# P R O F O R M A

To: Mr. Simon LEUNG

[**by email:** skkleung@healthbureau.gov.hk]

Your ref: ( ) in HHB/H/24/17/9/6

# Part 1 – Supplier’s Contact Details

From:

(Name of the Supplier): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## (please fill in)

Name of Contact person:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## (please fill in)

Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Telephone No.: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(please fill in)

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*This document does not constitute any offer or invitation / solicitation of any offer in connection with the exercise described herein. Neither this document nor any activities in connection therewith shall create any legal obligations or liabilities in any way on the part of the HHB or the Government of Hong Kong Special Administrative Region. Neither this document nor anything contained herein shall form the basis of any contract or commitment whatsoever. In responding to the RFI, a respondent shall be deemed to have agreed to all the terms of this invitation.*

Dear Sirs / Madam,

I would like to provide the information of the Goods and Services for your

consideration. **Part 2 refers to our products and services proposals and the attached Appendix III where a tick in the box (Column V) indicating that our Goods and Services meet with the requirements. Price Schedule in Part 3, Particulars of Goods and Services Schedule in Part 4 and Appendix II, Track Record of the Offered Goods and Services in Part 5, Questionnaire in Part 6 and Other Information Provided by the Supplier Useful for the Consideration of the Government in Part 7 below are duly completed.** Copies of the catalogues are also attached.

**The Requirements set out in Part 2 below and the attached Appendix III consist of mandatory (M) features. All mandatory features are essential requirements.**

# Part 2 – Technical Specifications for the Goods and Services

## Technical Specifications

1. Please provide return on Column V, Column VI and Column VII of the attached **Appendix III** as a point-by-point statement of compliance of the Technical Specifications or alternative proposal as appropriate.

## Nursing Services Specifications

1. The item shall include 9-month and 3-month nursing services on acceptance of the Business Intelligence System (BIS) after system production rollout for Phase 1 and Phase 2 respectively as part of the implementation services. Please see below Implementation Services Specifications for more information.

## Warranty, System Support and Maintenance Services Specifications

1. The item shall be provided with annual system support and maintenance services on the expiry of the free nursing services.

1. The scope of the warranty, system support and maintenance services shall be the same as the free nursing services as described in the **Appendix I**. In addition, the contractor shall provide 100 man-days per annum for system changes of the BIS during the warranty and maintenance period.

## Implementation Services Specifications

1. The table below shows the tentative time interval in months to be required of each critical task from the Contract Date.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | **Phase 1** | | **Phase 2** | |
| **No.** | **Major Activity** | **Start Date** | **End Date** | **Start Date** | **End Date** |
| 1 | Project Initiation | M1 | M1 |  |  |
| 2 | Development and Testing Environment Set-Up |  |  |  |  |
| 2.1 | Procurement of Development and Testing Environment Hardware (or Cloud Service) |  | M2 |  | M16 |
| 2.2 | Development and Testing Environment Set-Up |  | M3 |  | M16 |
| 3 | Testing Data Set-Up and Prototype |  |  |  |  |
| 3.1 | Data Source Identification and ETL under Testing Environment |  | M8 |  | M16 |
| 3.2 | System Prototype on Testing Environment |  | M8 |  | M16 |
| 3.3 | User BIS Tools Familiarisation Training on Testing Environment |  | M8 |  | M18 |
| 3.4 | AI Modeler Development |  | - | M17 | M18 |
| 4 | Semantic Layer Initial Design Acceptance |  | M8 |  | M18 |
| 5 | Dashboard/Report Development |  | M10 |  | M18 |
| 6 | Primary Production and Non-Production Training, Staging, UAT) Environment Set-Up |  |  |  |  |
| 6.1 | Procurement of Hardware and Software for BIS Production/Non-Production (Training, Staging, UAT) Environment |  | M10 |  | - |
| 6.2 | Installation and Configuration of Production Environment and Non-Production Environment in data center |  | M11 |  | M19 |
| 7 | Self-Service Analytics Pilot Run and Acceptance on UAT Environment |  | M11 |  | M20 |
| 8 | BIS System Design, Privacy Impact Assessment (PIA) and Security Risk Assessment and Audit (SRAA) |  |  |  |  |
| 8.1 | BIS System Analysis and Design, Data Catalog Confirmation |  | M11 |  | M20 |
| 8.2 | The assessment part of PIA |  | M11 |  | M21@ |
| 8.3 | The assessment part of SRAA |  | M11 |  | M21@ |
| 9 | AI-assisted Chabot Pilot Run and Acceptance on UAT environment |  | M12 |  | M20 |
| 10 | Final User Training / Technical Training Before Live Run on Training Environment |  | M13 |  | M21 |
| 11 | Final Production Environment and Secondary Environment Set-up, Final AI Modeler Production Environment Set-Up, PIA, SRAA |  |  |  |  |
| 11.1 | Final ETL Data Set-Up for Live Run  Overall User Acceptance Test  Load and Performance Test  on Production Environment |  | M14 |  | M21 |
| 11.2 | Final Installation and Configuration of Production Environment in PDC and Secondary Environment in SDS  Disaster Recovery Test |  | M14 |  | M21 |
| 11.3 | PIA review and audit |  | M14 |  | M21@ |
| 11.4 | The audit part of SRAA |  | M14 |  | M21@ |
| 11.5 | AI Modeler Final Test Run |  | - |  | M21 |
| 12 | BIS System / AI Modeler (Phase 2) Ready for Use# | M15 | M15 | M21 | M21 |
| 13 | System Nursing | M16 | M24 | M22 | M24 |

# milestone indicator

@If ETL processes have changed.

1. It is estimated that the implementation services of the project will be conducted in two phases which would tentatively last for 24 months (include nursing period) in total from the Contract Start Date. “System Ready for Use” for each phase is attained when the item has been successfully and fully installed in the primary production and secondary production environments, and successfully passed the user acceptance tests. System nursing services are required for all phases. The warranty period for all phases will commence in Month 25.
2. Phase 1 includes the data catalog, ETL, semantic layer design, self-service analysis and AI-assisted chatbot function system design and analysis, software development and development of the dashboards/reports specified in Phase 1. In particular, the data interface with the core Hospital IT Systems via the proposed data integration platform shall be fully implemented by end of Phase 1. In addition, the contractor shall develop the first 30 dashboards/reports of the BIS, and provide hand-in-hand training to CMH IT and end users to get familiar with the semantic layer design of the BIS (as specified in Task 3.3 and Task 10 respective) , and coach them to develop the required dashboard/report under the 40 specified performance dimensions.
3. Phase 2 includes the enhancement of the data catalog, ETL, additional semantic layer design, additional self-service analysis and enriched AI-assisted chatbot function system design and analysis, software development of the dashboard/report specified in Phase 2. In particular, the implementation of the proposed AI-modeler to work with the proposed data catalog and semantic layer data schema shall be implemented by end of Phase 2. In addition, the contractor shall develop the remaining 10 dashboard/report of the BIS, and provide hand-in-hand training to CMH IT and end users to get familiar with the enhanced semantic layer design of the BIS (as specified in Task 3.3 and Task 10 respective) , and coach them to develop the required dashboard/report under the 40 specified performance dimensions.

## Workload Specifications

1. The system shall support performance and workload requirement for at least 6 (six) years from the date of final acceptance of the BIS System and support the prime operating hours from 9am-6pm on work days (except Sunday and public holiday) over the year. The CMH would provide 400 hospital beds and the estimated outpatient attendance is 310,000 per year when full services are rolled out. The estimated number of BIS users is 132 and 50 concurrent users. The table below also shows the estimated number of users and concurrent users.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Category of**  **Staff** | **BIS**  **Functions to be used** | **Est. No. of Staff** | **Estimated**  **No. of BIS users /**  **concurrent users** |
| 1 | Management | Data Visualisation  Self-Service Analysis  AI-Assisted Chatbot  AI-Modeler | 44 | 28/8 |
| 2 | Chinese  Medicine  Practitioners | Data Visualisation  Self-Service Analysis  AI-Assisted Chatbot | 140 | 16/4 |
| 3 | Western  Medicine  Doctors | Data Visualisation  Self-Service Analysis  AI-Assisted Chatbot | 23 | 8/4 |
| 4 | Nurses | Data Visualisation  On-Line Monitoring | 148 | 24/8 |
| 5 | Allied health  Professionals &  Staff of WM  Pharmacy | Data Visualisation  Self-Service Analysis  AI-Assisted Chatbot  AI-Modeler | 40 | 20/4 |
| 6 | Staff of CM pharmacy | Data Visualisation  Self-Service Analysis  AI-Assisted Chatbot  AI-Modeler | 50 | 10/4 |
| 7 | Patient care supporting staff | On-Line Monitoring | 128 | 12/12 |
| 8 | Supporting staff | Data Visualisation  Self-Service Analysis  AI-Assisted Chatbot | 181 | 8/4 |
| 9 | IT staff | Data Visualisation  Self-Service Analysis  AI-Assisted Chatbot  AI-Modeler  Data Catalog | 6 | 6/2 |
|  | **Total** |  | **760** | **132/50** |

# Part 3 – Price Schedule

## Table 3.1 Price Information for Goods

1. The contractor shall provide all hardware and software required to be comprised in the system for both production and non-production environments which reside in the SDC and PDC respectively (please note that both the BIS primary and secondary production environment will connect to the application databases reside in the SDC). Contractor shall provide sufficient hardware and license of software for the number of users (assume a “Active-Standby Mode” ) as specified in paragraph 5.1 of Workload Specifications, as well as programming tools or platform for developing all custom programs to meet the requirements specified in this RFI.

1. The contractor shall also provide adequate training to staff and authorised persons of the Operator of CMH for using the BIS System including technical training and end users training on ETL, data visualization dashboard/report development, self-service analytics, AI-assisted chatbot and AI-modeler. Training facilities, training materials and on-going maintenance and update on the training materials including but not limited to the following:
   1. user guides;
   2. web-based interactive tutorials;
   3. video-based instructions; and
   4. frequently asked questions.
2. It is assumed that there are 3 types of environments for on premise hardware and software.
   1. one (1) primary production environment (High Availability Set-Up) at SDC, active mode
   2. one (1) secondary production environment (for disaster recovery) at PDC, stand-by mode
   3. one (1) non-production environment at PDC

The non-production environment can work on top of the same hardware platform and the resources are shared for multiple purposes including: development, testing, staging/patch, training and UAT purposes.

* 1. one (1) AI-modeler production environment at an external private cloud platform.

The list of hardware and software specification and the detailed price information (both one-off and recurrent cost) shall be specified in the **Appendix II** - HW and SW Details.

## Table 3.2 Price Information for Implementation Services

1. The contractor is required to design, build, document, test and implement the BIS. Integration of all components of the system including the contractor supplied hardware, software, custom programs, the Government supplied hardware and software (if any). All development work shall be conducted in the contractor’s own environment and the proposed development environment during /after the roll of the BIS. Please see technical specifications in the **Appendix III** for more information.

1. Project management services are required during all the stages of implementation of the BIS, which include project monitoring and coordination of the implementation activities of all relevant parties including other contractors, and in-house project teams of the Government.

1. It is required to engage, at contractor’s own costs and expenses, an independent third party contractor to be agreed by the Government perform to perform an IT security risk assessment of the system at the later stage of System Analysis & Design, and an SRAA exercise of the system before production rollout. It is also required to appoint, at contractor’s own costs and expenses, an independent third party consultant to be agreed by the Government to conduct PIA and privacy compliance audit for the system at different stages.
2. All the PIA, SRAA, implementation cost of the AI-Modeler solution shall be separated from the core BIS solution for consideration.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Item** | **Roles** | **No. of**  **Staff** | **Total**  **Required**  **Man-month^** | **Monthly**  **Rate**  **(HK$)** | **Total Amount**  **(HK$)** |
|  |  |  | **(a)** | **(b)** | **(c) = (a) x (b)** |
| Part A – BIS Core System | | | | | |
| **1.** | **Implementation Services – Manpower** | | |  |  |
| 1.1 | Project Manager  (Part-time / Fulltime)# |  |  |  |  |
| 1.2 | Data Analyst  (Part-time / Fulltime)# |  |  |  |  |
| 1.3 | Cloud Computing Specialist  (Part-time / Fulltime)# |  |  |  |  |
| 1.4 | System Analyst  (Part-time / Fulltime)# |  |  |  |  |
| 1.5 | Analyst Programmer  (Part-time / Fulltime)# |  |  |  |  |
| 1.6 | Others (Please specify) |  |  |  |  |
| Total | | |  |  |  |
| Part B – AI - Modeler | | | | | |
| 2.1 | AI Specialist |  |  |  |  |
| Part C – Other Cost | | | | | |
| 3.1 | PIA |  |  |  |  |
| 3.2 | SRAA |  |  |  |  |

# Please delete as appropriate

^ One man-month means a unit of twenty-two and a half (22.5) man-days

## Table 3.3 Price Information for Maintenance of Goods

1. The contractor shall maintain each contractor supplied hardware software and the custom programs to ensure they are operating in full and proper working orders and provide maintenance services covering the supply of all new versions, upgrades, updates, patches (including security patches) and hotfixes for a period of 6 years (inclusive of nursing services and 12-months free warranty services) from the date of acceptance of the BIS for all phases.

1. Annual maintenance services have to be provided on the expiry of the free nursing services period and after the 1st year warranty service period.

Please insert the maintenance cost into the same table in **Appendix II** - HW and SW Details.

## Table 3.4 Price Information for System Support and Maintenance Services

1. The contractor shall provide system support and maintenance services for the BIS for a period of 6 years (inclusive of a 12-months free warranty services) from the date of completion of system nursing period for all phases. During this period, all development work for system changes or problem diagnosis shall be conducted in the contractor’s own environment or the proposed development environment.

1. Annual system support and maintenance services have to be provided on the expiry of the free warranty/nursing services period.

1. The contractor shall provide the System Support and Maintenance Services for the BIS throughout the prime maintenance period and non-prime maintenance period as stated in the table below.

|  |  |
| --- | --- |
| Prime maintenance period | 9:00 am – 6:00 pm Work Days  (except Sunday and Public Holidays) |
| Non-prime maintenance period | N.A. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Item** | **Roles** | **No. of**  **Staff** | **Annual**  **Required**  **Man-month^** | **Monthly**  **Salary**  **(HK$)** | **Total Annual**  **Amount**  **(HK$)** |
|  |  |  | **(a)** | **(b)** | **(c) = (a) x (b)** |
| Part A – BIS Core System | | | | | |
| **1.** | **System Support and Maintenance Services – Manpower** | | | |  |
| 1.1 | Maintenance Manager  (Part-time / Fulltime)# |  |  |  |  |
| 1.2 | Data Analyst  (Part-time / Fulltime)# |  |  |  |  |
| 1.3 | System Analyst  (Part-time / Fulltime)# |  |  |  |  |
| 1.4 | Analyst Programmer  (Part-time / Fulltime)# |  |  |  |  |
| 1.5 | AI Specialist  (Part-time / Fulltime)# |  |  |  |  |
| 1.6 | Others (Please specify) |  |  |  |  |
|  | **Total** |  |  |  |  |
| Part B – AI - Modeler | | |  |  |  |

# Please delete as appropriate

^ One man-month means a unit of twenty-two and a half (22.5) man-days

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Item** | **Roles** | **No. of**  **Staff** | **Annual**  **Required**  **Man-Days** | **Man-Day Rate**  **(HK$)** | **Total Annual**  **Amount**  **(HK$)** |
|  |  |  | **(a)** | **(b)** | **(c) = (a) x (b)** |
| Part A – BIS Core System | | | | | |
| **2** | **Additional Enhancement Service – Manpower (100 man-days expected)** | | | | |
| 2.1 | Maintenance Manager  (Part-time / Fulltime) |  |  |  |  |
| 2.2 | Data Analyst  (Part-time / Fulltime)# |  |  |  |  |
| 2.3 | System Analyst  (Part-time / Fulltime)# |  |  |  |  |
| 2.4 | Analyst Programmer  (Part-time / Fulltime)# |  |  |  |  |
|  | Total |  |  |  |  |
| Part B – AI - Modeler | |  |  |  |  |
| 2.5 | AI Specialist  (Part-time / Fulltime)# |  |  |  |  |
|  | **Total** |  |  |  |  |

# Please delete as appropriate

^ One man-month means a unit of twenty-two and a half (22.5) man-days

# Part 4 – Particulars of Goods and Services Schedule

## Table 4.1 Particulars of the BIS for production environments (including both PDC and SDC) and non-production environment.

(Note: Please provide the necessary information in Table 4.1 below for each item proposed in **Appendix II** - HW and SW Details)

|  |  |
| --- | --- |
| **For each item in Appendix II** | **Information to be completed by the Supplier** |
| **Name of the hardware and/or software (including standard modules such as the ETL, Datalake, Datawarehouse, Datamart, Database, BI Visualisation Tool, Self-Service Analytics, AI-Assisted Chatbot, Data Catalog, AI-Modeler)** |  |
| **Place of origin / place of manufacturing** |  |
| **Name of manufacturer** |  |
| **Address of manufacturer** |  |
| **Brand name** |  |
| **Model/version number** |  |
| **Purpose / description / features** |  |
| **Duration of availability of proposed model and version in market** |  |
| **Prevailing version number (a)** |  |
| **Previous version number (b)** |  |
| **Duration of availability in market for the prevailing or an earlier version number** |  |
| **Installation and operational pre-**  **requisites (c)** |  |
| **Availability of Application Programming Interface (“API”) for interfacing with other systems** |  |
| **Licencing scheme (e.g. Named**  **and/or Concurrent User Licence) (d)** | (Please describe the licencing scheme or state  “N/A” if it is not applicable) |
| **Charging scheme on separation of environment(s)** | (Please describe the charging scheme on separation of environment(s) or state “N/A” if it is not applicable) |

1. "Prevailing version number" refers to the latest version number of the proposed software currently available in the market.
2. "Previous version number" refers to the version number in the **last twenty-four (24) months**.
3. The installation and operational pre-requisites refer to any specific hardware, software, software patch or service pack that is required and must be provided for the successful installation and operation of the product.
4. "Licencing scheme" refers to the approach for counting the number of licences of the software required.

# Part 5 – Track Record of the Offered Goods and Services

1. Did your company implement the BIS to client(s) in the past 10 years?

* No
* Yes (Please specify the information in the table below)

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Name and Address of the Client(s)** | **BIS Product (with version #)/ Service** | **Implementation**  **Completion**  **Date** |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |

# Part 6 – Questionnaires

1. The contractor is required to provide the specifications on the virtual computing resources for different production and non-production environments for information. All virtual computing resources will be run on the proposed infrastructure by contractor. But virtual computing platform has no limitation and shall be proposed by the contractor as applicable.
2. If your system can be deployed in virtualized computing resources, please provide quantity for those resources required for different production and non-production environments.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Description** | **Resources** | **Type** | **Total Quantity Required for Production Environment** | **Total Quantity Required for Non-Production Environment** |
| Virtual Machine ("VM")  The VM will be provisioned on physical server | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Container  The Container will be provisioned on physical server | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Storage Resources | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Cloud Platform / Operating System License | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Backup Service |  | | | |
|  |  |  |  |  |

1. As the contractor shall provide comprehensive hardware and system configuration services for the BIS System in production and non-production environments to meet the application and system software requirements, are there any additional installation requirements for which the CMH must provide for implementing the BIS? Please specify.

1. On the scope of the proposed tender design in this RFI, do you foresee any issues that would reduce your level of interest in participating in the subsequent tendering exercise? Please specify.

1. Please provide the background of your proposed staff resources below.

|  |  |  |
| --- | --- | --- |
|  | **Attribute** | **Qualification\*** |
| **Project Manager** | |  |
| 1 | Academic qualification | * a degree or above in IT related discipline * a degree or above in other discipline Please specify: |
| 2 | Years of working experience on the BIS system |  5 years or above |
| 3 | Years of project management experience |  5 years or above |
| 4 | Other relevant experience or qualifications (Please specify) |  |
| 5 | Responsibilities to be taken in this project |  |

* + Please tick the box(es) as appropriate

1. If other role(s) in Tables 3.2 and 3.4 above are proposed, please provide the background of your proposed other role(s) below.

|  |  |  |
| --- | --- | --- |
|  | **Attribute** | **Qualification\*** |
| **Others (Please specify the role)^** | | |
| 1 | Academic qualification | * a degree or above in IT related discipline * a degree or above in other discipline Please specify: |
| 2 | Years of working experience on the BIS System |  3 years or above |
| 3 | Other relevant experience  or qualifications (Please specify) |  |
| 4 | Responsibilities to be taken in this project |  |

* + Please tick the box(es) as appropriate

^ Please insert additional table(s) if there are more than one additional role

1. What is your proposed service provision model (e.g. work relationship and work process) in case your service provision involves other third-party service providers or sub-contractors? Please specify.

1. Referring to the purposes and tentative project requirements in this RFI and the technical specifications in the attached **Appendix III**, please provide the following information of your proposed solutions in separate attachment(s):

* + 1. Detailed system functions and features of your proposed products, and additional function specifications and of your solution which are not mentioned by the functional requirements in **Appendix III** and their associated costs (under “Others (Please specify)” in **Appendix II** - HW and SW Details); and
    2. Detailed technical information of your proposed solutions.

⁻ Operating system(s);

⁻ System architecture, e.g. application tier(s), container solution, virtualisation, etc.

⁻ Programming language(s) adopted for your existing system(s);

⁻ Database adopted for your existing system(s);

⁻ Interfacing capability to interface with other IT systems, e.g. via API, HL7, Web service, etc.

⁻ High availability and resilience model; and

⁻ System backup and recovery including application servers, database and storage.

# Part 7 – Other Information Provided by the Supplier Useful for the Consideration of the Government

1. Please provide other information useful for the consideration of the Government including but not limited to the capability of Hong Kong local team to implement the proposed BIS and any other information. Please specify (use separate attachment if necessary).

|  |  |
| --- | --- |
| **Information Provided** | **Details** |
|  |  |

**E N D**