REQUEST FOR PROPOSALS

Production of Functional Requirements and Development of a Minimum Viable Product for the PSET CLOUD

April 2021

JET EDUCATION SERVICES
THINK EDUCATION. THINK JET.

merSETA
MANUFACTURING, ENGINEERING AND RELATED SERVICES SETA

ERRATUM: 16/04/2021

The budget has been updated from R2 to R3 million to R3 to R5.5. million.

See Section 4 Finance

BACKGROUND

JET Education Services (JET) and the Manufacturing, Engineering and Related Services Sector Education and Training Authority (merSETA) have initiated a project that seeks to address the development of an integrated national digital ecosystem which is interoperable and can be used for effective skills planning and provisioning. The project is titled Post School Education and Training Collaboration and Learning Opportunities and Utilisation of Data (PSET CLOUD).

The overall purpose of the project is to establish a digital ecosystem that will strengthen, integrate, coordinate, improve efficiencies and solve challenges in the governance and management of the post-school education and training (PSET) system. The main objective of the project is to ensure that data sets are interoperable, well synchronised and used effectively as sources of information for planning and improving efficiency in the PSET system. Phase 1 of the programme has been completed and involved a situational analysis of the PSET sector, a mapping study, an international review of similar initiatives and a feasibility report. These research reports have been condensed and included in a publication titled Unlocking the Power of Data: A review of the state of readiness of the Post-School Education and Training sector in South Africa for enhanced data interoperability, released in November 2020 and available on the JET website, www.jet.org.za. The international review, Interoperable Data Ecosystems: An international review to inform a South African innovation is also available to download.

Phase 2 of the programme commenced in 2020 with the appointment of three service providers, one to carry out stakeholder engagement and scenario planning (publication soon to be released but currently available upon request), the other to develop a business case and prototype for an minimum viable product (MVP) for piloting/testing over the next few months in 2021 as the programme transitions into Phase 3 (report available upon request), and the last to develop a branding, communication and advocacy strategy as well as a website for updating stakeholders on an ongoing basis as the platform is developed.

The purpose of this request for proposals (RFP) is to invite well-experienced, independent service providers to submit proposals to gather and consolidate functional requirements for the development of the PSET CLOUD and, from those requirements, develop an MVP.

At the same time as the development of the PSET CLOUD, the merSETA is undertaking a review of its systems, particularly its data use. This is important as merSETA is positioned as the 'early adopter', or first test case of the PSET CLOUD. Therefore, there will need to be close alignment between the work undertaken within merSETA and the product(s) produced by the PSET CLOUD.

TERMS OF REFERENCE

1. Scope of work

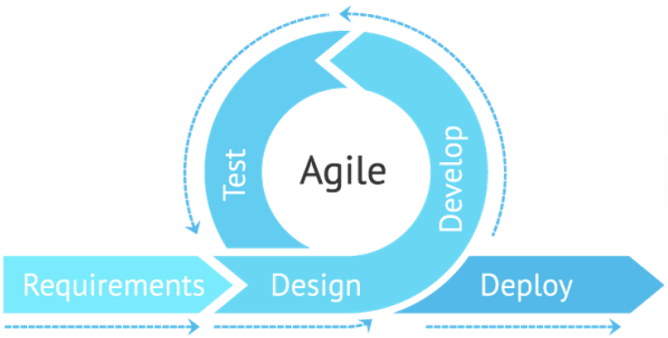
The PSET CLOUD team is looking to contract an experienced and capable ICT development partner who can assist with the development and deployment of the PSET CLOUD MVP, training on key parts of the system, and the development of associated supports such as training manuals. Components under this contract will span the period of June 2021 to August 2022. The scope of the MVP will be agreed upon in stage 2. However, as an indication of the necessary competence and complexity, the MVP is envisaged to, at a minimum, connect the major stakeholders of the merSETA ecosystem, that is, learners, employers and education and training institutions. The emphasis is on improving data interoperability and networks to improve system performance and efficiencies, particularly in coordinating links between learners, education and work opportunities and related functions. This may, for example, require forging new connections between different available tools and data in the PSET sector, integrating innovative technologies to address systemic challenges and addressing 'pain points' etc. in the system.

Core requirements for the MVP are that it will:

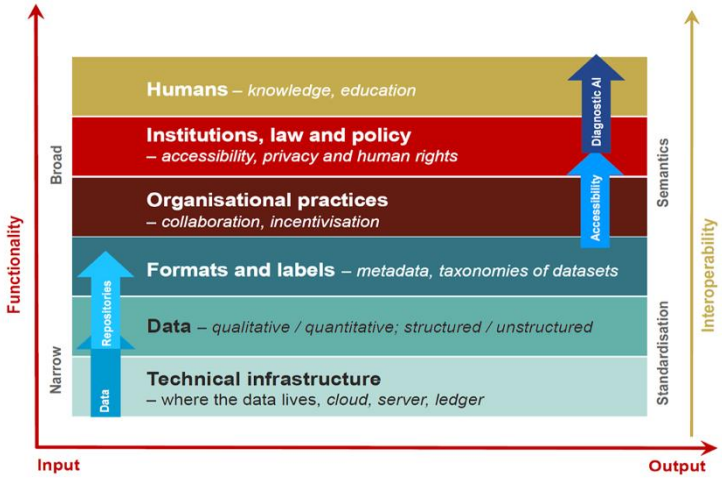
- Align to system requirements and standards used by the merSETA and the PSET system more broadly;
- Use technology to solve identified challenges within the PSET system;
- Leverage, to the extent possible, existing tools and databases;
- Contribute to basic functionalities related to data collection, analysis and reporting needed by the merSETA, colleges and universities, and merSETA-linked workplaces;
- Provide student-centred links to education and training opportunities and the labour market;
- Use an architecture which enables iterative development of components (for example, innovations such as real-time labour market data, feedback loops on the system, etc);
- Be scalable to other sectors and, as a goal, to the entire PSET sector; and
- Be interoperable with the substance of various stakeholder information systems, regardless of their form.

The service provider will work closely with JET and the merSETA to gather requirements and manage the software development life cycle, including capacity building and knowledge transfer. The software development life cycle and Interoperability Framework of choice are depicted below.

Figure 1. Agile Development Life Cycle **Figure 2. Data Commons Interoperability Framework**



(Hazevytch & Vilchynska, 2020)



(Berkman Klein Center, 2018)

Proposals must include detailed examples of similar work undertaken within a similar context or with similar outcomes to those sought by the PSET CLOUD.

In particular the scope of the work will be as follows:

Stage 1: Inception

The service provider will be furnished with research outcomes from Phase 1 and Phase 2 of the current system development process and is expected to become thoroughly acquainted with those outcomes as they are critical in understanding the context of the system to be developed.

Furthermore, to ensure alignment, the service provider, together with the JET-merSETA team, will engage in the following important activities which will have a significant bearing on the development of the MVP:

- **merSETA as-is process analysis:** aimed at understanding what and how data is collected in the merSETA, where this data goes to, how it is managed, what reports are generated, etc. This process will take place at the merSETA and will be led by a merSETA appointed service provider.
- **Empathy mapping:** aimed at understanding what each stakeholder moves through and identifies as blockages and pain points at each step. This step will be led by the merSETA-JET team, but participation of the MVP team is required.
- **User journeys: a**imed at understanding the needs and pain points of the users as they navigate the PSET system. This step will be led by the merSETA-JET team, but participation of the MVP team is required.

The project will be user-focused, and the service provider will be expected to show a deep understanding of the pain points and unmet needs of users.

Key deliverable

An Inception report with a detailed work plan that spells out the approach, timelines & key resources etc.

Stage 2: Functional Requirements Specification

In conjunction with JET and the merSETA, the service provider is expected to gather functional requirements for the development of the PSET CLOUD system. Based on the gathered requirements, the scope of the MVP will be determined and a scope document will be produced by the JET-merSETA team detailing the features and functions the MVP should have. The service provider is anticipated to conduct and lead, at minimum, three Joint Application Development (JAD) sessions with all the relevant stakeholders to further crystallise the vision of the system.

Key deliverable

A signed off Functional Requirements document.

Stage 3: Solution design

Based on requirements gathered in stage 2, the service provider must design and prototype the solution. The design should match the functional requirements in order to be considered deployable for the MVP and clearly document the anticipated workflows. The prototype should allow for comments and team feedback before stage 4.

Key deliverables

1. A comprehensive System Design Document (SDD) that details both low level and high level design as highlighted below:

   High Level Design

   - Brief description and name of each module/feature;
   - An outline about the functionality of every module/feature;
   - Interface relationship and dependencies between modules/features;
   - Database tables and data standards identified, along with their key elements;
   - Complete architecture diagrams, along with technology details.

   Low Level Design

   - Functional logic of the modules/features;
   - Database tables, which include type and size;
   - Complete detail of the interface (UI/UX);
   - Addresses all types of dependency issues;
   - Listing of error messages;
   - Complete input and outputs for every module/feature.

2. A prototype aligned to Functional Requirements Specification document.

Stage 4: Develop and test

As per the methodology of choice, testing and development should be carried out iteratively, with a recurring feedback loop available for the JET-merSETA project team, together with relevant stakeholders/beta-testers to give feedback. In this development and testing cycle, the final output will be a functional MPV which has passed all User Acceptance Tests (UATs) and is ready for deployment.

Key deliverables

1. Test cases per released features and functions.
2. An MVP ready for deployment.

Stage 5: Deploy

Locally deploy the MVP through a JET-merSETA designated internet service/cloud provider. Hosting of the MVP will be payable by the service provider. After successful deployment, the JET-merSETA team, together with the service provider will engage in intense advocacy, with a particular focus on the MVP. The service provider is expected to be part of this advocacy process to not only ensure smooth operation of the MVP while it is being demonstrated but to also advocate for the MVP as the team that developed it. Furthermore, in the event that more stakeholders are onboarded to the PSET CLOUD, the service provider is expected to help with adding those stakeholders on to the MVP and to also test the MVP with the JET-merSETA team and the newly added stakeholder as well pre-existing stakeholders on the MVP. Should there be bugs found during testing, the service provider is expected to address them in a timely manner or within a time period acceptable to the JET-merSETA team. Lastly, in preparation for the handover, the service provider must work closely with the merSETA team to make sure handover is gradual and engagement/use/outcomes are well-understood.

Key deliverables

1. The successful deployment of the MVP from a sandbox environment to a live environment.
2. Draft user manual.

Stage 6: Handover

Handover of the documented source code, revised user manuals, access details and account details related to the development of the MVP to the PSET CLOUD project manager. All documents must be delivered electronically in a format specified by the project manager. JET and the merSETA will retain the ownership of the copyrights of all documentation delivered under the contract.

Key deliverables

Documented source code and final user manual, system walkthrough video and presentation.

Stage 7: Support

The service provider is expected to orient select members from the project team (approx. four to five persons) on administering and using the system. The user manual will be available as a help file through an online application or knowledge-base, so that the users can refer to the manual as and when needed, potentially as part of the PSET CLOUD website or as part of the MVP. Furthermore, the provider is expected to provide system support for at least six months after handing over the software. The support should be in person, telephonic and via email, as and when necessary. Support might include additional development work for improvement to the system.

Key deliverables

1. Conduct orientation training for select members of the project team.
2. Conduct software maintenance training for select members of the project team.

2. Key competencies and team composition

The service provider must have a balanced team that has key competencies to cater for the various components of the project. The team must have demonstrable prior experience executing a project of this size and technical complexity and must comprised, at minimum, members with the following competencies:

- Business Analysis
- Front end (UI/UX) & Back end Development (Language of choice)
- Blockchain Development
- Quality Assurance Automation Engineering
- DevOps Engineering
- Cloud Infrastructure Engineering
- Agile Project Management

We are cognisant that one company may not have all these competencies; in such a case, should the service provider opt to enter into a joint venture or similar arrangement, compliance documents must be furnished for every company proposed to be involved in said arrangement.

3. Important considerations

- System architecture must be microservices and not monolithic.
- Open source applications are preferred.
- The less subscriptions the better.
- Fess for any software, subscriptions or licenses will be payable by the service provider.
- The POPIA Act must be adhered to by ensuring that the MVP is hosted locally as it will hold private national data.

- Development of the MVP must make use of agile methodology, the service provider must develop and test using an iterative manner or process.

4. Finance

The service provider's financial proposal should provide an explicit budget with a detailed breakdown by level of cost and must contain itemised costs for the following broader deliverables: System analysis and requirements gathering; software development and testing; orientation training; and post-handover troubleshooting support cost for six months. Proposals must provide an explicit budget with a detailed breakdown by level of effort and daily rates. Payments will be made upon satisfactory completion and acceptance of deliverables by the JET-MerSETA team.

The budget allocation for this task ranges between R3 million to a maximum of R5.5 million, all-inclusive of requirements such as VAT, venues for the workshops to be conducted, travel, and any other expenses incurred in the roll out of the project until final successful completion. Proposals with a total budget over R5.5 million will not be entertained.

All costs associated with the development, preparation, production and/or delivery of goods and/or services incurred without an executed contract copy signed by all parties will be for the account of the bidding company or organisation. Neither JET nor the merSETA will pay for any costs associated with the development, preparation, production and/or delivery of goods and/or services connected to these terms of reference.

5. Evaluation criteria

Criterion	Weight
Capacity	10%
Mentoring and use of interns	5%
Previous experience	15%
References	10%
B-BBEE	10%
Price	10%
Proposal and Methodology	40%
Total	**100%**

This RFP in no way obligates merSETA and/or JET Education Services to award a contract. The PSET CLOUD team may select to award multiple contracts in response to the terms of reference, including by stage or deliverable.

6. Estimated time frames

Activity	Date
Clarification questions deadline	30 April 2021
Submission of proposals deadline	16 May 2021
Evaluation of submissions	17 – 28 May 2021
Shortlisted service providers presentations date	03 June 2021
Project commencement date	14 June 2021
Inception report delivered	25 June 2021
Functional Specifications Document signed off	30 September 2021
System Design Document	25 October 2021
Approved Prototype	22 November 2021
MVP deployment	12 July 2022
Project completion date	31 August 2022

7. Contact details

All queries should be directed to Boitumelo Manci and must be submitted via email to boitumelo@jet.org.za. Responses will be provided via email.

Proposals should be submitted to tenders@jet.org.za. Technical and financial proposals may be combined.

8. References

Berkman Klein Center. (2018, June 21). *Data Commons*. havard.edu. Retrieved March 24, 2020, from https://cyber.harvard.edu/story/2018-06/data-commons-version-10

Hazevytch, L., & Vilchynska, H. (2020, February 26). *Agile Advantages for Software Development and Your Business*. Devcom. Retrieved March 24, 2021, from https://devcom.com/tech-blog/agile-advantages-for-business/

Annexure: PSET CLOUD Theory of Change