

Functional / Technical Design Document

Customer Feedback Analytics

AI-Powered Feedback Processing Platform

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Exhibit 1

Title	Name
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Exhibit 2

Version history

Version	Changes	Initiator	Date
1.0	Initial Draft	Patrick Y	29/12/2025

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1 Introduction

1.1 The composition of the document

The functional design document (FDD) contains:

- Scope
- Organisation structure: The functional management of departments for creating a security model of the solution
- Business process: The schema of business process in the solution
- Architecture solution design: Object model, Data model
- Additional customisation
- Security Roles
- Integration
- Data Migration

1.2 Abbreviations

Abbreviation	Transcript
Plug-in	Plug-in is a software component that adds a specific feature to an existing software application
POC	Point of contact
FDD	Functional Design Document
TDD	Technical Design Document
API	Application Programming Interface
GUID	Globally Unique Identifier
NER	Named Entity Recognition
GPT	Generative Pre-trained Transformer
AEST	Australian Eastern Standard Time

2 Project overview

2.1 Scope

Customer Feedback Analytics is an AI-powered platform built on Microsoft Power Platform and Azure. It provides:

- Multilingual Support: Automatic language detection and translation to English
- Sentiment Analysis: AI-powered classification (Positive/Neutral/Negative)
- Entity Extraction: Identifies products, people, organisations, and locations
- Auto-Response Generation: GPT-powered draft responses based on feedback context
- Priority Escalation: Automatic priority assignment based on sentiment severity
- Daily Analytics: Scheduled reports with trend analysis and alerts
- Copilot Integration: AI chatbot for feedback submission and status lookup
- Negative Feedback Alerts: Real-time Teams notifications for critical feedback

Technology Stack:

Layer	Technology
Compute	Azure Functions (Node.js 18+, Consumption Plan)
Orchestration	Azure Logic Apps (Consumption), Power Automate Cloud Flows
Messaging	Azure Service Bus (Queue + Topic)
AI/ML	Azure Cognitive Services (Text Analytics, Translator)
Generative AI	Azure OpenAI Service (GPT-3.5 Turbo)
Data Store	Microsoft Dataverse
Frontend (Customer)	Copilot Bot (Customer Feedback Assistant)
Frontend (Internal)	Model-driven App (DEMO APP)
Notifications	Office 365 (Email), Microsoft Teams
Monitoring	Application Insights

3 Description of business processes

3.1 Common information about organisation process

This document includes the following business processes to be automated:

1. Real-Time Feedback Processing
2. Daily Analytics Generation and Distribution
3. Negative Feedback Escalation
4. Copilot Self-Service

3.2 Real-Time Feedback Processing

3.2.1 Feedback Processing Flow

Trigger: When a new Customer Feedback record is created in Dataverse

Purpose: Orchestrates AI enrichment of customer feedback with sentiment, translation, and auto-response

Process flow

Step Id	Description	Remarks
FB-01	Trigger on new feedback	Power Automate flow triggers on Dataverse record creation
FB-02	Send to Service Bus	Sends JSON payload to feedback-incoming queue
FB-03	Language Detection	Azure Text Analytics detects language of feedback text
FB-04	Translation	Azure Translator converts to English if confidence > 0.5
FB-05	Sentiment Analysis	Text Analytics classifies as Positive/Neutral/Negative
FB-06	Entity Extraction	NER identifies products, people, organisations, locations
FB-07	Auto-Response Generation	Azure OpenAI (GPT-3.5) generates personalised response draft
FB-08	Update Dataverse	Logic App patches record with AI insights
FB-09	Send Thank-You Email	Office 365 connector sends confirmation to customer

Functional design

ID	Description	Rules / Examples / Comments
FB-FD01	Priority Assignment	Negative >70% conf = Critical; Negative <=70% = High; Positive >80% = Low; else Medium
FB-FD02	Sentiment Mapping	Positive=100000000, Neutral=100000001, Negative=100000002
FB-FD03	Fallback Behavior	If AI services fail, keyword-based sentiment analysis using word lists

3.3 Daily Analytics

3.3.1 Daily Analytics Flow

Trigger: Recurrence (Daily at 8:00 AM AEST)

Purpose: Aggregates feedback statistics, analyses trends, generates and distributes reports

Process flow

Step Id	Description	Remarks
DA-01	Fetch Statistics	HTTP call to FetchFeedbackStats function

DA-02	Analyse Trends	Compares current vs. previous period, generates alerts for spikes
DA-03	Generate Report	Creates HTML email report and Teams summary
DA-04	Email Report	Office 365 distributes styled HTML report to stakeholders
DA-05	Post to Teams	Posts plain text summary to designated Teams channel

3.4 Negative Feedback Escalation

3.4.1 Alert Teams on Negative Feedback Flow

Trigger: Service Bus Topic subscription (feedback-analyzed/negative-feedback)

Purpose: Posts Adaptive Card alert to Teams channel for negative feedback requiring attention

Process flow

Step Id	Description	Remarks
NF-01	Receive Message	Service Bus subscription filters for negative sentiment only
NF-02	Parse Feedback Data	Extracts customer details, priority, key issues from JSON
NF-03	Post Adaptive Card	Red banner alert with customer info, feedback, CRM link

3.5 Copilot Self-Service

3.5.1 Create Feedback Record

Trigger: Customer conversation with Copilot requesting to submit feedback

Purpose: Allows customers to submit feedback through natural language conversation

Process flow

Step Id	Description	Remarks
CP-01	Collect Inputs	Gathers customerName, customerEmail, feedbackCategory, feedbackText
CP-02	Map Category	Converts text to option set value (Product/Service/Support/Other)
CP-03	Create Record	Creates Customer Feedback record, Status=New, SubmittedOn=UTC now
CP-04	Return Reference	Returns auto-number Feedback ID (FB-00001) to customer

3.5.2 Check Feedback Status

Trigger: Customer requests status lookup via Copilot

Purpose: Allows customers to check status of their existing feedback submissions

Process flow

Step Id	Description	Remarks
CS-01	Collect Email	Requests customer email as lookup key
CS-02	Query Dataverse	Filters by email, orders by created date desc, limits to 5
CS-03	Return Results	Returns Reference ID, Status, Submitted date for each record

4 Data Model

4.1 Overview

The solution uses Microsoft Dataverse as the data platform with the following core entities:
Customer Feedback (new_customerfeedback) and Feedback Activity Log (new_feedbackactivitylog).

4.2 Tables

4.2.1 Customer Feedback (new_customerfeedback)

General

Option	Enable / Disable
Display Name	Customer Feedback
Plural Name	Customer Feedbacks
Schema name (Table)	new_customerfeedback
Primary field (schema name)	new_feedbackid
Notes	Yes
Activities	Yes
Duplicate Detection	Yes
Auditing	Yes
Enable for mobile	Yes
Ownership	User or Team

Form (Main)

Display Name	Schema Name	Field Type	Req	Notes	Srch
Feedback ID	new_FeedbackID	Auto-number	+	FB-00001 format	+
Customer Name	new_CustomerName	Text	+	Customer's full name	+
Customer Email	new_CustomerEmail	Text	+	Customer's email	+
Feedback Text	new_FeedbackText	Multiline	+	Original feedback	+
Category	new_Category	OptionSet		Product/Service/Support/Other	+
Status	new_Status	OptionSet	+	New/In Progress/Resolved/Closed	+
Priority	new_Priority	OptionSet		Low/Medium/High/Critical	+
Submitted On	new_SubmittedOn	DateTime	+	Submission timestamp	+
Sentiment Category	new_SentimentCategory	OptionSet		Positive/Neutral/Negative	+
Sentiment Score	new_SentimentScore	Decimal		AI confidence (0-1)	
Detected Language	new_DetectedLanguage	Text		ISO 639-1 code	+
Translated Text	new_TranslatedText	Multiline		English translation	
Auto Response	new_AutoResponse	Multiline		AI-generated draft	
Entities	new_Entities	Multiline		JSON extracted entities	
Resolution Notes	new_ResolutionNotes	Multiline		Agent notes	
Resolved On	new_ResolvedOn	DateTime		Resolution timestamp	+

4.2.2 Feedback Activity Log (new_feedbackactivitylog)

General

Option	Enable / Disable
Display Name	Feedback Activity Log
Plural Name	Feedback Activity Logs
Schema name (Table)	new_feedbackactivitylog
Auditing	Yes
Ownership	User or Team

Form (Main)

Display Name	Schema Name	Field Type	Req	Notes
Related Feedback	new_RelatedFeedback	Lookup	+	Reference to Customer Feedback
Action	new_Action	Text	+	Action type performed
Action Taken By	new_ActionTakenBy	Lookup		User who performed action
Action Date	new_ActionDate	DateTime	+	When action was taken
Description	new_ActivityDescription	Multiline		Detailed description
Is Resolved	new_IsResolved	Two Options		Indicates if this resolved the case

5 Additional Functionality

5.1 Copilot Bot

Customer Feedback Assistant (cre4a_customerFeedbackAssistant) provides self-service capabilities for customers to submit and track feedback through natural conversation.

Configuration:

- Generative AI Recognizer enabled
- Generative Actions enabled
- Model Knowledge enabled
- Semantic Search enabled

5.2 Model-Driven App

DEMO APP (new_DEMOAPP) provides a unified interface for customer service agents to view incoming feedback, review AI-generated insights, update status and resolution, and track activity history.

5.3 Multilingual Support

Automatic language detection and translation to English via Azure Translator. Supported languages include all languages supported by Azure Cognitive Services Text Analytics and Translator.

5.4 Email Notifications

Thank-you emails sent to customers upon feedback submission. Daily analytics reports distributed to stakeholders via Office 365.

5.5 Teams Notifications

Adaptive Card alerts posted to Microsoft Teams channel for negative feedback escalation. Features red banner header, customer details fact set, feedback text, and action button to open case in CRM.

6 Integration

6.1 Logging mechanism

All external API call failures are logged to Application Insights.

6.2 Integration 1 - Azure Text Analytics

Analyses feedback text for language, sentiment, key phrases, and entities.

6.2.1 Scope

Called by ProcessFeedback Azure Function when feedback is submitted.

6.2.2 Interface design

Overview

Endpoint: <https://cog-feedback-demo.cognitiveservices.azure.com>

API Version: v3.1

APIs Used

API	Endpoint	Purpose
Languages	/text/analytics/v3.1/languages	Detect language
Sentiment	/text/analytics/v3.1/sentiment	Classify sentiment
Key Phrases	/text/analytics/v3.1/keyPhrases	Extract key phrases
Entities	/text/analytics/v3.1/entities/recognition/general	Named entity recognition

6.3 Integration 2 - Azure Translator

Translates non-English feedback to English for consistent analysis.

6.3.1 Scope

Called by ProcessFeedback when detected language is not English.

6.3.2 Interface design

Overview

Endpoint: <https://api.cognitive.microsofttranslator.com>

API Version: 3.0

6.4 Integration 3 - Azure OpenAI

Generates personalised customer response drafts using GPT-3.5 Turbo.

6.4.1 Scope

Called by ProcessFeedback after sentiment analysis is complete.

6.4.2 Interface design

Overview

Endpoint: <https://openai-feedback-demo.openai.azure.com>

Deployment: gpt-35-turbo

API Version: 2024-02-15-preview

6.5 Integration 4 - Azure Service Bus

Message queuing and topic-based distribution of processed feedback.

6.5.1 Scope

Queues raw feedback intake; topics distribute processed feedback to subscribers.

6.5.2 Interface design

Overview

Namespace: sb-feedback-demo

Resource	Type	Purpose
feedback-incoming	Queue	Raw feedback intake
feedback-analyzed	Topic	Processed feedback distribution
all-feedback	Subscription	Logic App (all messages)
negative-feedback	Subscription	Teams alert (negative only)

6.6 Environment Variables

Schema Name	Description
COGNITIVE_ENDPOINT	Text Analytics endpoint
COGNITIVE_KEY	Text Analytics API key
TRANSLATOR_KEY	Translator API key
TRANSLATOR_REGION	Azure region (eastus)
OPENAI_ENDPOINT	Azure OpenAI endpoint
OPENAI_KEY	Azure OpenAI API key
OPENAI_DEPLOYMENT	GPT model deployment name