附件四 - Technical Requirement for Development of a Plastic Product Manufacturing and Business Collaboration Platform

**(Reference: DG00010)**

Part 1- Project Requirement

1. Project Requirement

The main objective of this project is to develop a manufacturing and business resource collaboration management platform for the client of Productivity (Dongguan) Consulting Co., Ltd. (hereinafter referred to as DGWFOE). The platform will cover the entire process of plastic product production. Through system integration and data connectivity, the platform will digitize, visualize, and make traceable the business processes, thereby enhancing the company’s data governance capabilities, production collaboration efficiency, and decision-making responsiveness, and comprehensively improving the enterprise’s digital operation level and core competitiveness.

DGWFOE is currently seeking qualified suppliers who have experience in developing digital management systems and are capable of completing the design and implementation of the production and business collaboration platform according to DGWFOE's design plan.

The major duties of the supplier should provide the detailed design of the platform’s blueprint, layout, platform development, remote software installation, completion of the user acceptance test, after-sales service, and training. And the actual utilization and acceptance of DGWFOE is the final confirmation of receipt.

DGWFOE will sign the project contract with the final selected supplier, who will implement the design and manufacture in accordance with the following specifications and performance requirements and terms. The supplier shall be responsible to DGWFOE for the items stipulated in this functional specification and requirement document, and undertake all relevant technical and legal responsibilities. If there are any problems related to technology, quality, construction period, etc. in the project, which cause any losses to DGWFOE, the supplier shall be liable for compensation and all other legal responsibilities to DGWFOE.

**Part 2- Project Main Content**

1. Project Scope

The service scope of this project is the user's factory located in Dongguan, Guangdong.

The supplier needs to develop the Plastic Product Manufacturing and Business Collaboration Platform based on the required design specification of DGWFOE. Also, the implemented system needs to fulfil the functional requirements requested by the user.

The platform will include two core modules: production and business.

The business resource collaboration management module integrates key business processes such as sales, procurement, inventory, production planning, and finance, enabling unified resource planning and efficient collaboration, and improving inter-departmental operational efficiency and data consistency.

The production management module covers production scheduling, process monitoring, process control, quality management, and equipment data collection, enabling digital execution and real-time control of the entire production process.

1. Platform Design Requirement

The main software and hardware components of the platform include:

|  |  |
| --- | --- |
| A. Software | |
| A1 | Business resource collaboration management software |
| A2 | Production management software |
| B. Hardware | |
| B1 | Industrial control terminals |
| B2 | Sever |

The specification requirement of each component is elaborated as follows.

1. Software Specification Requirement

i. The user interface language of the platform should be Simplified Chinese.

ii. The user interface design should be confirmed during the blueprint discussion phase. The supplier may provide a sample user interface in the proposal for reference.

iii. The developed platform should be remotely installed on the server provided for this platform development with configuration as stated in Section B2 as below.

iv. The intellectual property of the platform developed for this project is owned by HKPC.

v. Source code of the software shall be provided to DGWFOE/HKPC.

vi. The platform should include the following modules and functions:

A1 – Business Resource Collaboration Management Software

| **No.** | **Category** | **Function Name** | **Description** |
| --- | --- | --- | --- |
| 1 | Base Module | Permission Management | User account management and role-based permission configuration. |
| 2 | System Management | Provides basic system configuration functions, including personnel data management, account settings, and system backup. |
| 3 | Finance | General Ledger | Provides professional and intelligent financial accounting processes, supporting auxiliary combination accounting. Includes intelligent electronic archiving services. |
| 4 | T-Reports | Supports multiple accounting systems, and comes with the latest standard financial reports such as balance sheets, profit and loss statements, and cash flow statements. Supports custom report templates and formulas. |
| 5 | Accounts Receivable Management | Manages two types of accounts receivable: sales and others. Based on original documents such as sales invoices, other receivables, and payment receipts, it includes functions for accounts receivable confirmation, due payment, payment write-off, and end-of-period processing. Various analytical reports such as aging analysis, detailed ledger, and customer balance statements are provided. |
| 6 | Accounts Payable Management | Manages two types of accounts payable: procurement and others. Based on original documents such as procurement invoices, other payables, and payment slips, it includes functions for accounts payable confirmation, due payment, payment write-off, and end-of-period processing. Various analytical reports such as detailed ledger and supplier balance statements are provided. |
| 7 | Supply Chain | Procurement Management | Manages material supply and procurement business processes in a standardized manner, including procurement requests, procurement orders, arrival and inventory, invoice management, procurement settlement, and management of pricing and supplier information. |
| 8 | Sales Management | A comprehensive sales management system that integrates price and discount management, sales orders, order management, warehouse shipment, sales invoicing, sales returns, and credit limit management. |
| 9 | Warehouse Management | By timely and accurate processing of complete inventory operations (receipt, issue, transfer, stocktaking, and adjustment), and by statistical and analytical processing of inventory data, the system will help the company comprehensively and in real-time monitor inventory levels, flows, and turnover at the main site and all branch units, and provide accurate and effective support for business operations, financial accounting, and decision-making. |
| 10 | Inventory Costing | Manages inventory in/out operations from a cost perspective. Based on data such as procurement receipt orders, finished product receipt orders, transfer receipt orders, other receipt orders, sales delivery orders, material delivery orders, transfer delivery orders, and other delivery orders, it performs financial processing of provisional procurement estimates and inventory cost adjustments, and accurately calculates the cost of receipt, issue, and remaining inventory for each transaction. |
| 11 | Production | Production Management | Ability to issue production orders based on sales orders; perform procurement requirement analysis based on sales orders and production work orders, taking inventory availability into account; issue and receive materials based on production work orders; query production details, statistics, execution, and tracking reports. |

A2 – Production Management Software

| **No.** | **Category** | **Function Name** | **Description** |
| --- | --- | --- | --- |
| 12 | Base Module | Permission Management | User, user roles, and permission settings; |
| 13 | Base Data | Input machine data, shift schedules, personnel, downtime items, mold information, and product information into the system. |
| 14 | Production Scheduling | Automatic Scheduling | Based on configured parameters, production calendar, work orders, products, molds, and machines, the system will automatically assign suitable machines for preliminary scheduling using conditions such as mold-compatible machines, historical production records, tonnage matching, and machine matching. It will then automatically generate a production schedule based on the preliminary results. |
| 15 | Work Order Data Import | Import work order data into the system, select the corresponding machine, and generate a production scheduling distribution chart based on production capacity. |
| 16 | Terminal Functions | Progress Management | Automatically download production scheduling plans, automatically or manually switch work orders, automatically collect machine signals online, and automatically and in real-time track work order progress. |
| 17 | Defect Management | Manually input defective products based on actual production conditions; statistically track defect rate in real-time; automatically generate defect reports in the backend. |
| 18 | Shift Management | Employee check-in and check-out at the machine is recorded in the system; manage employee shift times; log employee shift records. |
| 19 | Production Reporting | Actual production data is reported at the machine side based on actual output. |
| 20 | Downtime Management | Automatically collect machine status, downtime duration, downtime reasons, and confirm personnel online; automatically generate machine utilization rate; automatically generate downtime analysis reports; log reports. |
| 21 | E-SOP | E-SOP | Upload, display, and view SOP, SIP, and WIP in PDF format. |
| 22 | Staff | Staff Management | Input personnel information, scan and upload training records, and display qualification information. |
| 23 | Integrated Management | Alert Management | Automatically push alerts for situations such as downtime, excessive defect rates, and low efficiency to the enterprise WeChat; backend records of alert reports. |
| 24 | Integrated Data Center | Centralized dashboard to display overall workshop production information. |
| 25 | Remote Monitoring | View machine status and real-time order progress remotely via mobile phone. |
| 26 | Dashboards | Machine status dashboard, scheduling progress dashboard, real-time data dashboard. |
| 27 | Integrated Management | Management Reports | Machine utilization rate, OEE, daily, weekly, and monthly progress reports, log reports, defect reports, and downtime reports. |
| 28 | Data Integration | Integration with Business Resource Module | Write and extract data interfaces for the enterprise business resource module. |
| 29 | Mold Production Management | Mold Production Management | Record the start and completion time points of mold production. |

**B. Hardware Specification Requirement**

B1 – Industrial Control Terminals

* Quantity required: 60 units
* The terminals should have an installed operating system, which should be Windows 10 or higher.
* Should be equipped with resistive or capacitive touch screen, with a screen size of not less than 15 inches.
* Screen resolution should be 800×600/60Hz or higher.
* RAM should be 4GB or higher.
* CPU should be quad-core 1.99GHz or higher.
* Hard drive should be MSATA 64GB SSD or higher.
* Supports wall mount bracket and has built-in WIFI.

B2 – Server

* Quantity required: 1 unit
* Processor: Intel Xeon Gold 4416, 20-core 2.0GHz or higher
* RAM: 2 x 32GB (total 64GB) or higher
* Storage: 8TB hard drive or higher
* Data storage configuration: RAID 5 + Hot Spare Drive
* Power supply: 2 x 800W redundant power supplies
* Network interface: Dual-port 10GbE network card
* Backplane interface: 12-port backplane
* Operating system: CentOS-7.6-HIK-r5-patch3 (Core)

Part 3- Project Deliverables

1. Software and Hardware Deliverables

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Item** | **Description** | **Unit** | **Quantity** |
| **A. Software** | | | | |
| A1 | Business resource collaboration management software | Digital management system | system | 1 |
| A2 | Production management software | Digital management system | system | 1 |
| **B. Hardware** | | | | |
| B1 | Industrial control terminals | Data Collection Devices | set | 60 |
| B2 | Server | Software Support | set | 1 |

1. Overall operation performance of the Plastic Product Manufacturing and Business Collaboration Platform

The overall operational performance of the provided platform must fulfil the functional requirements listed in Part 2&3.

It would be appropriate if the supplier could provide preliminary simulation data to support the operational performance of their proposed platform (if applicable).

1. Project Schedule

Project start date: Upon Purchase order issued

Project completion date: Expected delivery date: 31 August 2026

Warranty: 1 Year warranty after User Acceptance Test (UAT)

The supplier is requested to provide a detailed working plan within two weeks after issuing the PO.

Part 4- Equipment delivery, remote software installation and maintenance

1. Equipment Delivery and Remote Software Installation Schedule
2. The supplier needs to be responsible for the delivery of the required hardware to the designated location: Dongguan, China
3. The onsite installation of the platform hardware will be responsible by the platform end user’s engineering team. The supplier needs to provide an installation guideline document to the end user before the hardware shipment.
4. The supplier is responsible for the remote installation and testing of the developed platform software on the dedicated server.
5. Acceptance Criteria
6. All requirements of the conditions listed above must be fulfilled;
7. There is no obvious visible damage to the appearance of all required equipment, the overall structure is stable and it is convenient for relocation;
8. The final acceptance needs to be carried out at least 1 month after the official operation of the developed platform (user acceptance test: UAT). The entire acceptance process is based on the customer acceptance certificate;
9. During the project blueprint discussion phase, both parties shall jointly formulate detailed acceptance content, implementation plan, and standards.
10. The supplier should provide the platform end user with at least 5 man-day equivalent online training session on the operation of the developed platform and ensure that the operators can operate smoothly.
11. The supplier must provide the platform end user with detailed hardware equipment assembly guide documents.
12. The supplier must provide the platform end user Operation Manual for the platform.
13. **Warranty and After-sales Services**
14. The supplier should continue to provide technical support to the user after the project period. The said services will include telephone enquiries and information on the latest technology developments.
15. Level 1: System malfunctions occur but will not lead to interruption of the end user's daily production operation, as well as the data extracted. For instance, an occasional glitch on the UI. The supplier needs to respond within 78 hours after the problem occurred.
16. Level 2: System malfunctions occur but will not lead to interruption of the end user's daily production operation, but may lead to inaccurate data extraction. The supplier needs to respond within 24 hours after the problem occurred.
17. Level 3: System malfunctions occur and will lead to interruption of the end user's daily production operation. The supplier needs to respond within 1 hour after the problem occurs.
18. Supplier shall provide a 7-day x 24-hour remote after-sale supporting service.
19. Supplier shall provide a 1-year free warranty and after-sales service after UAT.