

# PROJECT DESIGN PHASE II

## SOLUTION REQUIREMENTS(FUNCTIONAL & NON FUNCTIONAL)

Date	02 NOV 2025
TeamID	NM2025TMID06943
Project Name	Streamlining Ticket Assignment for efficient support operations
Maximum mark	4 marks

## Functional Requirements

These define the specific capabilities and behaviors required to automate and optimize the ticket assignment process.

### 1.1 Intelligent Categorization and Initial Assignment

- **FR1.1** – The system must automatically classify new inbound tickets (e.g., *Incidents, Requests*) by **Category** and **Subcategory**, using **Predictive Intelligence (PI)** models trained on historical ticket data.
- **FR1.2** – The system must automatically **suggest or set** the initial **Assignment Group** based on the predicted Category/Subcategory or the linked **Configuration Item (CI)**.
- **FR1.3** – The system must allow **authorized agents or administrators** to manually override the automatically assigned values during the **initial triage** phase before final assignment.

### 1.2 Dynamic Agent Assignment Logic

- **FR2.1** – The system must support **Assignment Rules** that trigger based on parameters such as **Priority, CI, Service, or Location**.
- **FR2.2** – The system must implement **load-balancing logic** (e.g., *Round Robin, Least Busy, or Capacity-based*) to distribute tickets evenly among agents within a group.
- **FR2.3** – The assignment logic must **verify agent availability status** (e.g., *Available, Busy, Offline, On Shift*) before assigning a ticket.
- **FR2.4** – The system must support **skill-based routing**, prioritizing agents who possess the **required skill tags** (primary or mandatory) that match the ticket's classification.

- **FR2.5** – The system must support **escalation routing**, automatically reassigning a ticket if it remains **unhandled or unassigned** beyond a defined threshold (e.g., 30 minutes).

### 1.3 Workflow and Notifications

- **FR3.1** – The system must send an **immediate notification** (email/system alert) to the assigned agent upon successful ticket assignment.
- **FR3.2** – The system must update the ticket record with an **Audit Log entry** detailing the **method of assignment** (e.g., “Auto-assigned via Predictive Intelligence,” “Manually assigned by Agent X via Round Robin”).
- **FR3.3** – The system must allow configuration of **fallback assignments**, routing unassigned tickets to a **backup group** or **manager** if no eligible agent is available in the primary group.

## 2. Non-Functional Requirements (NFRs)

These define the quality attributes and performance expectations for the automated assignment system to ensure reliability, scalability, and usability.

### 2.1 Performance and Latency

- **NFR1.1 (Latency)** – The time from **Ticket Submission** to **Final Assignment** (ticket visible in agent queue) must not exceed **5 seconds** for 95% of submissions (excluding external email processing).
- **NFR1.2 (Scalability)** – The assignment engine must support up to **1,000 new ticket assignments per hour** during peak load periods without performance degradation.
- **NFR1.3 (Model Accuracy)** – The **Predictive Intelligence (PI)** model must maintain an **assignment accuracy rate  $\geq 85\%$**  for initial group prediction.

### 2.2 Reliability and Availability

- **NFR2.1 (Uptime)** – The automated assignment system must maintain **99.9% availability** during business hours.
- **NFR2.2 (Error Handling)** – In case of assignment engine failure, the system must revert to a **static fallback group** and log the event as a **critical error**.
- **NFR2.3 (Auditability)** – All routing decisions, skipped agents, and failure cases must be **logged and traceable** for auditing and compliance purposes.

## 2.3 Usability and Maintainability

- **NFR3.1 (Configuration Flexibility)** – Assignment logic (rules, skill mapping, agent availability) must be configurable via **Flow Designer** or **Business Rules**, requiring minimal or no custom scripting for standard changes.
- **NFR3.2 (Visibility)** – Managers must be able to **monitor workload distribution and key performance indicators (KPIs)** through a **Performance Analytics Dashboard**.
- **NFR3.3 (Learning and Adaptation)** – The **AI/ML models** must support **automated retraining cycles** (e.g., weekly or monthly) using resolved ticket data to improve prediction accuracy over time.

### Summary

Together, these Functional and Non-Functional Requirements establish a **robust foundation** for the design and implementation of the **ServiceNow-based Intelligent Ticket Assignment System**, ensuring it is:

- **Accurate** (via ML-driven categorization),
- **Efficient** (through load balancing and automation),
- **Reliable** (with fallback and error handling),
- and **Continuously improving** (via data feedback and model retraining).