

# **AI-Powered Capabilities to Enhance Enterprise Operations**

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# ScienceSoft's AI Expertise

## Extensive portfolio

Over 50 AI projects covering diverse semantic aspects such as:

Natural Language  
Processing (NLP)

Computer Vision

Machine Learning

Speech  
Recognition

Robotic Process  
Automation (RPA)

## Experienced team

AI consultants & developers having **7 to 20 years of experience** in ML/AI technologies, with many holding PhDs in Artificial Intelligence, Machine Learning, or Computer Science.

## Proficiency in major frameworks and libraries

mxnet

TensorFlow

PyTorch

learn

Caffe

# ScienceSoft's AI Expertise

## Deep expertise in AI-associated services

**Since 2005**

in Business Intelligence & Data Warehousing

**Since 2013**

in Big Data & Image Analysis

## Compliance with industry standards



## Certifications



**ISO 9001**

LL-C (Certification)



**ISO 27001**

LL-C (Certification)

# Market Research Leaders on AI Benefits

- **AI-driven automation** is expected to save around **\$8 trillion by 2030** (McKinsey).
- AI applications in healthcare could **save up to \$150 billion annually** for the US healthcare economy by 2026 (Accenture).
- AI has the potential to **increase business productivity by up to 40%**. (Accenture).
- **60% of businesses** report improved **insights with AI**, aiding decision-making (Forbes).
- Personalizing experiences with **AI and big data can increase revenue by 6-10%** (BCG).

# Machine Learning



**Predictive maintenance:** Reducing machinery downtime by predicting failures based on historical data.



**Recommendation systems:** Enhancing customer satisfaction with personalized product and content recommendations based on user behavior analysis.



**Healthcare diagnostics:** Increasing diagnostic accuracy through ML-powered recognition of disease symptoms in medical images, patient history, lab tests, and more.



**Fraud detection:** Identifying fraudulent transactions by analyzing patterns and anomalies in financial data.



**AI-powered demand forecasting:** Optimizing inventory, supply chain, and production planning management by predicting demand for products and services based on historical data and market trends.

# Natural Language Processing



**Sentiment analysis:** Optimizing marketing strategies based on customer sentiment detected in online posts, comments, reviews, and other social media data.



**Language translation:** Facilitating communication through automated translation across multiple languages.



**Chatbots:** Improving support service efficiency with virtual agents that can answer questions, accept service requests, and automate repetitive actions.



**Generative AI in NLP:** Streamlining content creation processes by generating personalized marketing materials at scale, including emails, ads, and social media posts.



**Named entity recognition:** Identifying and classifying entities mentioned in texts, such as people, organizations, and locations.

# Computer Vision



**Autonomous vehicles:** Enabling safe vehicle navigation based on the analysis of objects and road signs.



**Facial recognition:** Identifying individuals for security and authentication purposes.



**Quality inspection:** Minimizing manufacturing defects through automated quality control.



**Object recognition:** Identifying and classifying objects in images or videos, such as recognizing vehicles or animals.



# Robotic Process Automation



**Warehouse automation:** Robots automate tasks like picking and packing in warehouses, reducing labor costs.



**Medical robotics:** Robots assist surgeons in minimally invasive surgeries, improving precision.



**Agricultural automation:** Robots monitor crops and perform tasks like planting and harvesting, minimizing human involvement.

# Industry-Specific AI Solutions



**Diagnostic systems:** Providing expert-level diagnosis and treatment recommendations for medical conditions based on patient symptoms and medical knowledge databases.



**Financial advisory systems:** Offering personalized investment advice and financial planning strategies based on an individual's goals and risk tolerance.



**Legal decision support:** Assisting lawyers in legal research and case analysis and predicting outcomes of legal disputes based on precedent and legal principles.



**Industrial process control:** Monitoring and optimizing complex industrial processes like chemical production or power generation to maximize efficiency and safety.



**Educational tutoring systems:** Providing personalized learning experiences and adaptive feedback to students based on their knowledge gaps and learning styles.

# Use Case: Customer Service Chatbot

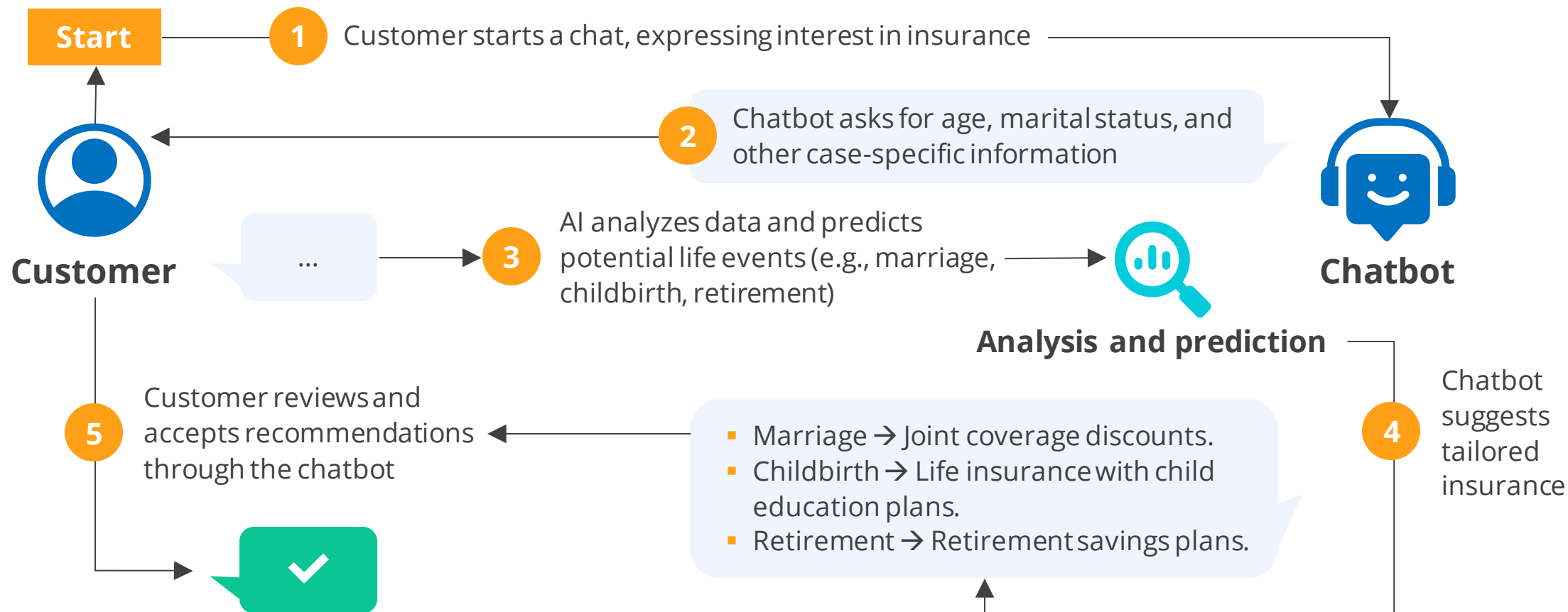
## Life Event Prediction and Planning for Insurance

The AI-powered insurance chatbot predicts major life events for customers based on data analysis. It then recommends tailored insurance products, offering personalized planning and proactive assistance.







# Use Case: Customer Service Chatbot

## Flow



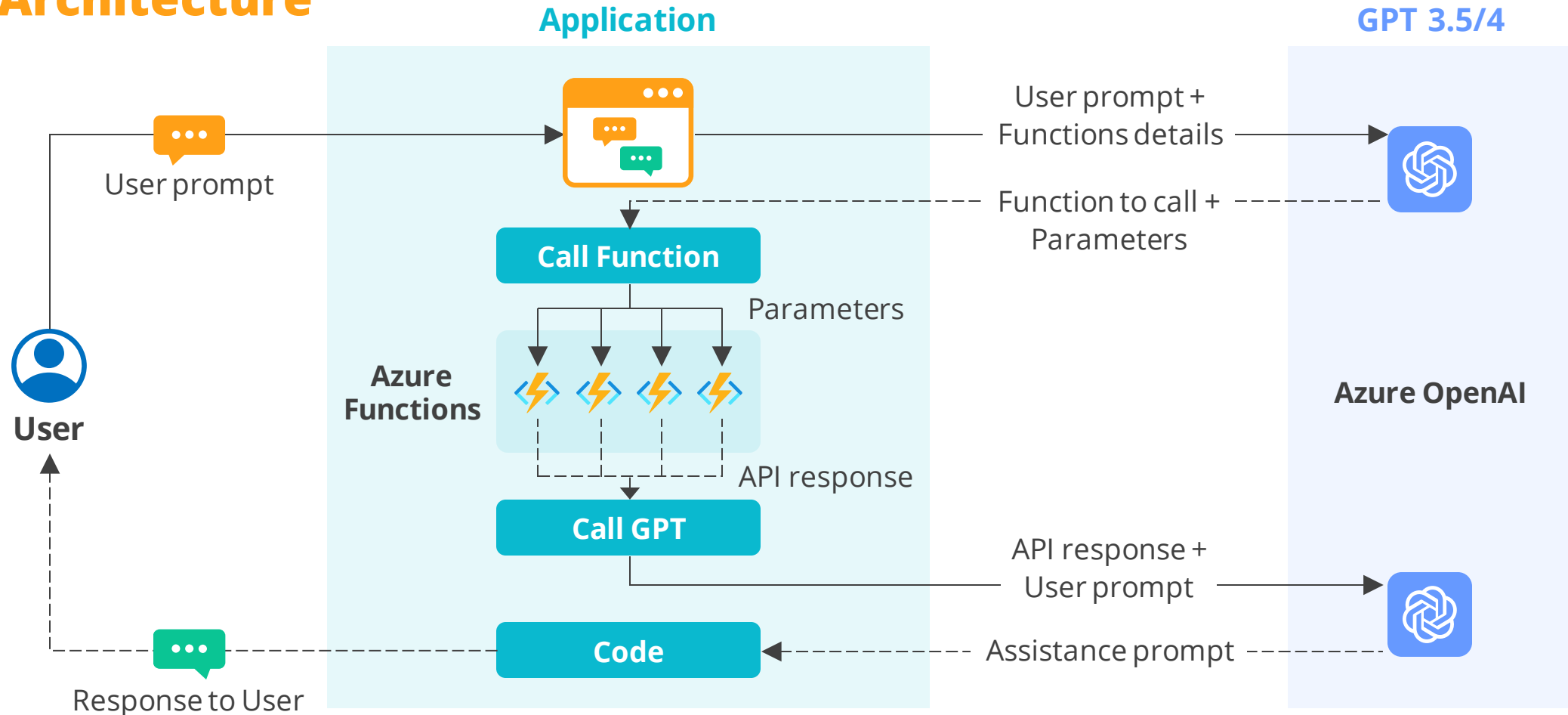
# Use Case: Customer Service Chatbot

## Benefits

- 
**Engagement:** Proactive, personalized recommendations.
- 
**Adoption:** Increases the likelihood of adopting new policies.
- 
**Retention:** Builds stronger customer relationships.
- 
**Insights:** Provides valuable data for product development.

# Use Case: Customer Service Chatbot

## Architecture



# Use Case: AI-Generated Marketing Content

## Transform Your Advertising Game with AI

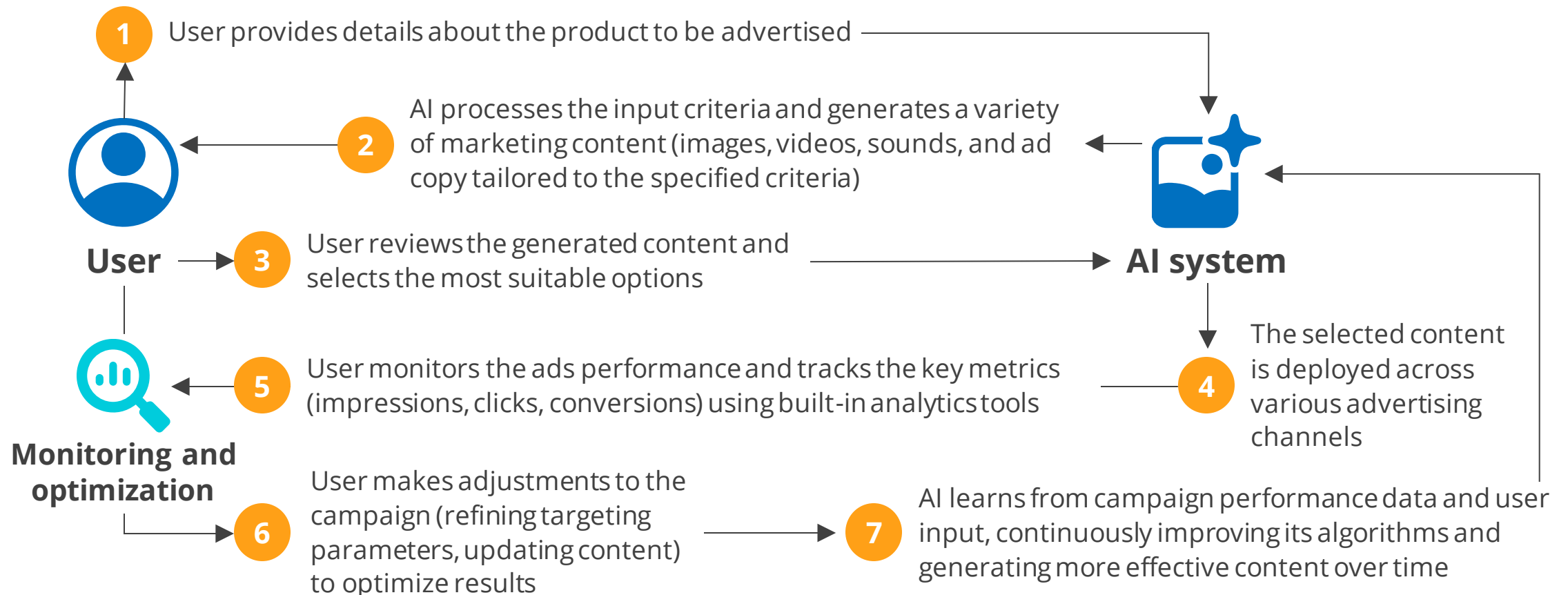
AI-generated marketing content revolutionizes the efficiency and effectiveness of advertising, enabling businesses to save time and resources while driving engagement and conversions through tailored, data-driven ads across all platforms.

Leveraging advanced machine learning algorithms, AI marketing engines empower businesses to create compelling advertisements that resonate with their target audience, ultimately maximizing ROI and staying ahead of the competition.



# Use Case: AI-Generated Marketing Content





## Flow





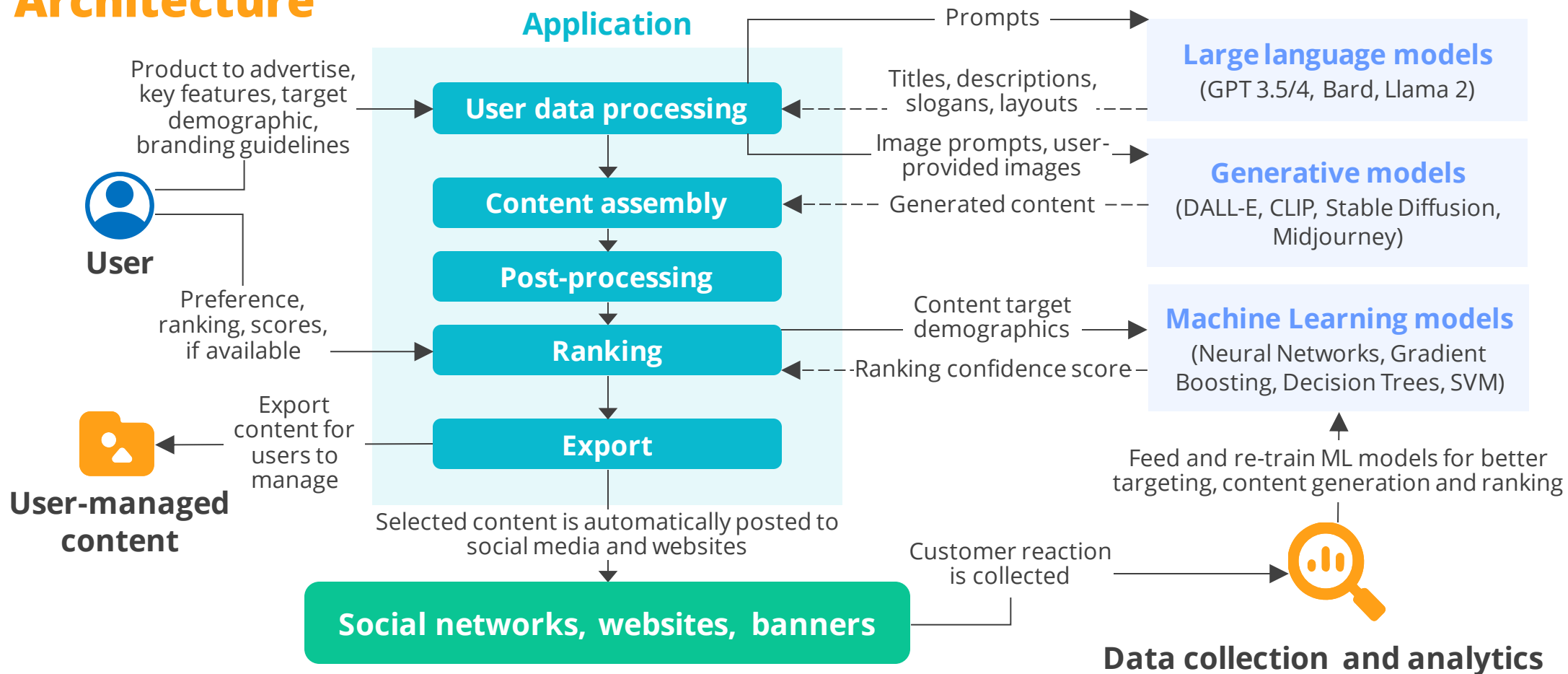
# Use Case: AI-Generated Marketing Content

## Benefits

- 
**Efficiency:** Instantly generate high-quality content, saving time and resources.
- 
**Precision:** Tailored ads based on the unique requirements submitted by the user ensure high engagement and conversions.
- 
**Versatility:** Optimize ads for online and offline platforms seamlessly.
- 
**Continuous improvement:** AI learns and adapts, refining strategies for ongoing success.

# Use Case: AI-Generated Marketing Content

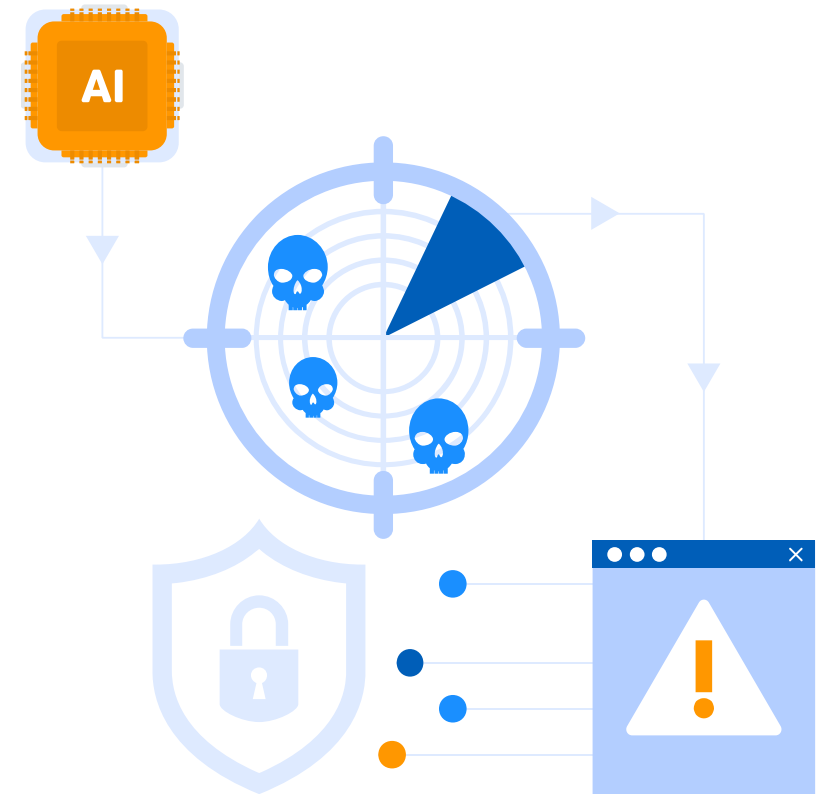
## Architecture



# Use Case: Network Security Testing Automation

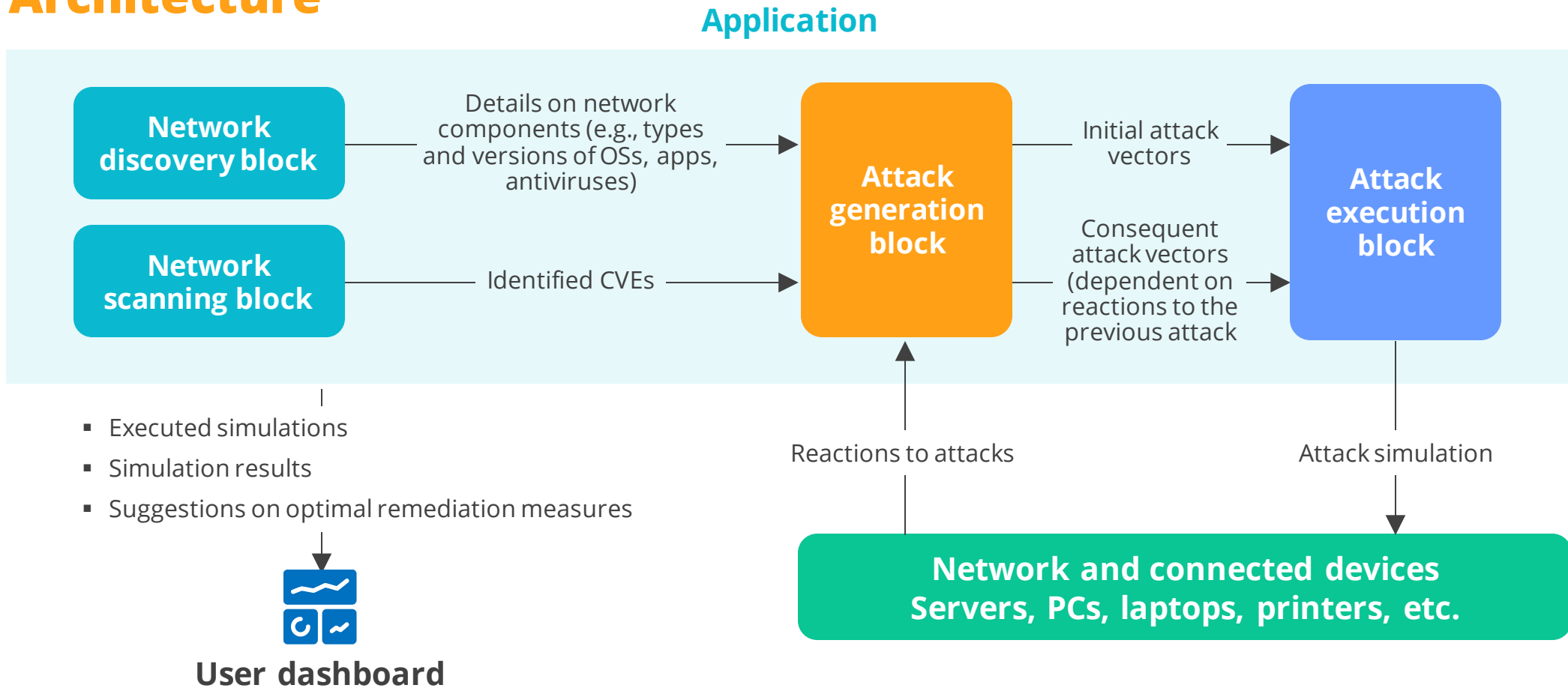
## Automated Attack Vector Generation and Simulation

The AI-powered tool scans the network and simulates attacks relevant to the identified endpoints and common vulnerabilities and exposures (CVEs). The tool then provides testing professionals with reports on executed simulations and detected weak points and suggests optimal remediation measures.



# Use Case: Network Security Testing Automation

## Architecture



# Use Case: Network Security Testing Automation

## Benefits



**Efficient threat detection:** Discovery of hidden patterns, continuous monitoring.



**Faster decision-making:** Smart suggestions on remediation measures.



**Enhanced security posture:** Improved accuracy and efficiency of network testing operations.

# ScienceSoft's Approach to AI Development

**Step 1**

Discovery and design

**Step 2**

Proof of Concept

**Step 3**

Solution implementation

**Step 4**

Training and knowledge transfer

**Step 5**

Support and maintenance, and further upgrade

# Step 1. Discovery and Design

- **Understand client needs:** Discuss the challenges, goals, and pain points.
- **Assess the current state:** Evaluate the existing systems, data infrastructure, and AI readiness.
- **Data audit:** Assess the quality, quantity, and relevance of available data.
- **AI strategy:** Choose between open-source AI models and proprietary AI model development.
- **Architecture design:** Create a blueprint of the AI system.
- **UI/UX design (if applicable):** Design user interfaces for interacting with the AI system.



## Step 2. Proof of Concept

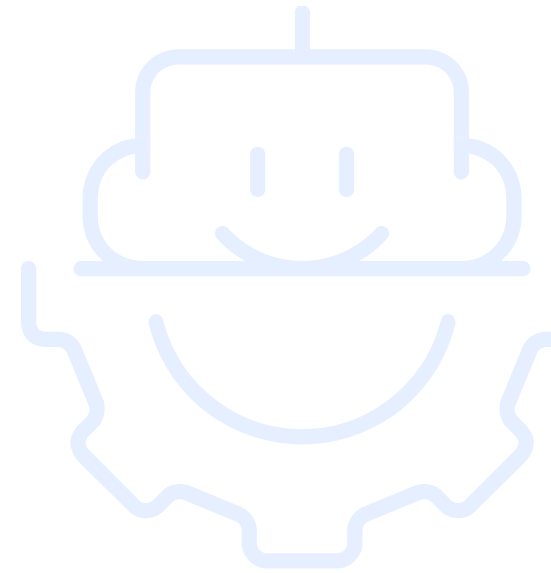
- **Prototype development:**
  - Implement a basic version of the AI solution.
  - This showcases the model's functionality.
- **Testing and validation:**
  - Evaluate the prototype against defined success criteria.
  - Test for accuracy, speed, and robustness.
- **Feedback and iteration:**
  - Gather feedback from stakeholders and users.
  - Incorporate feedback to improve the solution.
- **Model selection and training:**
  - Choose the right AI model or algorithm.
  - Train the model on relevant data.
- **Documentation and reporting:**
  - Document the process, data, and results.
  - Present findings to stakeholders for review.





## Step 3. Solution Implementation

- **Model development (if applicable):** Build and train the AI models using the selected algorithms.
- **Integration:** Integrate the AI solution with the client's existing systems and workflows.
- **Testing and validation:** Conduct rigorous testing to ensure the AI solution meets the accuracy, performance, and reliability requirements.
- **Deployment plan:** Roll out the solution in phases or all at once, depending on the client's preferences and needs.



## Step 4. Training and Knowledge Transfer

- **User training sessions:** Basic and advanced training tailored to user roles.
- **Hands-on workshops and demos:** Guided workshops and live demos for practical learning.
- **Documentation and guides:** Comprehensive manuals, FAQs, and video tutorials for reference.
- **Q&A sessions and office hours:** Scheduled sessions and drop-in hours for questions and support.
- **Feedback and improvement:** Gather feedback, conduct surveys, and continuously improve training materials.



## Step 5. Support and Maintenance and Further Upgrade

- **Performance monitoring:** Implement monitoring tools to track the AI system's performance, including accuracy and output speed.
- **Regular updates:** Stay up to date with AI advancements and update the models or algorithms as needed.
- **Support and maintenance:** Provide ongoing support for system troubleshooting, upgrades, and addressing any emerging issues.



# ML Algorithms to Identify Dental Fraud with 95% Accuracy

## Client

An innovative dental care insurance management startup.

## Solution

A software product to identify dental insurance fraud. The product is developed according to the ISO 13485 quality management approach to ensure smooth SaMD registration.

## Tools and Technologies

Python, Pytorch.

[Project details →](#)



# Machine Vision Model PoC for Surgical Items Detection with 95%+ Accuracy

## Client

An innovative healthcare sustainability startup launched by one of the top US universities.

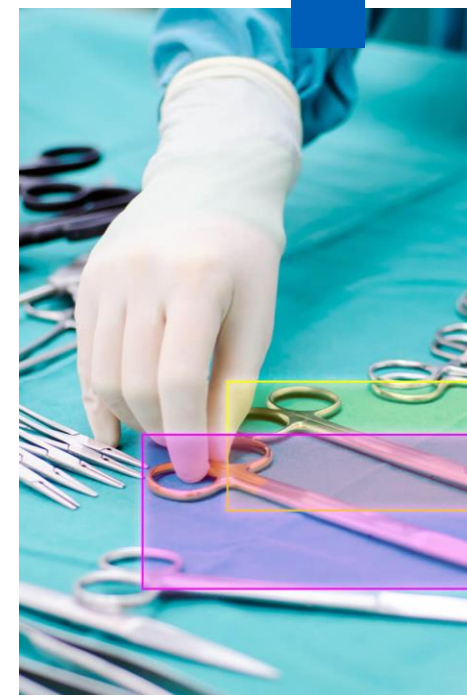
## Solution

A proof of concept for a machine vision model meant to identify and track single-use sterile surgical supplies. Demonstrating over 95%+ accuracy, the PoC is ready to be presented to investors.

## Tools and Technologies

Python, Pytorch.

[Project details →](#)



# AI-Based Software Product for Fully Automated Invoice Processing

## Client

A US technology company that offers web and mobile solutions for procurement, expense, and accounts payable (A/P) automation.

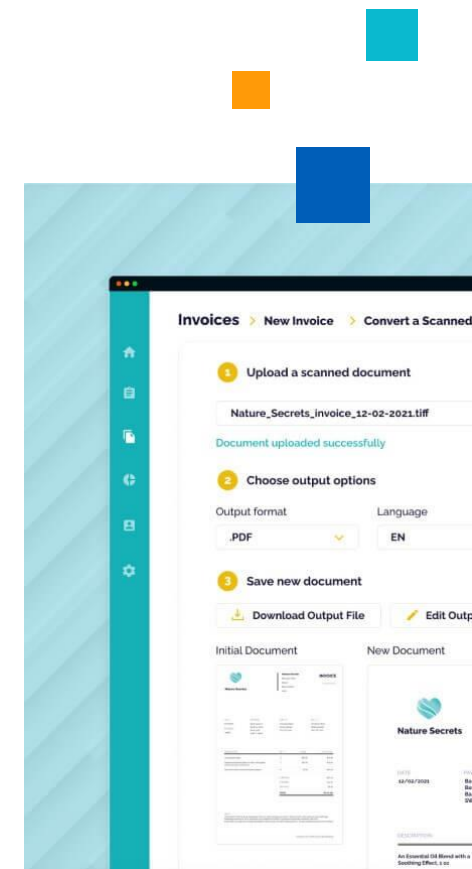
## Solution

The solution automates invoice data capture, validation, and recordkeeping and submits valid invoices for payment, ensuring faster and more accurate invoice processing. The software offers intuitive user experiences and performs stably under heavy load.

## Tools and Technologies

.NET Core, React, Redux, TypeScript, Microsoft Azure Service Fabric, Microsoft Azure DevOps, Microsoft Azure Cognitive Services / Form Recognizer.

[Project details →](#)



# Mobile Banking App Revamp and Evolution to Boost Google Play Store Rating

## Client

An Asian bank established over 20 years ago and holding a leading position in its home country.

## Solution

To help an Asian bank raise its client satisfaction score, ScienceSoft revamped the functionality of an Android banking app and introduced advanced features, including Forex trading and an AI-powered chatbot for automated handling of customer requests.

## Tools and Technologies

Java, Kotlin, RxJava 2, Retrofit 2, AndroidX, MotionLayout, GSON, Glide, Firebase Cloud Messaging, Firebase Crashlytics, Kotlin Coroutines, Jetpack, MVVM, Google Directions API, Geolocation API.

[Project details →](#)



# NLP-Powered Call Transcription and Sentiment Analysis for a Help Desk Software Product

## Client

A North American provider of help desk software solutions.

## Solution

An MVP of an AI module for a help desk software product. The module enables audio transcription, text summarization, and client sentiment analysis to support service analytics and reduce manual work for help desk agents.

## Tools and Technologies

Python, AWS Elastic Container Service, AWS Application Load Balancer, AWS Fargate.

[Project details →](#)





# PoC Development of AI Model for Pentesting Automation

## Client

A North American provider of penetration testing services.

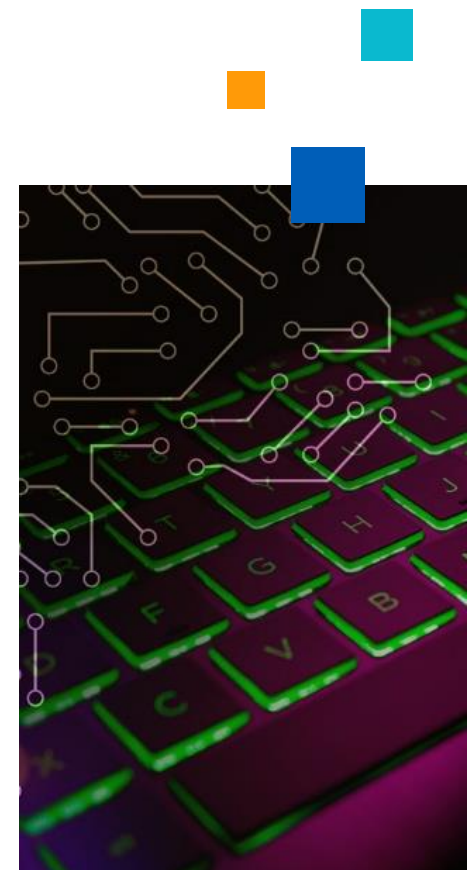
## Solution

A custom AI model to enhance the Client's penetration testing tool. The self-learning model enables the automated simulation of attack vectors relevant to the network components and CVEs identified by the Client's tool.

## Tools and Technologies

Python, PyTorch.

[Project details →](#)



# Let's Make Your Project a Success!

