

Building a Custom Generative AI model

Your guide outlining the step-by-step processes required to develop, deploy, and maintain a custom Generative AI model



Introduction

We have compiled this detailed guide outlining the step-by-step processes required to develop, deploy, and maintain a custom GenAI model. It includes detailed processes and expectations from ideation to monitoring, troubleshooting tips and performance evaluation strategies.

This playbook provides a valuable resource for any team implementing custom models. It ensures consistency, efficiency, and success in creating high-quality GenAI models tailored to specific business needs.

A custom GenAI model can revolutionise your business by automating complex tasks, enhancing creativity, and providing personalised solutions. It can generate high-quality content, design innovative products, improve customer interactions through tailored responses, and uncover insights from large datasets.



How can a custom GenAI model help my company?

Building a custom Generative AI model will help your business by automating repetitive tasks, freeing up valuable time and resources for more strategic activities. It enables personalised customer interactions. Additionally, it enhances decision-making by providing predictive insights, ultimately driving efficiency and business growth.

Examples →

Predictive Inventory

Predict inventory needs and optimise stock levels by analysing sales trends, seasonal demand, and other relevant data, reducing waste and improving efficiency.

Chatbots

Implement a chatbot powered by Generative AI to handle frequently asked questions, booking appointments, and providing 24/7 customer support.

Data Analysis

Analyse customer data, generate predictive insights, and suggest actionable strategies for sales, product, and marketing, leading to more informed business decisions.

Process for developing a custom model

Discovery and Requirements

Defining business objectives and goals, you can establish clear, specific, and measurable outcomes to achieve within a set timeframe



Model Deployment and Integration

Transfer the trained model from the development environment to a production setting where it can be used in real-world applications.



Data Preparation and Analysis

The image's database conversion, integration, validation, and testing parts.



Monitoring and Maintenance

Track the model's performance and behaviour in production. Provide ongoing updates and improvements



Model Development and Training

Development and training involves training by processing the data and learning patterns through repeated adjustments



Evaluation and Optimisation

assess the model's effectiveness and makes necessary adjustments to enhance its accuracy and efficiency.



Discovery and Requirements Gathering

By defining business objectives and goals, you can establish clear, specific, and measurable outcomes your organisation aims to achieve within a set timeframe. You want to start by identifying the repetitive and time-consuming tasks that are currently present in your team's workflow.

Using GenAI to automate some of that process can be an easy win for your team and allow your team the focus on the needle moving work.



Define business objectives and goals



Identify potential AI use cases



Gather requirements from stakeholders

We have developed a comprehensive questionnaire to help you determine the feasibility of building a custom GenAI solution. You can download the questionnaire here:

<https://www.easycoder.co/en-nz/blog/generative-ai-feasibility-questionnaire>

Data Preparation and Analysis

This phase will cover the image's database conversion, integration, validation, and testing parts. Carefully preparing and analysing your data before starting to build can catch many potential issues in producing quality responses.

High-quality data is essential for practical model training, as it directly influences the model's ability to learn and produce reliable results. A thorough assessment ensures the data is robust and suitable for developing a high-performing GenAI model.

“
High quality data means
high quality
AI models

Data readiness and quality

Is data a suitable format for model training?

Evaluating the completeness, consistency, and accuracy of the data
Checking for missing values, identifying and correcting errors, and ensuring that the data is relevant and representative of the problem domain

Cleanse and preprocess data

Removing inaccuracies, filling missing values, and standardising formats to ensure consistency and reliability

Enhancing data quality, reducing noise, and improving the model's ability to learn from the data will ultimately lead to more accurate and meaningful outputs

Exploratory data analysis (EDA)

Examining the dataset to uncover underlying patterns, trends, and relationships

EDA provides valuable insights that inform feature selection and engineering, helping to optimise the model's performance

EDA ensures that the model is built on a solid foundation, leading to more accurate and effective generative AI outputs

We will create the first iteration of your GenAI model using a test set of data provided. Be prepared with a dummy set of data created to model your live dataset. We do not build the initial custom model using your production data until it is tested and working as expected based on vigorous testing.

Model Development and Training

Model development and training involves training by processing the data and learning patterns through repeated adjustments.

This cloud-based approach allows efficient handling of large datasets and computational tasks, making it easier to monitor, fine-tune, and deploy your custom GenAI model to generate high-quality outputs.

By carefully tuning and evaluating the model, this step ensures that the GenAI model learns effectively from the data and can generate high-quality, reliable outputs when deployed.

Continuous evaluation using metrics and validation datasets will ensure the model performs well across various scenarios, leading to a robust and reliable GenAI solution tailored to specific requirements.

Select appropriate AI models (e.g. machine learning algorithms)

- EasyCoder has partnered with several GenAI service providers and can provide expert recommendations based on the assessment and previously defined goals.

Train and validate the models using the prepared data

- Feed the preprocessed dataset into the model and iteratively adjust the model to optimise performance
- Divide the data into a training set and a validation set. The training set will be used to teach the model, while the validation set will be used to assess its accuracy and generalisation ability.

Optimise model performance and accuracy

- Fine-tuning the model's parameters, adjusting its architecture, and employing techniques such as regularisation and hyperparameter tuning
- This process aims to enhance the model's ability to generate accurate and high-quality outputs by minimising errors and improving its generalisation to new data.

Model Deployment and Integration

Now, we are ready to transfer the trained model from the development environment to a production setting where it can be used in real-world applications.

This process includes setting up the necessary infrastructure, ensuring the model is scalable and reliable, and integrating it with existing systems and workflows.

Effective deployment ensures the model can handle live data inputs and consistently deliver accurate, high-quality outputs, allowing businesses to leverage the GenAI model's capabilities seamlessly within their operational processes.



Deploy

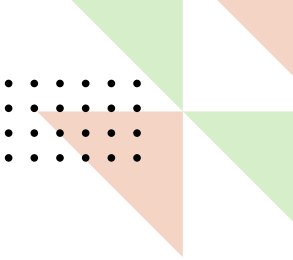
Deploy trained models into a production environment

Integrate

Integrate AI solutions with existing systems and applications

Testing

Conduct testing and validation of the deployed models



Monitoring

With your model now deployed, continuous monitoring will track the model's performance and behaviour in production to ensure accuracy and reliability over time. This step is essential to maintain your model but also improve it when necessary.

- Set up monitoring and alerting mechanisms for AI models
- Monitor model performance and detect anomalies
- Perform regular maintenance and updates as needed



Maintenance

Maintenance of your model provides ongoing updates and improvements to ensure the model performs optimally. To set up effective maintenance practices you will want to:

- Train end-users and stakeholders on using AI solutions
- Provide documentation and support resources
- Promote adoption and usage within the organisation

Effective monitoring helps identify potential issues early, ensuring the genAI model remains robust, accurate, and valuable in its operational context. Regular maintenance ensures the GenAI model remains accurate, efficient, and practical, providing consistent value and reliable outputs in its application environment.



Performance Evaluation and Optimisation

The final step for setting up a custom generative AI model is to evaluate and optimise as your model. This assesses the model's effectiveness and makes necessary adjustments to enhance its accuracy and efficiency.

Regular evaluation and optimisation ensure the genAI model performs at its best, delivering high-quality, reliable results tailored to specific application needs.



Evaluate

Evaluate what the GenAI solution's performance and impact has had on business outcomes

Identify

Identify areas for improvement and optimisation

Iterate

Iterate on the GenAI deployment for continuous enhancement

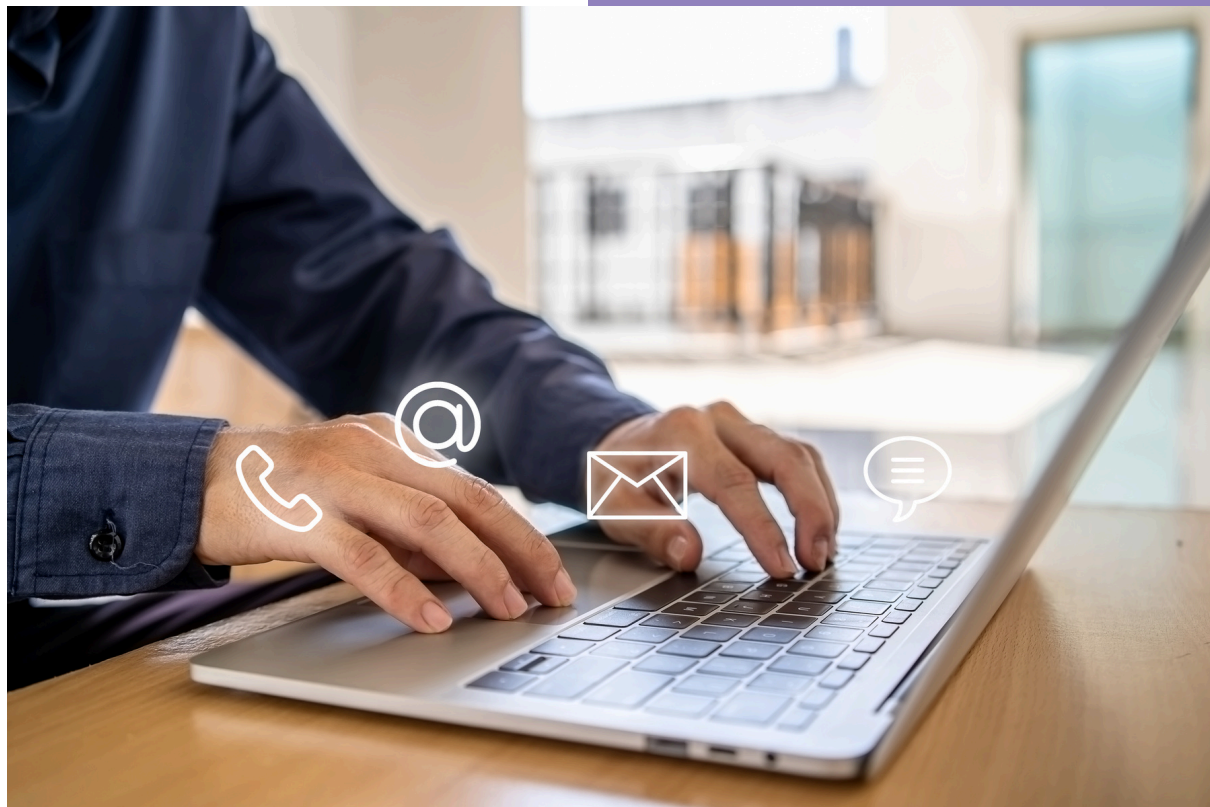


Final Thoughts

By leveraging a custom genAI model, your business can achieve greater efficiency, drive innovation, and gain a competitive edge in the market, ultimately boosting productivity and profitability.

Get in Touch

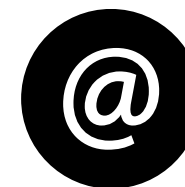
To get started on your custom GenAI solution, Easycoder is here to partner with your organisation and lend expert services to bring your solution to the market.



02825521939



[Easycoder Linkedin](#)



Hi@Easycoder.co



Easycoder.co



EasyCoder