

# Technical Report on the Meeting Scheduler System

## Deliverable 1

### I. System Vision Document

#### **Problem Statement:**

Organizing meetings among geographically dispersed participants presents significant challenges due to differing time zones, work schedules, and personal commitments. This often results in substantial scheduling overhead, with participants spending excessive time coordinating via emails or messages. Logistical requirements, such as access to technology and equipment for virtual or hybrid meetings, further complicate the process. Additionally, preferences for specific platforms can lead to compatibility issues that disrupt communication. Consequently, traditional scheduling methods can cause delays in decision-making and reduce productivity. Missed opportunities for collaboration frequently arise from these inefficiencies. Organizations increasingly seek solutions that streamline scheduling and enhance participant engagement. There is a need for tools that seamlessly integrate logistical arrangements. Addressing these challenges is crucial for maximizing meeting effectiveness and ensuring meaningful participation.

#### **System Capabilities:**

The new system should be capable of:

- Collecting availability details from potential participants, including exclusion dates (when they cannot attend) and preferred dates, within a defined timeframe.
- Identifying and resolving scheduling conflicts by proposing alternative dates or adjusting participant preferences based on predefined conflict resolution policies.
- Matching meeting rooms with equipment requirements and participant location preferences, ensuring that selected venues are adequately equipped and accessible.
- Allowing modifications to meeting details after initial scheduling to accommodate changes, such as participant updates or new scheduling constraints.
- Managing multiple meeting requests in parallel, resolving potential time or location overlaps to ensure efficient and fair scheduling across all requests.

#### **Business Benefits:**

Implementing the Meeting Scheduler System will offer the following business benefits:

- Reduces manual effort and communication overhead, allowing users to focus on core tasks rather than the logistics of scheduling.

- By offering flexible scheduling that aligns with participant preferences, the system encourages higher attendance and engagement.
- Ensures efficient use of meeting spaces and equipment, reducing booking conflicts and underutilization of resources.
- Supports seamless organization of distributed meetings, fostering better collaboration among teams, clients, and partners across locations

## II. User stories

### (1) technician

As a technician, I want to provide the equipment requested by participants as soon as the meeting is scheduled to ensure the meeting is successful.

#### Acceptance Criteria

1. Track equipment inventory to view real-time availability and quantity of items.
2. Real-time status updates for equipment, with options such as “In Use,” “Available,” “Not Available,” and “Needs Maintenance.”
3. Requested resources must be clearly visible on my dashboard.
4. An option should be available to label each requested item as “Set Up” or “Not Available.”
5. A notification should be sent one hour before the meeting start time to confirm that all the requested equipment has been installed in the meeting room.
6. A confirmation message should be sent to the meeting initiator once the equipment setup is complete.
7. A notification should be sent after the meeting ends to retrieve the equipment.
8. All items labeled as “Not Available” should be listed, allowing me to review and submit them for purchase if necessary.

### (2) participant

As a participant, I want to choose preferred and excluded meeting dates and request specific equipment so that the meeting is scheduled at a convenient time and fully prepared with the resources I need.

#### Acceptance Criteria

1. I can enter my preferred and excluded dates for meetings.
2. I can specify the equipment I need for the meeting (e.g., projector, microphone).
3. Real-time availability of the requested equipment is displayed.
4. For each selected date, show any conflicts, specifying reasons (e.g., room unavailability, date conflicts, weekends, holidays).
5. I receive confirmation with the final date, time, and room location for the meeting.
6. A reminder is sent one hour before the meeting.

7. Request a meeting from the initiator to start scheduling the meeting.

### (3) Initiator

As an initiator, I want to schedule meetings with all necessary details and equipment requests, so that the meeting runs smoothly, and participants have all required resources.

#### Acceptance Criteria:

1. Specified date range for the meeting within a start and end date by the initiator.
2. The system must allow the collection of participants' exclusion (unavailable dates) and preferred dates within the specified date range.
3. I request participants' equipment needs and location preferences.
4. Suggest an optimal date and location that avoids unavoidable dates, aligns with as many preferences as possible, and meets equipment requirements.
5. A notification should be sent if any conflicts arise, allowing adjustments to the date range and preferences.
6. Confirm room availability and suggest alternatives if needed to meet requirements.
7. I can modify meeting details (date, time, location) if external constraints arise, with automatic participant notifications.

## III. Use case: Event Decomposition Technique

### 1. Event-decomposition technique

#### External events to look for include:

- ✓ External actor wants to provide equipment resulting in a transaction
  - **Use Case:** *Provide Meeting Equipment*
  - **Description:** Technicians ensure the requested equipment is provided as soon as the meeting is scheduled.
- ✓ External actor wants to request to schedule a meeting
  - Use Case: request meeting
  - Description: participants request from the initiator to initiate and to start scheduling a meeting
- ✓ External actor wants to update equipment status
  - **Use Case:** *Update Equipment Status*
  - **Description:** Technicians update the status of equipment to "In Use," "Available," "Needs Maintenance," or "Not Available."
- ✓ External actors want to specify a date range
  - **Use Case:** *Specify Meeting Date Range*
  - **Description:** The initiator defines a date range for the meeting, and the system ensures all participant preferences fall within this range.

- ✓ External actor wants to submit preferred/excluded dates
  - o **Use Case:** *Submit Availability*
  - o **Description:** Participants submit their available and excluded dates within the specified range.
- ✓ External actor wants to modify meeting details
  - o **Use Case:** *Modify Meeting Details*
  - o **Description:** The initiator updates the meeting date, time, or location due to external constraints. The system automatically notifies participants of changes.
- ✓ External actor wants to Request Equipment
  - o **Use Case:** *Request Equipment*
  - o **Description:** Participants request specific equipment (e.g., projector, microphone) to be available during the meeting.

## Temporal events to look for include:

- ✓ Internal output needed
  - Management report needed - Equipment availability summary for upcoming meetings.
    - o **Use Case:** *Generate Equipment Availability Report*
    - o **Trigger Point:** Technician generates a scheduled report that provides an overview of equipment availability for upcoming meetings.
  - Equipment Setup Time Approaches
    - o **Use Case:** *Send Pre-Meeting Equipment Setup Notification*
    - o **Trigger Point:** initiator sends reminder to technicians to set up the location before the meeting (e.g., two hours prior).
- ✓ External output needed
  - Confirmation reminder
    - o **Use Case:** *Send Confirmation Reminder*
    - o **Trigger Point:** technician Send one hour before the meeting to confirm all requested equipment is set up.
  - Deadline reminder for participant availability submission
    - o **Use Case:** *Notify Availability Submission Deadline*
    - o **Trigger Point:** Initiator sends reminder participants a few hours before the submission deadline.
  - Meeting Ends
    - o **Use Case:** *End Meeting*
    - o **Trigger Point:** Initiator sends message when the meeting concludes.
  - Scheduled Meeting Time Approaches
    - o **Use Case:** *Send Meeting Reminder*
    - o **Trigger Point:** Initiator Sends one hour before the scheduled meeting time as a final reminder to all participants.

- Review Deadline for Not Available Items
  - **Use Case:** *Review Not Available Items*
  - **Trigger Point:** At the end of each day, technicians review equipment marked as "Not Available" to submit for purchase if needed

## State events to look for include:

- ✓ Notification if any conflicts arise
  - **Use Case:** *Detect and Notify Conflicts*
  - **State Change:** initiator detects a conflict in room availability, or equipment, transitioning to a state where conflict resolution is necessary.
- ✓ Meeting Confirmation Status Changes
  - **Use Case:** *Confirm Meeting Status*
  - **State Change:** The initiator changes the transition from an "unscheduled" state to a "scheduled" state when the initiator provides all necessary details.
- ✓ Room availability confirmation
  - **Use Case:** *Confirm Room Reservation*
  - **State Change:** The Initiator checks and confirms room reservations and suggests alternatives if needed
- ✓ Meeting confirmation notification
  - **Use Case:** *Send Confirmation Notification*
  - **Description:** The initiator sends notification to participants to confirm meeting details, equipment status, and location.

## 2. List of events categorized

Use Case	Event Type	User
Provide Meeting Equipment	External	Technician
Update Equipment Status	External	Technician
Send Confirmation Notification	state	Initiator
Specify Meeting Date Range	External	Initiator
Submit Availability	External	Participant
Modify Meeting Details	External	Initiator
Request Equipment	External	Initiator, Participant
Generate Equipment Availability Report	Temporal	Technician
Send Confirmation Reminder	Temporal	Technician
Notify Availability Submission Deadline	Temporal	Initiator

Send Meeting Reminder	Temporal	Initiator
Review Not Available Items	Temporal	Technician
End Meeting	Temporal	Initiator
Pre-Meeting Equipment Setup Notification	Temporal	initiator
Detect and Notify Conflicts		initiator
	State	
Confirm Meeting Status	State	Initiator
	State	Initiator
Confirm Room Reservation		

### 3. Brief use case description

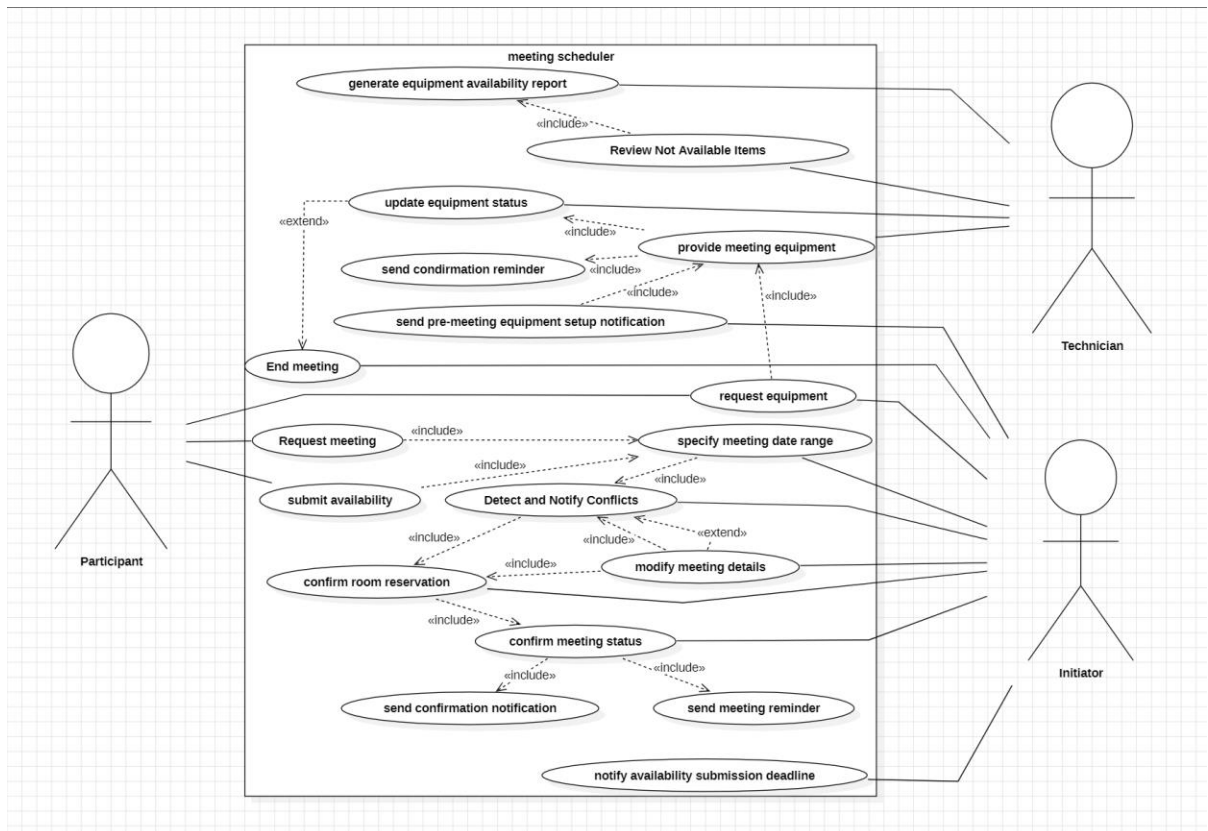
Use Case	Brief Description
Provide Meeting Equipment	The actor/user arranges and provides all requested equipment for the meeting to ensure the room is fully prepared.
Update Equipment Status	Actor/user updates the real time status of each piece of equipment ("in use", "available", "not available", "need maintenance" .
Send confirmation notification	System sends a confirmation notification to actor/user with finalized meeting details including date, time, location and equipment
Specify Meeting Date Range	Actor/user sets date range within which the meeting can occur, guiding the scheduling system to propose suitable dates
Submit Availability	

	Actor/user submit their preferred and excluded dates to assist in selecting the optimal meeting time.
Modify Meeting Details	Actor/user modifies details of the meeting (such as date, time, location), and the system notifies all relevant parties of the changes
Request Equipment	Actor/user specifies equipment requirements (e.g., projector, microphone) for the meeting, and the system verifies availability.
Generate Equipment Availability Report	The system generates a report summarizing the availability status of equipment for upcoming meetings, allowing technicians to plan.
Send Pre-Meeting Setup Reminder	System sends a reminder to technicians to set up requested equipment before the meeting starts
Send Confirmation Reminder	The system sends a final confirmation reminder to technicians an hour before the meeting, verifying that all equipment is set up.
Notify Availability Submission Deadline	System sends a reminder to participants to submit their availability before the specified deadline.
Send Meeting Reminder	The system sends a reminder to participants and technicians an hour before the meeting begins, confirming all meeting details.
Review Not Available Items	Actor/user receives a daily prompt to review and address any equipment marked as “Not Available” by submitting maintenance or purchase requests if necessary.

End Meeting	System triggers when a scheduled meeting reaches its end time. The system logs the meeting as completed and updates its status, concluding any associated scheduling or tracking activities.
Send Pre-Meeting Equipment Setup Notification	System reminds technicians of the upcoming setup time to ensure equipment is prepared before the meeting.
Detect and Notify Conflicts	System identifies and alerts the actor/user about any conflicts in scheduling or equipment availability, prompting conflict resolution.
Confirm Meeting Status	The system changes the meeting status from “Unscheduled” to “Scheduled” once all details are confirmed.
Confirm Room Reservation	The system marks room as “Reserved” once availability is confirmed and booked for the selected date and time.

#### 4. Use case diagram





- Nouns extracted from (use cases, user stories, and idea): and their notes
- **Meeting:** Yes, the central entity for scheduling. Include.
- **Participant:** Yes, represents attendees of the meeting. Include.
- **Initiator:** Role of Participant who schedules meetings. Track role in Participant class.
- **Technician:** Role responsible for managing equipment. Track role in Participant class.
- **Equipment:** Yes, necessary to track availability and usage. Include.
- **Room:** Yes, represents physical location. Include.
- **Availability** (Preferred and Excluded Dates): Yes, needed to track preferred and excluded dates. Include.
- **Notification:** Output resulting from scheduling. Not stored.
- **Reminder:** Output sent to participants. Not stored.
- **Conflict:** Represents schedule or equipment conflicts. Include.
- **Report:** An output summarizing meetings or equipment status. Not stored.