CASE STUDY

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FINANCIAL CONSUMER PROTECTION SUITE WITH NEXT-GENERATION, AI-POWERED, CHATBOT-SUPPORTED COMPLAINTS MANAGEMENT SYSTEM

SUPTECH WORKING PROTOTYPES DEVELOPED BY THE CAMBRIDGE SUPTECH LAB AND ITS PROJECT PARTNERS, THE INDONESIAN OTORITAS JASA KEUANGAN (OJK), THE BANK OF GHANA (BOG), PROTO AND WINNOW TECHNOLOGIES

This case study outlines the development of fully integrated case management system with analytics dashboards, powered by AI-driven chatbots, to enhance the supervisory capabilities of OJK and BOG. The solution, developed in collaboration with Proto and Winnow, leverages advanced techniques to automate inquiry and complaints handling and correlates this data with web-based public data to provide real-time insights into market conduct.

Cambridge Centre for Alternative Finance
UNIVERSITY OF CAMBRIDGE Judge Business School

CAMBRIDGE SUPTECH LAB

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Project overview

Financial supervisors can gauge the market's mood regarding supervised companies and financial products by collecting, processing, and analysing consumer complaints and social media data. This helps in the early detection of potential market manipulation or fraud.

In their digital transformation journeys, authorities are faced with decisions to buy or build the desired suptech solutions that can streamline and automate complaints handling and market conduct supervision. This project leveraged a commercial off-the-shelf product (COTS) with custom configurations to adapt to relevant regulations and local requirements.

The baseline was an established integrated chatbot and case management system that has evolved around financial authorities' requirements for several years. The prototype was expanded through this project to integrate advanced technologies and artificial intelligence (AI) functionality.

The chatbot's intelligence was upgraded to use Natural Language Processing (NLP) and Generative Pre-Trained Transformer (GPT) models. This facilitates an enhanced user experience with more accurate answers to inquiries adapted to the local language, thus reducing manual workload for examiners. The user interface to configure the chatbot was also upgraded for improved usability and user experience.

Data collection channels were increased to integrate data from various sources, including social media, WhatsApp, Short Message Service (SMS), and Interactive Voice Response (IVR), and processes it through a centralised data warehouse. A new data source was introduced by integrating data scraped from social media sentiment analysis and topic modelling with the internal complaints analysis, allowing supervisors to identify trends, anomalies, and patterns relevant to financial supervision.

BOG defined detailed requirements for a custom consumer complaint dashboard.

OJK developed an algorithm to score the insights derived from publicly scraped data and correlate it to the complaints. These are presented together in custom interactive dashboards. Data visualisations with alerts and real-time monitoring capabilities enhance the supervisors' ability to act proactively and to make connections between market conduct supervision and prudential supervision.

Both BOG and OJK benefit from these innovations, as the enhanced tools empower them to support financial consumers better and extract valuable analytical insights, thereby refining their supervisory practices and optimising the use of finite resources. By addressing common and institution-specific challenges, the project demonstrates the value of collaborative tool development with the Cambridge SupTech Lab and partner tech vendors, resulting in accelerated, cutting-edge suptech solutions and cost efficiencies.

Project partners

- **Bank of Ghana (BOG)** formulates and implements monetary policy to achieve price stability, promote and maintain financial stability, and ensure a sound payment system in their jurisdiction. The central bank is also responsible for consumer protection in relation to financial products and services offered by supervised institutions within its jurisdiction.
- **Otoritas Jasa Keuangan (OJK)**: ensures all financial services sector activities in Indonesia are regulated fairly, transparently, and accountably while providing sustainable and stable growth of the financial system and protecting the interests of consumers and the public.
- **Proto**: develops off-the-shelf, customisable multilingual customer support automation with its AI-driven chatbots, case management system and advanced analytics platforms.
- **Winnow Technologies (Winnow)**: specialises in web-based data mining, natural language processing, sentiment analysis, topic modeling, and advanced analytics.

Challenges

- **Scattered data collection channels**: Complaints were received and handled manually through various isolated channels (chatbot, e-mails, phone calls, walk-ins and WhatsApp platform) by the department in charge. In addition to this, regulated financial institutions submitted regulatory reports on complaints via email or web portal using prescribed templates.
- **Manual data processing**: The scattered influx of complaints was consolidated into a Microsoft Excel spreadsheet by the assigned scheduled officers within the department in charge of complaints. Complaints related to relevant supervisory departments were disseminated manually via emails or memos. This made enquiries and resolutions complicated. Furthermore, significant resources were dedicated to manually responding to recurring consumer inquiries.
- **Inefficient and unsecure data management**: The uncoordinated channels for receiving complaints and their manual processing were prone to human error and bias, resulting in duplicated efforts in complaints management. Additionally, a lack of visibility caused by ineffective dissemination and an unmonitored resolution process introduced risks such as overlooked complaints, delayed or inadequate resolutions, and incomplete data coverage, hindering comprehensive analysis.
- **Lack of visibility of public sentiment and market risks**: Without integrated public information on the financial institutions and their products and services, supervisors lacked the data necessary to assess consumer opinions shared on public websites or to identify potential market misconduct and growing risks in financial stability. This resulted in an incomplete picture of consumer sentiment, thus limiting supervisory capabilities.

Key features

- **Multilingual AI-chatbot**: Handles consumer inquiries in local languages using advanced AI technology and integrates with multiple channels, including WhatsApp, SMS, and IVR for improved consumer experience.
- **Automated data processing**: Fully integrated case management system improves processing time and reduces human error. An automated tool to analyse data reduces redundant manual processing and improving service delivery.
- **Centralised data warehouse and API integration:** Consolidates various data streams for comprehensive analysis and an integrated approach for secure tracking and resolution of complaints. Allows seamless data transmission and integration with existing systems.
- **Social media scraping and sentiment analysis**: Social media monitoring channels interprets opinions, sentiments, and emotions from text data, classifying them into positive, negative, or neutral categories.
- **Interactive BI dashboards**: Enriched supervisory business intelligence dashboards with Natural Language Understanding (NLU)-based query engine for exploring and reporting and visualising data and insights in user-friendly formats.

Benefits

- **Holistic data collection**: The integration of several social media channels enables consumers to submit their complaints using the one they feel most familiar and comfortable with. Complaints from all sources are consolidated in one workflow pipeline. The AI-chatbot reduces the manual resources needed to respond to inquiries.
- **Automated data processing**: The case management system minimises manual workload and reduces human error by automating data processing. It features a configurable, role-based structure that supports various user roles, including financial service providers, consumers, and examiners, ensuring efficient and streamlined operation.
- **Improved data management:**: A centralised data warehouse and Application Programming Interfaces (APIs) seamlessly integrate with legacy systems. Relevant supervisory departments have visibility and access to complaints and reputational risk scores, thus improving resolution and engendering confidence in the financial sector.
- **Real-time monitoring and visibility**: Provides supervisors with a nuanced understanding of market sentiment and trends, aiding in proactive risk management and swifter, more efficient responses to consumer grievances and inquiries. Supervisors can extract actionable intelligence from consumer complaints and public datasets to pinpoint industry-wide market misconduct and emerging threats to financial stability. This ensures consumers are comprehensively protected by aggregating and visualising large datasets from both internal and external sources.

1. BACKGROUND AND SUPERVISORY CHALLENGES

Bank of Ghana (BOG)

The mandate of the BOG is to formulate and implement monetary policy to achieve price stability, contribute to the promotion and maintenance of financial stability, and ensure a sound payment system.

In accordance with section 3(2) of the Banks and Specialised Deposit-Taking Institution Act, 2016 (Act 930), BOG is mandated to develop appropriate consumer protection measures to ensure that the interests of clients of the banks and the specialised deposit-taking institutions are adequately protected.

Before the development of the working prototype, BOG received complaints from financial users through multiple channels, including an early-generation chatbot (website-based), emails, phone calls, walk-ins and manual WhatsApp messaging, which were directed to various central bank departments. Additionally, regulated financial Institutions reported – via email or web portal using prescribed templates – information on the complaints they received. The scattered influx of complaints was manually consolidated into an Excel spreadsheet by the designated officers in the Financial Stability Department (FSD). Complaints relevant to supervisory departments were then manually disseminated through emails or memos. These legacy processes and fragmented storage solutions made enquiries and resolutions complicated.

The uncoordinated channels for receiving complaints and manually processing of complaints were susceptible to human error and bias, resulting in duplicated efforts in complaints management. Furthermore, limited visibility caused by ineffective dissemination and an unmonitored resolution process increased the risks of overlooked complaints, delayed or inadequate resolutions, and incomplete data coverage, hindering effective analysis.

Otoritas Jasa Keuangan (OJK)

OJK aims to be a trusted regulator of the financial services sector, safeguarding the interests of consumers and the public while fostering a globally competitive financial services industry that supports the national economy and promotes public welfare.

The agency has several missions: Identify the spectrum of entities and business models associated with new trends, pinpointing their roles and the degree of their involvement.

- To regulate all financial services activities in a fair, transparent, and accountable manner..
- To ensure the sustainable and stable growth of the financial system..
- To protect the interest of consumers and the public.

Education and consumer protection are also within the mandate of the agency. Through regulations, the Consumer Education and Protection division provides redress mechanisms to uphold governance and promote ethical conduct in financial services activities. In this capacity, the agency is tasked with:

- Regulating education and consumer protection.
- Improving consumer education and protection.
- Providing customer service.
- Offering alternative dispute resolution mechanisms for consumer protection.

2. PROJECT CONCEPTUALISATION AND INCEPTION

In addition to strengthening consumer protection, the agency also promotes financial inclusion and literacy.

OJK handles a high volume of complaints, inquiries, and requests for product information. As consumer awareness grows, so does the volume of these interactions. In 2022 alone, OJK processed over 520,000 requests and complaints. With limited agents managing these interactions, an effective technological solution became essential.

In 2022, teams from BOG and OJK participated in the Lab's Capacity Building and Education (CB&E) programmes.

During these trainings, they developed two distinct but complementary proofs of concept (POCs) for suptech applications aimed at enhancing their supervisory capabilities in consumer protection. These POCs centred on designing an efficient complaints management system and an analytical platform, supported by an advanced AI-driven chatbot and augmented with sentiment analysis gathered from social media and other public data.

Both BOG and OJK sought to leverage suptech solutions to:

- Deliver faster and more efficient responses to consumer grievances and inquiries.
- Extract actionable insights from consumer complaints and public feedback to improve supervision of market conduct within regulated entities.
- Utilise public datasets to identify industry-wide misconduct and emerging threats to financial stability..
- Integrate prudential and market conduct supervision to comprehensively protect consumers of financial services.

The BOG team conceptualised a POC for a fully digital complaints management platform. This platform would feature an AI-powered chatbot, automated complaint routing and processing, and advanced analytics dashboards to analyse the previously scattered complaints data.

The OJK team focused on a complementary tool to leverage social media sentiment analysis and related risk scores to introduce new intelligence and alerts of potential misconduct into the supervisory process. Supervisors would input parameters such as the names of financial institutions, their products, and key personnel. The system would then generate comprehensive reports combining structured and unstructured data to provide insights into both prudential and market conduct dimensions. The advanced chatbot data would be integrated with external unstructured data collected via web scraping engines, analysed by quantification models, and translated into standardised and empirical reputational risk scores.

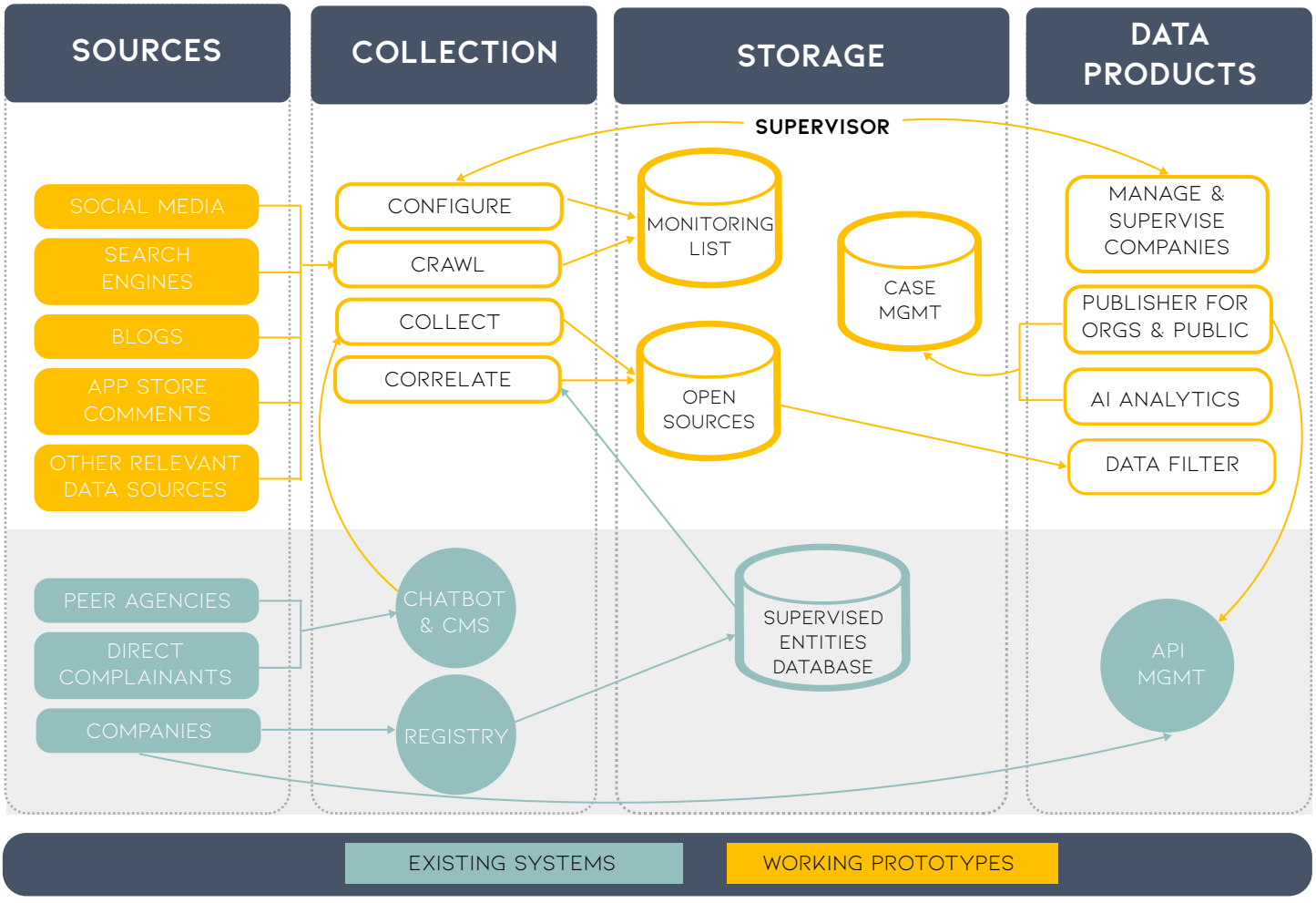
The Lab, BOG and OJK teams worked to unify the two POCs, refine technical specifications that would integrate the two tools.

Figure 1 illustrates the envisioned solution. Existing components of the complaints management platform are depicted in teal, while the new features introduced by the working prototype – such as social media scraping, the data warehouse, and advanced analytics – are highlighted in yellow..

With its mission to accelerate the deployment of scalable, cutting-edge suptech solutions, the Lab de-risks and streamlines vendor selection, procurement, agile prototyping, and testing. In January 2023, the Lab selected these two POCs for prototype development from the many projects initiated by CB&E program participants.

These POCs were chosen for their well-developed use cases, which aimed to push the boundaries of financial consumer protection supervision while enhancing the technology infrastructure of the participating agencies. Additionally, these projects offered valuable insights and technical resources that could be adapted and replicated by other financial authorities and vendors to address their unique market needs. The strong commitment and engagement from OJK and BOG leadership also played a crucial role in their selection.

FIGURE 1. SCHEMATIC DIAGRAM OF NEXT-GENERATION, AI-POWERED CHATBOT & COMPLAINT MANAGEMENT SYSTEM (CMS)



3. LEAN VENDOR SELECTION AND PROCUREMENT

In March 2023, as part of the Lab's Application Incubation program, the Lab procured working prototypes on behalf of the agencies through a global competitive bidding process initiated via a Request for Proposal (RFP). This process was supported by an expedited yet rigorous vendor selection framework. An independent expert panel reviewed anonymised bids from a global pool of applicants.

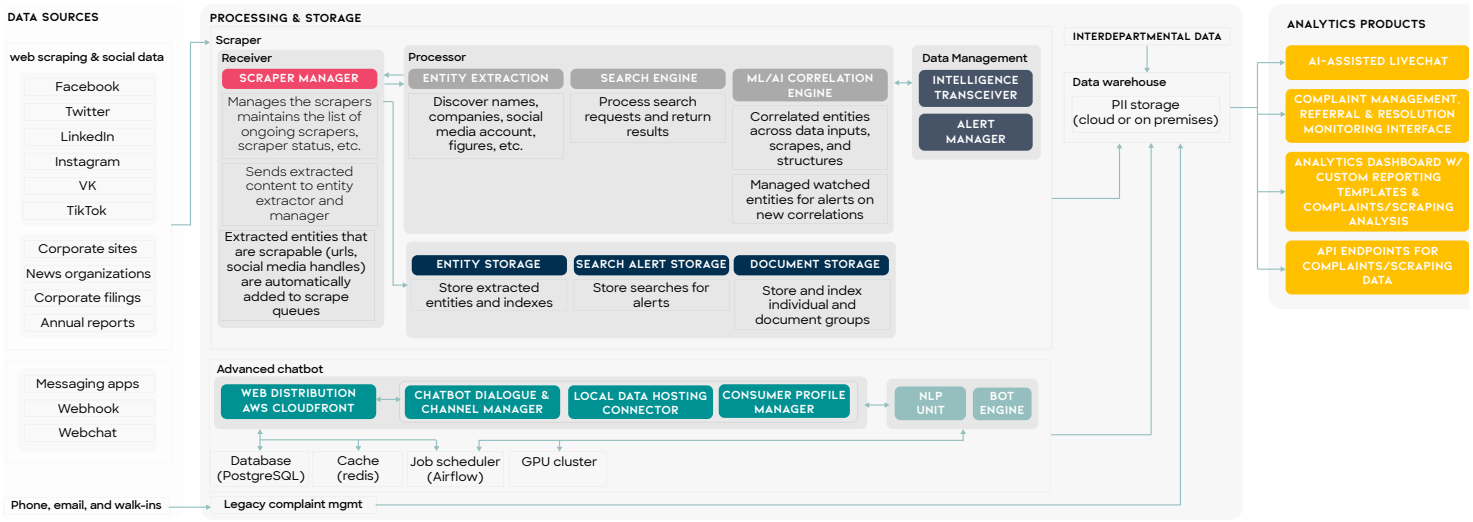
The selection process began with the Lab and the University of Cambridge shortlisting responses to a Request for Expressions of Interest (REOI) based on three weighted criteria: relevant experience (60%), technical and managerial expertise (30%), and adequate resourcing (10%).

Shortlisted firms were then invited to submit RFPs, which were assessed by an independent panel of judges comprising leading subject-matter experts and innovators. At minimum, this panel included an expert in financial regulation and supervision, a technologist experienced in deploying similar tools, and a specialist familiar with the product under evaluation. The second-stage evaluation criteria included topic responsiveness (65%), execution plan (25%), and innovative approach (10%).

A joint proposal was submitted by Proto and Winnow, which was selected as the winning bid and cleared through a no-objection process with partner financial authorities.The Lab and the University carried out the necessary due diligence. This included resolving legal issues related to data sharing and storage, intellectual property licensing, and public procurement. These aspects were formalised through a project agreement between the University and the vendor, incorporating non-disclosure agreement (NDA) provisions.

By the end of April, after completing due diligence, the University of Cambridge finalised a contract with Proto (and Winnow as a subcontractor). Following the onboarding of the vendor, the Lab assumed responsibility for project management, guiding the development and testing phases of the working prototype.

FIGURE 2. PROTO'S WORKING PROTOTYPE ARCHITECTURE DIAGRAM



4. WORKING PROTOTYPE AGILE DEVELOPMENT

The project kicked off in May 2023, with the Lab facilitating stakeholder and communication management, and leading design sprints with the cross-functional project teams to gather input on the desired functionality. The vendor developed and configured the platform based on initial requirements, enabling early hands-on evaluations and iterative improvements.

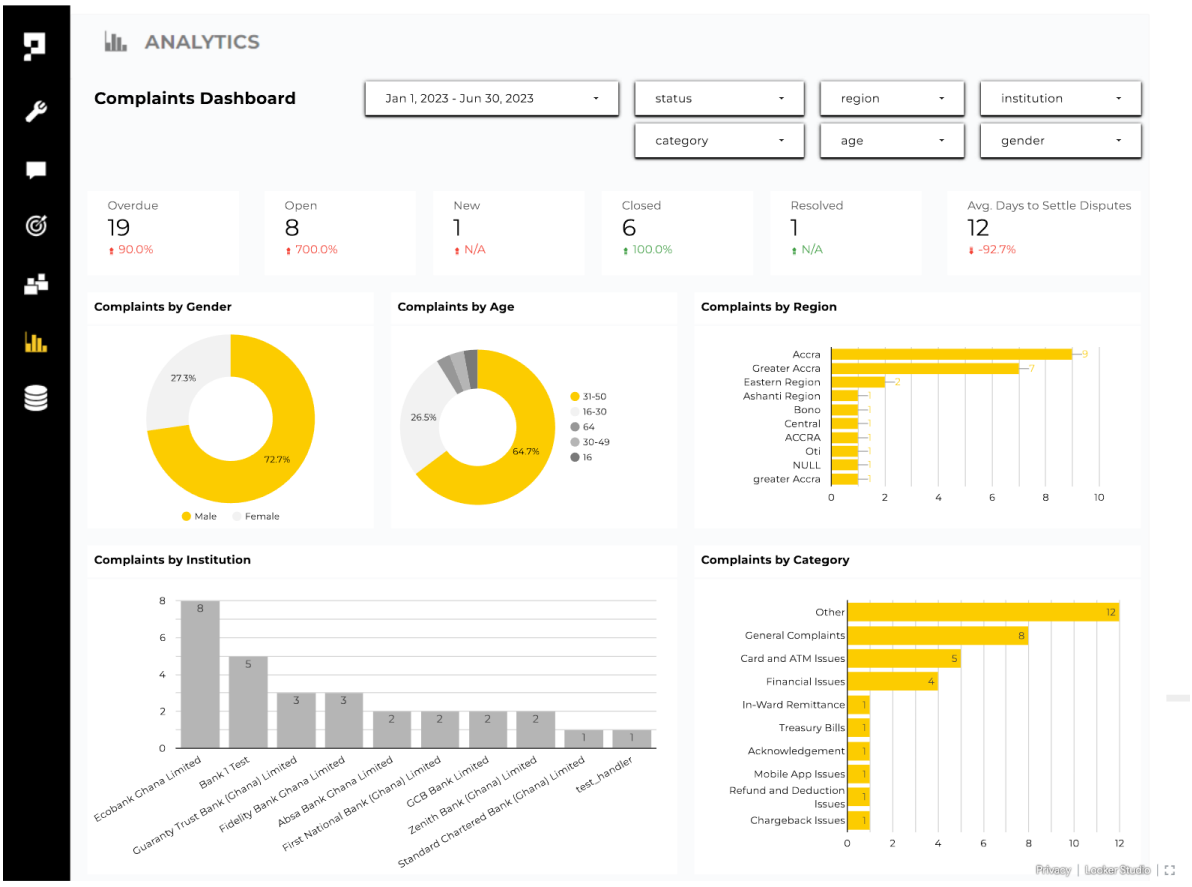
Each week, the project teams reviewed the envisioned features, raised questions, and identified additional functionalities. The solutions evolved through this incremental development approach with active user involvement and feedback.

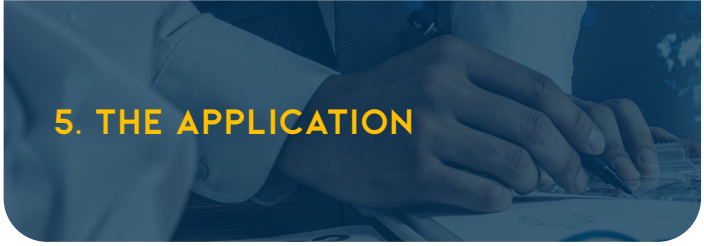
The project teams also collaborated with the vendor to train the chatbot with relevant content.

A key challenge in training a machine learning model to classify unstructured data iss the need for multiple iterations to achieve optimal accuracy. This required frequent work sessions that included demos, testing, feedback, and rapid agile design sprints, enabling efficient fine-tuning of the model. In parallel, Proto developed analytical dashboards that included complaints statistics and advanced analytics against social media data scraped by Winnow.

The Lab's approach fostered transparency by making development progress and details accessible to financial authorities. This ensured the solution did not become a "black box"—a system with hidden or poorly understood workings. By integrating user feedback throughout the development phases, the Lab's agile methods aligned the solution closely with user needs and expectations, ensuring the process remained open and understandable.

FIGURE 3. **PROTO'S COMPLAINTS DASHBOARD WORKING PROTOTYPE**





5. THE APPLICATION

The project delivered an integrated AI chatbot, complaint management system and social media analytics solution. The automatically assembled working prototype gathered data from social media and correlated it with internal complaints data via a centralised data warehouse. The tool also features customised interactive analytics dashboards.t

Proto developed the prototype following the system architecture shown in Figure 2.

The agencies provided Proto with regulatory material to train and test the AI assistant for consumer Q&A and live chats. The chatbot was configured to provide hard-coded and AI-generated conversational responses to inquiries using content found in agencies' specified sources, including web links, PDF documents and snippets.

The ML model underlying the chatbot can infer variations of consumers' questions that may use abbreviations, synonyms, or different sentence structures. NLP is applied to recognise and respond in the appropriate language based on the consumer's question. The agency can easily configure the chatbot through the admin panel – training was provided as part of the project. Once a consumer submits an inquiry or complaint through the chatbot, the collected data is stored in the platform's data warehouse, surfaced in the integrated case management module, and/or sent to a separate case management system via an API.

Beyond the existing management features, the platform was enhanced with native reports and a complaint analytics dashboard of statistical charts, geospatial views, and other critical metrics needed to manage and action complaints data. The working prototype integrates data collected by the Winnow platform from public sites with consumer complaints statistical analysis from Proto in an interactive dashboard designed with project teams' input. The advanced analytics module is powered by a newly introduced and integrated data warehouse, which centrally stores data from complaints sources and other collection channels to enable supervisors to take cross-silo action.

Three methods to transmit social media data via APIs to the Proto platform were explored:

- Winnow sent the raw scraped data to the Proto data warehouse to apply advanced analytics techniques for sentiment analysis and topic modeling displayed on the newly developed dashboard.

- Winnow scraped the data, performed sentiment analysis and topic modeling, and then sent the analysed data to Proto's newly developed dashboard.

- Winnow's interactive social media intelligence dashboard as an option when procuring the Proto platform.

The complaints dashboard in Figure 3 was designed per BOG requirements to reflect vital statistical data about consumer complaints, including graphs that depict complaints by gender, age, location, institution, category and region. The dashboard also shows i) the number of complaints in various statuses, ii) filters enabling parameter setting for dynamic interactive review, iii) a corresponding data table that can be exported to facilitate ad-hoc reporting needs and iv) easily configuring pre-defined reports.

Proto's analytics dashboard in Figure 4 focuses on Winnow's sentiment analysis and topic modeling of text and metadata collected from financial service providers' social media pages and complaints data. The platform generates a sentiment score based on any filters applied

to the report. Examples of use cases include:
1. Sentiment score: A supervisor can filter by institution and period to compare the sentiment score ("82" in the top left graphic in Figure 4).

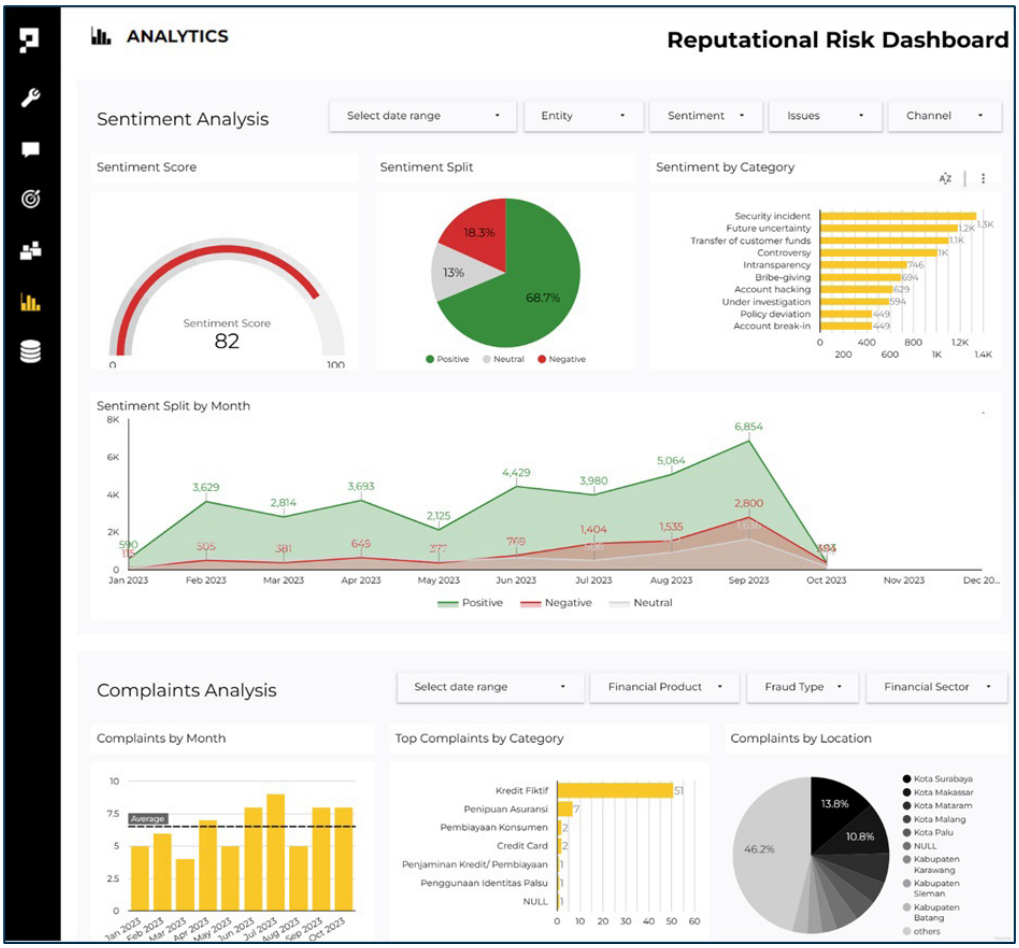
2. Sentiment score benchmarking: By opening two views of the dashboard, a supervisor can select all banks in one view and a given supervised entity in the other and compare them side by side.

Per OJK requirements, the sentiment score is calculated by assigning a score of 1 to 5 to each comment received about financial institutions, with one being the most negative and five being the most positive. The calculation involves summing up these individual scores for all comments and then expressing them as percentages.

The advanced GPT-powered chatbot underwent a thorough analysis, scouring, in the case of OJK, around 102 web pages and 100 frequently asked questions (FAQs) and delving into 45 PDF documents spanning approximately 675 pages. For BOG, the tool went through 102 web pages, scrutinised 100 FAQs, and delved into 45 PDF documents, collectively amounting to approximately 675 pages. Winnow collected a total, across all data sources, of 151,851 comments of historical and real-time data during the prototype timeframe. This comprehensive review enabled it to effectively facilitate the flow of complaints by implementing auto-categorisation and triage mechanisms.

Sentiment analysis was conducted across data collected by Winnow from various social media platforms, including Facebook, Instagram, and X (formerly Twitter), providing valuable insights into consumer sentiment and feedback for these institutions.

FIGURE 4. PROTO'S AI/ML ADVANCED ANALYTICS DASHBOARD WORKING PROTOTYPE



Furthermore, in Ghana, the experiment extended its functionality to allow local financial institutions to onboard as observers within Proto, granting them limited access to view and respond to complaints pertinent to them, fostering a more efficient and transparent communication channel between consumers and the financial sector.

The reputational risk assessment was developed seeking to serve the supervisors' needs in obtaining information and updates on financial institutions and their products and services in real-time, by harnessing advanced technology.

TABLE 1. PROTO AND WINNOW WORKING PROTOTYPE KEY STATS

	KPI	OJK	BOG
PROTO ADVANCED GPT-POWERED CHATBOT	SUPERVISED ENTITIES	2,101	854
	ANNUAL COMPLAINTS	520,000	2,400
	SUPERVISOR HEADCOUNT	50	TBC
	COMPLAINTS PER SUPERVISOR PER YEAR	10,400	TBC
	PDF DOCUMENTS	10 representing around 60 pages	45 representing around 675 pages
	WEBPAGES	37	102
WINNOW WEB SCRAPING, SENTIMENT ANALYSIS, AND TOPIC MODELING	GPT + PROLINQUAL ACCURACY	99%	99%
	FINANCIAL INSTITUTIONS	4	5
	CHANNELS	Instagram Twitter TikTok	Instagram Twitter Facebook
	COMMENTS SCRAPED	126,361	25,490

6. THE IMPACT

These chatbot upgrades brought GenAI and other technologies into the collection process, along with a data warehouse and dashboard solution that drew from historical complaints data to surface trends that could be useful across departments. The working prototypes tested the extension of the platform to allow for modular integration of internal legacy data via API and embedded third-party visualisations from other supervisory platforms to compose suptech solutions and constitute a move toward a more comprehensive, single supervisory dashboard.

> *"Consumer complaints management is critical to foster trust and confidence in financial services. Among the unbanked and underserved, the opportunity to have financial complaints handled transparently and promptly is significant. It can benefit greatly from using core technology, which allows complainants to track the progress of complaints resolution. The process for handling complaints would benefit greatly from using the core technology we developed in the prototype with the Cambridge SupTech Lab. These include advanced technology in GenAI, integrated APIs, NLP, ML, and web scraping AI tools that enable interactive dashboards that generate reports for use by relevant supervisory departments. BOG, therefore, considers this project to be a significant milestone in the quest to use suptech to promote consumer confidence in the financial industry and greatly values the partnership of the Cambridge SupTech Lab in this endeavour."*
>
> *Clarence Blay*
> *Assistant Director, Fintech and Innovation Office, Bank of Ghana*

The benefits of using an advanced chatbot and integrated case management and analytical platform for consumer complaints, coupled with the ability to correlate this with online data through partnerships with Winnow, are shared between the agencies and consumers.

The working prototype enables supervisors to benefit from the ability to:

- Leverage AI techniques such as NLP and GenAI to facilitate automated resolution of consumer inquiries in various languages and aptitude levels.
- Filter the number of inquiries and complaint tickets the supervisors must manage.
- Integrate market conduct perspective into the framework of prudential supervision.
- Reduce cost and time spent on handling consumers' queries and complaints.
- Handle a large volume of queries and complaints simultaneously.
- Leverage the data collected from the user to ensure the complaint is solved and extract insights to assess financial service providers' compliance with market conduct regulation.
- Enhance financial inclusion policies and market conduct regulation.
- Ease complaints tracking and improve resolution and consumer experience with limited supervisory resources.
- Refine business processes through improved consumer handling, enhancing external dispute resolution mechanisms, and scaling up query and complaint handling capacities across multiple platforms.

- Leverage AI/ML analytics of public data for new, relevant insights that, when correlated with complaints data, inform the supervisor of trends and patterns that trigger alarms of potential misconduct that warrant closer examination or investigation.

From the consumers' perspective, the solution helps to:

- Self-solve their questions about financial products and services with an AI assistant built to resolve their enquiries promptly.

- Report complaints using various channels that feed into the complaints management system.

- Increase their satisfaction with the complaint-handling mechanism, easily accessible status updates, improved resolution, and fast turn-around time.

- Increase their financial literacy as users can more easily access information on financial services/products pushed by the authorities, thus making faster and well-informed decisions on products/services offered by financial institutions.

- Ultimately, and most importantly, gain a heightened sense of security and reliability in the financial sector via an accessible recourse mechanism for reporting and resolving market misconduct and other disputes.

Another notable impact of this effort includes insights into the accuracy of a large language model (LLM), which can be influenced by whether it operates in the native language or requires translation. The working prototype was developed using an English model that involves translation, which may introduce additional complexities and challenges in accurately capturing the subtleties of the original language.

If an LLM is trained and fine-tuned directly on data in a specific language, it may better understand nuances, idioms, and context. Fine-tuning provides higher accuracy when working with content in the native language. Solution providers should consider this when designing solutions as AI technology grows unprecedentedly. For example, an LLM recently innovated by Yellow.ai (Komodo-7B) is intended for Indonesia's diverse language landscape that supports over 11 regional languages, trained on over 7 billion parameters, and over 8.5 billion language tokens. Winnow has experimented with various LLMs and is currently iterating to improve accuracy to meet financial supervisors' requirements.

This working prototype demonstrates that AI-driven chatbots, case management systems, and analytics platforms can be tailored to unify various data sources within a centralised data warehouse. These solutions can seamlessly integrate with legacy systems, empowering financial authorities with invaluable tools and actionable insights while streamlining supervisory processes. This technology can be developed internally if the requisite resources and capacity-building efforts align with the financial authorities' strategic goals. Alternatively, it can be acquired as a COSP with essential configuration and maintenance support provisions.

In either case, given that established platforms already integrate fundamental complaint management capabilities and offer continuous access to state-of-the-art technological advancements, leveraging such a platform could provide an effective solution for deploying consumer protection systems on a global scale, enhancing efficiency and accelerating deployment timelines for financial authorities well beyond the bounds of this engagement.

WHAT'S NEXT

The Lab's Application Incubation programme approach is designed to avoid vendor lock-in ensuring the agencies retain flexibility. Agencies like BOG and OJK are provided with several options following the delivery of a prototype. They can:

- Continue working with the vendors that developed the prototype.
- Integrate market conduct perspective into the framework of prudential supervision.
- Deploy in-house resources to advance and maintain the solution independently..

Both agencies will continue to have access to the working prototype environment and a perpetual license to the object and source code of the solutions, including Winnow's data and analytics, as they consider the path to production.

After the prototype was tested, both agencies confirmed that the solution accelerates their digital transformation by demonstrating the value of injecting artificial intelligence into the supervisory process. The prototype helped them to better understand how to move into production. After evaluating the specific available pathways, both BOG and OJK are now actively taking steps to procure the prototyped solution for full deployment.

Winnow Technologies Inc.

Winnow Technologies (Winnow) is a vendor that specialises in web-based data mining tooling, natural language processing and advanced analytics to assist public agencies in fulfilling their mandates to citizens and support the development of inclusive, sustainable and resilient markets, economies, and societies. The tools developed and deployed by Winnow allow the oversight of regulated firms and unregulated activities by scanning the web, social media, company reports and other communications to flag potential violation of policy and regulations, conduct sentiment analysis, and correlate collected information for supervisors on an ongoing basis.

Proto

Proto is the leading generative AICX platform for local languages. Its inclusive chatbots excel at usecases for customer experience, consumer protection, employee experience, and indoor navigation. Powering the Proto AICX Platform is the proprietary ProtoAI™ engine for exceptional text and voice accuracy in underserved languages and large language models such as ChatGPT. Proto's enterprise-level capabilities include data privacy options such as hybrid and on-premise hosting, customised CX analytics, and a 24/7 prompt engineering.

About the Cambridge SupTech Lab

The Cambridge SupTech Lab accelerates the digital transformation of financial supervision to nurture resilient, transparent, accountable, sustainable, and inclusive financial sectors.

The Lab catalyses the scalable integration of innovative technologies, data science and agile methodologies by supervisory authorities to address the enduring and emerging challenges of the rapidly changing financial landscape. Through the Lab, financial authorities have championed the adoption of advanced suptech solutions that tackle critical issues such as financial crime, fraud, exclusion, climate change enablers, consumer protection, and artificial intelligence biases.

The Lab is hosted at the Cambridge Centre for Alternative Finance (CCAF) at the Cambridge Judge Business School, and leverages foundational intellectual property and know-how from the RegTech for Regulators Accelerator (R²A).

The mention of specific companies, manufacturers, or software does not imply that they are endorsed or recommended by the Cambridge SupTech Lab in preference to others of a similar nature that are not mentioned.

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