**Workforce Management   
Timesheet Management – Product Requirements Document (PRD)**

# 1. Executive Summary

This document defines a Workforce Management module with a deep focus on Timesheet Management. The goal is to deliver a robust, auditable, mobile‑friendly solution with multi‑level internal/external approvals, Azure File Share–backed attachments (PDF/JPG/PNG), and finance exports to payroll/invoicing systems.

# 2. Goals & Non‑Goals

## 2.1 Goals

• User logs in-app and SQL table.

• Employee self‑service timesheet entry (web + mobile parity).

• Attachments: upload and store timesheet proofs (PDF/JPG/PNG) in Azure File Share.

• Configurable time periods (weekly default) and multi‑level (internal/external) approvals.

• Automated notifications (submit, approval, rejection, overdue reminders, escalation).

• Finance export (e.g., to payroll, invoice) after final approval.

• Role‑based access control using Entra ID/Azure AD.

• Audit trail for compliance (who changed what, when) (Optional)

## 2.2 Non‑Goals (Phase 1)

• Full payroll generation within the app (we only export).

• Complex union rules and advanced rate arbitration beyond standard OT/holiday rate rules.

• Offline data capture (future enhancement).

# 3. Personas & Roles

**Employee/Consultant:** Creates and submits timesheets; uploads attachments; fixes rejections; views history.

**Client Approver:** External manager who approves/rejects timesheets.(Optional)

**Internal Manager:** Internal staffing manager; may be level‑1 approver and/or backup.

**Finance/AP:** Reconciles approved timesheets; triggers export to payroll/invoicing.

**Admin:** Configures periods, approval chains, policies, reminders; manages tenants and users.

# 4. Scope Overview (Modules)

• Timesheets (core): periods, entries, attachments, submit/approve/reject/resubmit.

• Approvals: multi‑level, internal/external flows, comments, audit trail.

• Reminders & Escalations: due soon, overdue, returned, escalation to admin.

• Finance Export: push approved hours to payroll/invoicing; track export status.

• Admin: configure approval matrices, schedules, policies (rounding, caps, file limits).

• Reporting: utilization, overtime, approvals aging, export history.

# 5. Detailed Use Cases

## 5.1 Timesheet Submission (Web – Happy Path)

• User logs in-app and SQL table.

• Home → Timesheets dashboard shows: Current Week, Pending, Rejected (Needs Action), Overdue.

• User clicks “Submit Timesheet” for the current week.

• Timesheet Editor loads a 7‑day grid (Mon–Sun) with fields per day: Regular Hours, Overtime Hours, Break Minutes, Notes, optional Task/Activity.

• Inline validation (e.g., maximum/day, weekly cap, required breaks, OT eligibility).

• User clicks “Upload Proof” to attach a PDF/JPG/PNG. Thumbnails for images; icon for PDFs. Remove/replace allowed.

• User clicks “Submit”. Confirm dialog displays period, total hours, attached files, and optional comment. User confirms.

• System persists timesheet and entries to DB, uploads files to Azure File Share, creates approval level 1, and sends an email to L1 approver with a deep link.

• Timesheet status becomes Submitted → UnderReview(L1).

## 5.2 Attachments (Proof of Work)

• Accepted types: PDF, JPG, PNG.

• Per‑file size limit (e.g., 10 MB) and total attachment cap per timesheet (e.g., 20 MB).

• Virus scan; file name normalization; metadata stored in DB (name, content type, size, storage path).

• Azure File Share path convention: /company/timesheets/{year}/{employeeId}/{timesheetId}/{fileName}.

• Download via short‑lived SAS URL; server‑side checks for authorization.

## 5.3 Approvals (Multi‑Level, Internal/External)

• Admin configures approval chain (e.g., L1 Internal Manager → L2 Client Approver).

• L1 approver receives email; clicks deep link to Approver view (read‑only grid + attachments).

• L1 chooses Approve or Reject with optional comment; on Approve, system advances to next level; on Reject, status becomes Rejected and an email is sent to the employee.

• Final approval marks the timesheet Approved and notifies Finance.

## 5.4 Reminders & Escalations

• Due Soon: notify employees 24 hours before the period ends.

• Overdue: notify D+1 and D+3; escalate to Admin on D+5.

• Returned (Rejected): notify employee with approver comments; quick “Fix & Resubmit” link.

## 5.5 Resubmission After Rejection

• Employee opens rejected timesheet; a banner shows rejection comments.

• Employee edits entries and/or attachments and resubmits.

• Workflow restarts from the first pending level or from L1 per policy.

## 5.6 Finance Export(Optional)

• Finance queue lists all Approved timesheets by period, client, assignment.

• Finance triggers export to payroll/invoicing (e.g., QuickBooks connector).

• System marks timesheet as SentToFinance → Exported/Posted and records export batch id.

# 6. UI / UX Flows (Screen‑by‑Screen)

## 6.1 Timesheets Home

• Cards: Current Week, Pending Approvals, Rejected (Needs Action), Overdue.

• Filters: Assignment, Client, Period, Status.

• CTA buttons: Submit Timesheet, View History.

## 6.2 Timesheet Editor

• Header: Employee, Assignment, Period, Status, Total Hours.

• Grid: 7 columns (Mon–Sun) × rows (Reg, OT, Breaks, Notes).

• Side panel: Activity/Task pickers, Cost center; read‑only rate card.

• Footer: Totals, validation hints, save draft button.

• Actions: Save Draft, Upload Proof, Submit.

## 6.3 Approver View

• Read‑only timesheet grid, attachments preview/download.

• Decision panel: Approve, Reject (with comment).

• Timeline of approval levels with timestamps and actors.

## 6.4 Finance Queue

• Filters: Client, Period, Approval Date.

• Bulk actions: Export Selected, Mark Exported.

• Audit: export batch id, export time, user.

# 7. Data Model (Key Entities)

SQL Schema for Tables:

**Identity**

* IdentityID (PK, Auto)(int)
* Role (Emp, Admin, Others) (Varchar(10))

**Employee**

* EmployeeID (PK, Auto)(int)
* CompanyName (Varchar(50))
* FirstName (Varchar(50))
* MiddleName (Varchar(50))
* LastName (Varchar(50))
* Email (Unique) (Varchar(100))
* PasswordHash (Varchar(50))
* FirstTimeFlag (bit)
* IdentityID (FK → Identity.IdentityID) (int)
* Status(Varchar(50))
* VendorID(FK → Vendor.VendorID)(int, NOT NULL)

Vendor

* VendorID(Auto, Int )
* EmployeeID (FK → Employee.EmployeeID)(int, NOT NULL)
* VendorName (Varchar(50))
* RatePerHour DECIMAL(5,2) NOT NULL

**MasterTimeSheet**

* IndexID (PK, Auto) (int)
* FileName (GUID) (Varchar(50))
* StorageAccount (Varchar(50))
* EmployeeID (FK → Employee.EmployeeID)(int, NOT NULL)
* FromDate (Datetime, Notnull)
* ToDate (Datetime, Notnull)
* TotalHoursWorked DECIMAL(5,2) NOT NULL
* CreationDate (Datetime, Notnull)
* VendorID(FK → Vendor.VendorID)(int, NOT NULL)
* RatePerHour DECIMAL(5,2) NOT NULL
* ModifiedDate (Datetime, Notnull)
* ApprovalL1 (bit)
* ApprovalL2 (bit)
* Comments(Varchar(500))

**EveryDayTimesheet**

* TimesheetID(PK, Auto) (int)
* EmployeeID (FK → Employee.EmployeeID) (int , NOT NULL)
* Date (Datetime, Notnull)
* HoursWorked DECIMAL(5,2) NOT NULL

# 8. API Design (REST, JSON)

Refer API document shared.

# 9. Azure Architecture

## 9.1 Components

• API: ASP.NET Core (.NET 8) on Azure App Service; EF Core on Azure SQL.

• Storage: Azure File Share for attachments

• Workflow: Azure Durable Functions or Logic Apps for approvals & reminders.

• Email: Office 365/Graph or SendGrid connector.

• Monitoring: Application Insights + Log Analytics; dashboards and alerts.

## 9.2 Resources MUST‑HAVE

• App Service Plan: Linux or Windows (e.g., B1/S1 for dev, P1v3 for prod). Name: asp-<env>-<region>-01

• Web App (App Service): Hosts API/UI (.NET 8). Enable HTTPS only, SCM site protected. Name: app-timesheet-<env>-<region>-01

• Azure SQL (Logical Server + Database): SQL logical server + Azure SQL DB. Name: sql-<env>-<region>-01, sqldb-timesheet-<env>

• Storage Account: For Azure File Share attachments. Standard GPv2. Name: st<env><region>timesheet

• Azure File Share: Share name: timesheets; folder path: /company/timesheets/{year}/{employeeId}/{indexId}/

• Azure DevOps Project: Boards (work items), Repos, Pipelines, Service Connections (OIDC), Variable Groups.

• VNet Integration + Private Endpoints: Private endpoints for SQL and Storage; Private DNS zones linked to VNet.

• Durable Functions or Logic Apps: Orchestrate approval flows, reminders, email send.

## 9.3 Storage Strategy

• Azure SQL for normalized relational data (Timesheets, Entries, Approvals, Attachments metadata).

• Azure File Share for attachments: /companytimesheets/{year}/{employeeId}/{timesheetId}/{fileName}.

• SAS URLs for secure time‑bound downloads

## 9.4 Workflow Orchestration (Durable Functions)

• On Submitted event → orchestrator sends L1 email → waits for decision callback.

• Approve → next level or finalize; Reject → notify employee; Resubmit → restart flow.

• Reminders: scheduled activities for due soon/overdue; escalation on thresholds.

# 10. Validation & Business Rules

• File types: pdf, jpg, png; per‑file ≤ 10 MB; total ≤ 20 MB per timesheet (configurable).

• Hours: 0–24/day; weekly cap (configurable); OT after 40 hrs/week; rounding to 0.25h (configurable).

• Breaks: non‑negative; cannot exceed daily hours.

• Periods: cannot submit future periods; cannot resubmit approved without reopen.

• Assignments: entries must fall within assignment start/end.

• Comments required on reject; optional on submit/approve; all actions audited.

# 11. Error Handling & Edge Cases

• Duplicate submissions for same period: detect and prevent; suggest ‘Edit existing’.

• Missing attachments when required by policy: block submit with clear error.

• External approver email bounces: DLQ the event, notify Admin, allow reassignment.

• Large uploads: use chunked/resumable upload; show progress and retry on failure.

# 12. Auditing & Compliance

All changes to timesheets, entries, approvals, and exports record actor, timestamp, old→new values where applicable. Export immutable audit logs to Log Analytics and set retention policies (e.g., 7 years).

# 13. Implementation Plan (Epics → Stories)

• Epic 1 – Timesheet Core: schema, CRUD, validations, attachments to File Share.

• Epic 2 – Approvals: Service Bus events; Durable orchestration; decision endpoints; emails.

• Epic 3 – Finance Export: export models; QuickBooks connector abstraction; audit.

• Epic 4 – ESS Portal: employee dashboard; mobile‑friendly pages.

• Epic 5 – Admin & Analytics: approval matrices, policies, reports.

• Exact rounding and overtime policies per client/region?

• Number of approval levels maximum; can they be dynamic per assignment?

• Preferred accounting system(s) for export in Phase 1?

# 18. Appendix: Email Templates

Approval Request (Level 1) – Subject

Timesheet {PeriodStart}–{PeriodEnd} from {Employee} awaiting your approval

Approval Request (Level 1) – Body

Period: {PeriodStart}–{PeriodEnd}  
Total Hours: {TotalHours}  
Attachments: {AttachmentList}  
  
Approve: {ApproveDeepLink}  
Reject: {RejectDeepLink}  
  
If the buttons don’t work, copy and paste the links into your browser.

Rejection Notice – Subject

Your timesheet was rejected: {PeriodStart}–{PeriodEnd}

Rejection Notice – Body

Reason: {ApproverComment}  
  
Please fix and resubmit your timesheet: {ResubmitLink}