Terms of Reference (ToR)

Lite Manufacturing Execution System (MES) Implementation

1. Background and Objectives

The MENATEX Jordan Phase II project is part of a regional initiative implemented by the International Trade Centre (ITC) and funded by the Swedish International Development Cooperation Agency (Sida) and the Spanish Agency for International Development Cooperation (AECID). Building on the achievements of Phase I, this second phase focuses on strengthening the competitiveness, sustainability, and resilience of Jordan's textiles and clothing (T&C) sector.

The T&C sector remains a key contributor to Jordan's economy, playing a pivotal role in exports and employment. However, in the context of rapidly evolving global markets, the sector must adapt to advanced technologies, and integrate sustainable production methods to remain competitive.

MENATEX Jordan Phase II addresses these challenges by providing targeted technical assistance to enterprises and reinforcing institutional support systems. By promoting innovation, sustainability, and digital transformation, the project aims to position Jordanian enterprises to meet the demands of international markets while fostering job creation and inclusive economic growth. Special emphasis is placed on aligning the sector with global standards in circularity, environmental responsibility, and inclusivity.

As part of this effort, MENATEX — in collaboration with the Information and Communications Technology Association of Jordan (Intaj) — will implement a **Lite Manufacturing Execution System (MES) solution** for selected Jordanian enterprises. MES platforms are essential for enabling visibility, control, and optimization of manufacturing operations. Unlike Enterprise Resource Planning (ERP) systems, which manage business-level functions such as finance, procurement, and sales, MES focuses on real-time production management at the shop floor, tracking, controlling, and improving manufacturing processes.

The Lite MES solution will be provided free of charge to selected Micro, Small, and Medium Enterprises (MSMEs) in the textiles, clothing, and small to medium-scale manufacturing industries (e.g., garments, consumer goods, assembly lines). The objective is to improve production visibility, enhance traceability, and support data-driven decision-making, ensuring that Jordanian enterprises are better equipped to compete in global markets.

The primary goals are to:

- Digitalize the production process through workflow-based job tracking.

- Enable real-time data capture and visibility of shop floor operations.

- Facilitate performance reporting and analytics for better decision-making.

2. Scope of Work

The selected vendor will be responsible for the design, development, testing, deployment, and ongoing maintenance of a Lite Manufacturing Execution System (MES) platform that meets the functional requirements outlined in this ToR. The system must be modular, scalable, and secure, and it should be developed using industry-standard technologies that ensure reliability, interoperability, and long-term sustainability.

Vendors may propose one of the following delivery models:

- A custom-built solution developed specifically for this project.

- A Software-as-a-Service (SaaS) platform configured to meet the project requirements.

Deployment options should include on-premises, private cloud, or public cloud environments, with the flexibility to adapt to the IT infrastructure and data governance policies of the beneficiary enterprises. The proposed solution must also support hybrid deployments, allow for future system integration (e.g., ERP, IoT, machine connectivity), and adhere to cybersecurity best practices and open standards to avoid vendor lock-in.

2.1 Production Workflow Builder

- No-code interface for creating and editing multi-step production workflows.

- Configure for each step:

    o Cycle time and standard time.

    o Required resources and qualifications.

    o Input and output materials.

    o Step-specific quality checklists (digital forms).

- Support for parallel and sequential processes**.**

2.2 Resource Assignment and Job Order Management

- Capability to create and assign job orders to:

    o Operators (human resources).

    o Machines or workstations.

- Support forward and backward scheduling logic.

- Visual production schedule (Gantt view) with drag-and-drop adjustments.

- Real-time resource availability indicators.

2.3 Operator Workstation Interface

Each resource shall have access to a workstation interface enabling:

- Operator login via secure ID or barcode scan. Job selection and status updates::

    o Start, Pause (with pause reasons), Complete.

- Machine interaction tracking:

    o Start/stop with reason of downtime.

- Material handling:

    o Barcode-based check-in/check-out.

    o Record quantities (good/defective).
        ▪ Check-out material and update status.

- Production reporting:

    o Quantity produced per step.

    o Rejection count with rejection reasons.

- Step-level production reporting.

2.4 Quality Management

- Configurable quality checklists linked to any production step.
- Digital QA forms with mandatory/conditional checks.
- Optional approval workflows for high-risk steps.
- Automatic rejection reporting with root cause logging.

2.5 Barcode Integration

- Barcode scanning for:

    o Operator login.

    o Material check-in/check-out.

    o Job order verification.

- Label printing for:

    o Materials.
    o Semi-finished/finished goods.
    o Production steps.

2.6 Performance Monitoring Dashboards

- Real-time tracking dashboard for each job order:

- Job order progress and step status.
- Resource utilization.
- KPIs & Dashboards for:

  o Overall Equipment Effectiveness (OEE) per machine/operator.

  o Overall Labor Effectiveness (OLE) per operator/team.

- Trend analytics and historical data views

- Exportable reports (Excel, PDF).

2.7 Master Data Management

The system shall allow configuration and management of the following master data entities:

- Machines: name, asset type (e.g., CNC, oven), qualifications required.

- Personnel: name, position, department, skill/qualification tags.

- Customers: customer name, contact details, product linkages.

- Inventory Items: raw materials, semi-finished and finished goods, units of measure, traceability codes.

- Bill of Materials (BOM): multi-level structure with component quantity, step association, and loss factors if applicable.

- Workstations: mapping between machines and operators.

2.8 Integration & Extensibility

- API-based integration with ERP systems (if applicable).

- Capability for future IoT/machine connectivity.

Compliance with **open standards** to avoid vendor lock-in.

3. Deliverables

The vendor will provide:

1. **Lite MES Software** meeting all functional requirements.

2. **Admin Panel** for configuration and user management.

3. **Training Sessions**:

   o Operators.

   o Supervisors.

   o IT/Admin teams.

4. **Documentation**:

   o User Manual.

   o Administrator Manual.

   o API/Integration Guide.

5. **Go-Live Support**:

   o On-site/remote assistance during initial launch.

   o Immediate resolution of critical issues.

6. **Warranty & Support**:

   o Minimum 24-month warranty for bug fixes.

   o Post-warranty maintenance contract for at least 2 more years.

4. Vendor Qualifications

Vendors must demonstrate:

- Proven experience in MES/Manufacturing system development.

- Minimum 3 successful implementations in manufacturing environments.

- Familiarity with manufacturing workflows in MSMEs.

- Strong after-sales support capabilities.

- Compliance with relevant data protection and cybersecurity standards.

5. Proposal Submission Requirements

Vendors must submit:

- **Technical Proposal**:
  - Detailed system architecture.
  - Technology stack.
  - Implementation methodology.
  - Training plan.
  - Maintenance approach.

- **Financial Proposal**:
  - Itemized cost breakdown (software, customization, training, support).

- **Timeline**:
  - Development, testing, deployment, and training schedule.

- **References**:
  - At least 2 client references for similar work.

6. Evaluation Criteria

- Technical approach & methodology – **30%**.
- Vendor experience & qualifications – **20%**.
- System functionality & compliance – **25%**.
- Cost – **15%**.
- Implementation timeline – **10%**.

7. Project Timeline

- RFP Release: **August 24, 2025**
- Vendor Questions Deadline: **September 3, 2025**
- Proposal Submission Deadline: **September 21, 2025 12:00pm Amman time**
- Evaluation & Award: October 2025
- Project Kick-off: November 2025
- Go-Live Target: Q1 2026

Please send your questions and interest to info@intaj.net with "**Lite EMS Project**" in the subject line