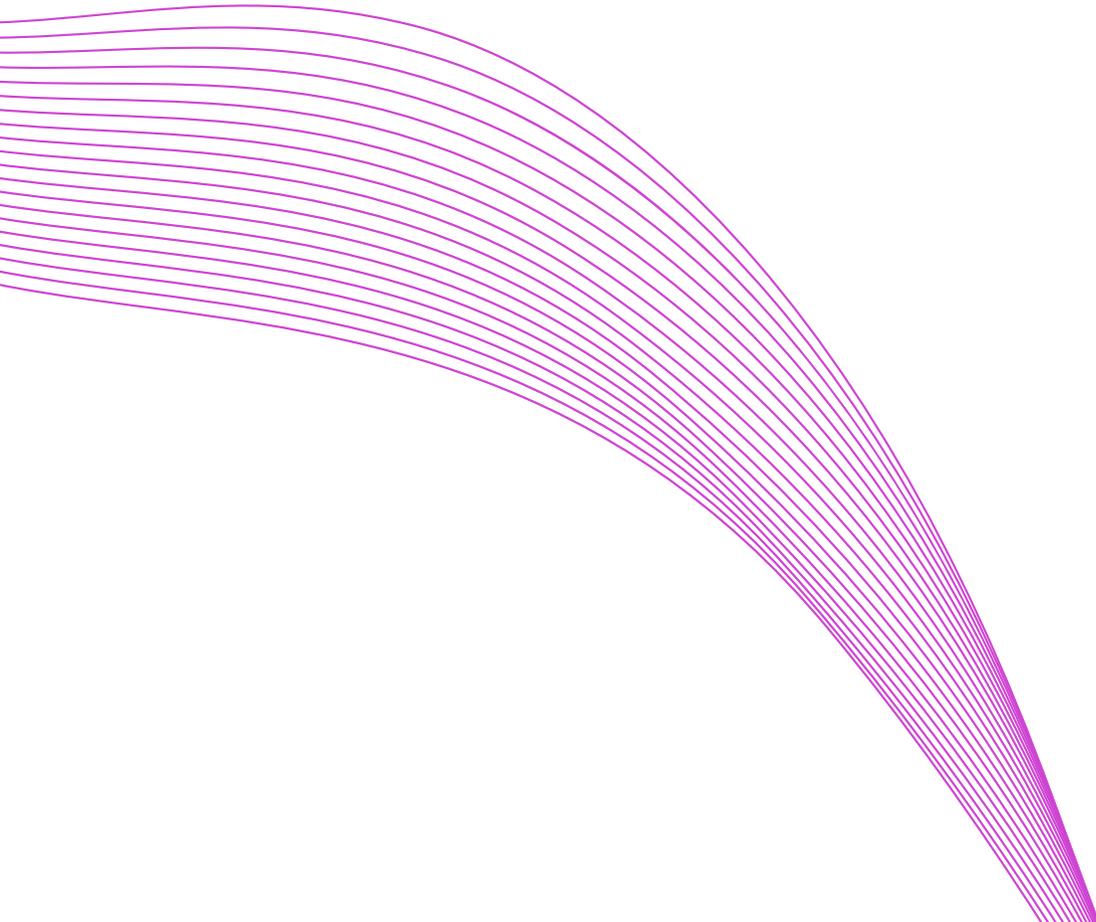
Results

By working with the Chief Analytics Office, Indellient delivered a solution that in the first year processed more than 150,000 global claims and flagged 1,543 for closer evaluation. Once completely rolled out, the data-driven prioritization delivered the following results:

- 100% of the expense claims were assessed for risks and ranked for review

- A significant increase in the number of non-compliant claims were detected and confirmed

- Increased team efficiency by prioritizing high-risk claims and focusing energy on those claims

- Able to analyze more claims in less time without adding additional staff

- A simplified approach to the auditing process, backed by data, and improvement in the audit team's efficiency

- Full workflow support to enable investigations

- Better insights into which expense line items represent higher risk for the business, allowing for compliance policies to be adjusted

The team now had a robust governance and oversight solution to ensure adherence to internal rules and external regulations within restricted budgets for personnel.

Data-Driven Prioritization Analytics: A Solution For Many Challenges Beyond Claims
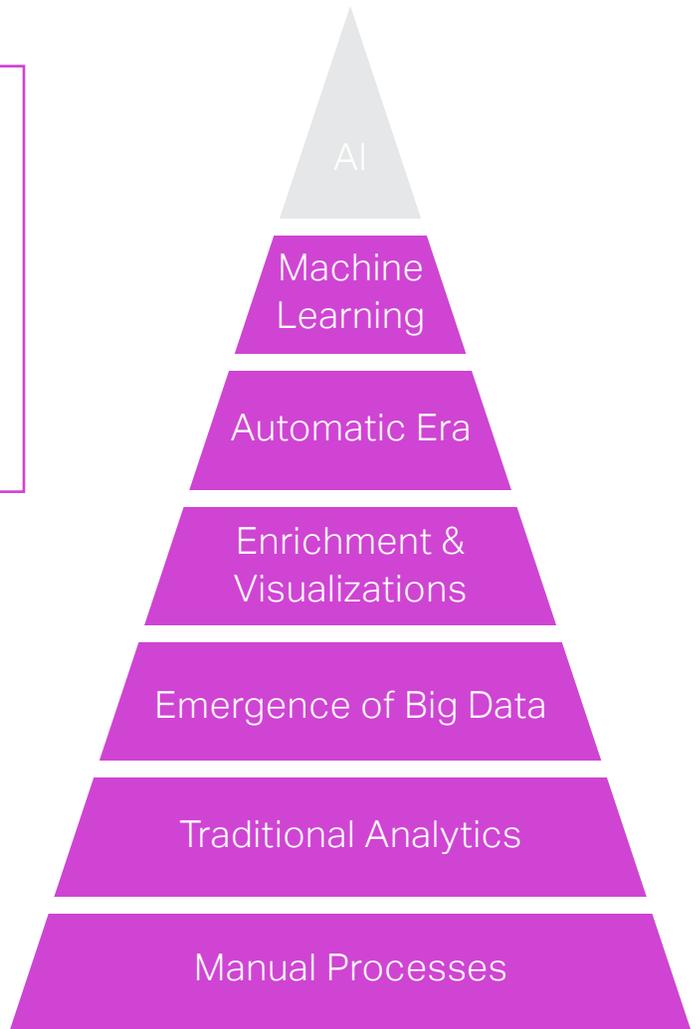
Organizations need to prioritize resources to obtain the highest return from their investments. Gaining visibility on the highest priority or highest value items can provide much needed direction. Data-driven prioritization analytics and machine learning can be applied to many operational areas such as governance, risk & compliance, complex project management, strategic planning, accounting, marketing/web development and HR initiatives.

Moving Up the Data & Analytics Maturity Pyramid

This solution helped increase the maturity level of the client's data and analytics programs. By moving up the maturity pyramid, as shown on the left, the client can complete more sophisticated programs. Indellient's data and analytics solutions are designed to help clients navigate the maturity model, regardless of if they are at the base of the pyramid or higher up where they are ready for deep data and analytics expertise. This pyramid can be applied to measure the maturity level of either one department, several departments or the entire organization.

For this client, we moved the department from Manual Processes (Level 0) to Machine Learning (Level 6) of the maturity model.

AI

Machine Learning

Automatic Era

Enrichment & Visualizations

Emergence of Big Data

Traditional Analytics

Manual Processes

Indellient Services Utilized

Foundational Assessments | Data Consolidation and Storage | Data Cleaning and Ingestion | Analytics and Visualizations | Machine Learning, Data Science and AI
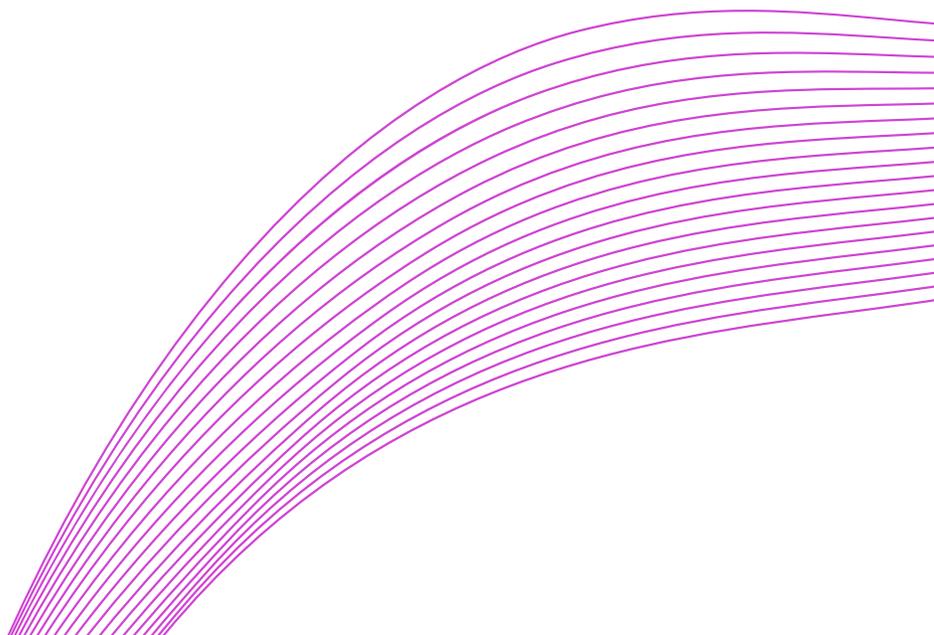
About the Indellient Project Team

We are data fanatics. We are challenge seekers. Our team is made up of data analysts, business analysts, data scientists, machine learning engineers, software developers and systems analysts. Fortune 100 companies and beyond rely on us to deliver evidence, clarity and confidence day in and day out – and we can help you get there, one step at a time.

About Indellient

Indellient, a Top Canadian ICT and Profit500 company, empowers businesses to meet and exceed their critical business and technology objectives. As part of our data and analytics services, we help you derive actionable insights from multiple, large data sets with advanced data and analysis methodologies, innovative storytelling visualization techniques, and technology partners who maximize value.

Whether it's determining strategic actions, improving business performance, enhancing customer experience, measuring marketing effectiveness or simply finding better ways to reach your goals, we have the tools and expertise to get you there.

Indellient