

Data Infrastructure Modernization

Staff Augmentation Services Contract



Texas Higher Education
Coordinating Board

February 26, 2021

Housekeeping

- Please mute your microphones
- A copy of this presentation will be available on the THECB Procurement site
- Q/A session will follow presentation
 - Please hold all questions until the Q/A session
 - Type questions in the chat and send to Linda N.
 - Note: Questions answered during presentation are not official until the THECB posts as an addendum to the solicitation
 - After the presentation, email questions to ebids@higherred.texas.gov

Agenda

- Introductions
- Project Overview
- Procurement Process
- Q&A Session (2 Parts)
 1. Answering questions received prior to Webinar
 2. Opening the Chat function for live questions
- Close with a Vendor Poll

Introductions

DIR Innovative Procurement Lab

- Hershel Becker, DIR Chief Procurement Officer
- Mary Vickery, Customer Procurement Manager

Project Team

- Lori Fey, Deputy Commissioner Innovation and Policy Development
- Zhenzhen Sun, Assistant Commissioner III/Chief Information Officer
- Kumara Thatipelli, Lead Architect/Director Application Development and Support
- Akeel Din, Project Manager IV

Procurement Contact

- Linda Natal, Director Contracts and Procurements

Texas Higher Education Coordinating Board

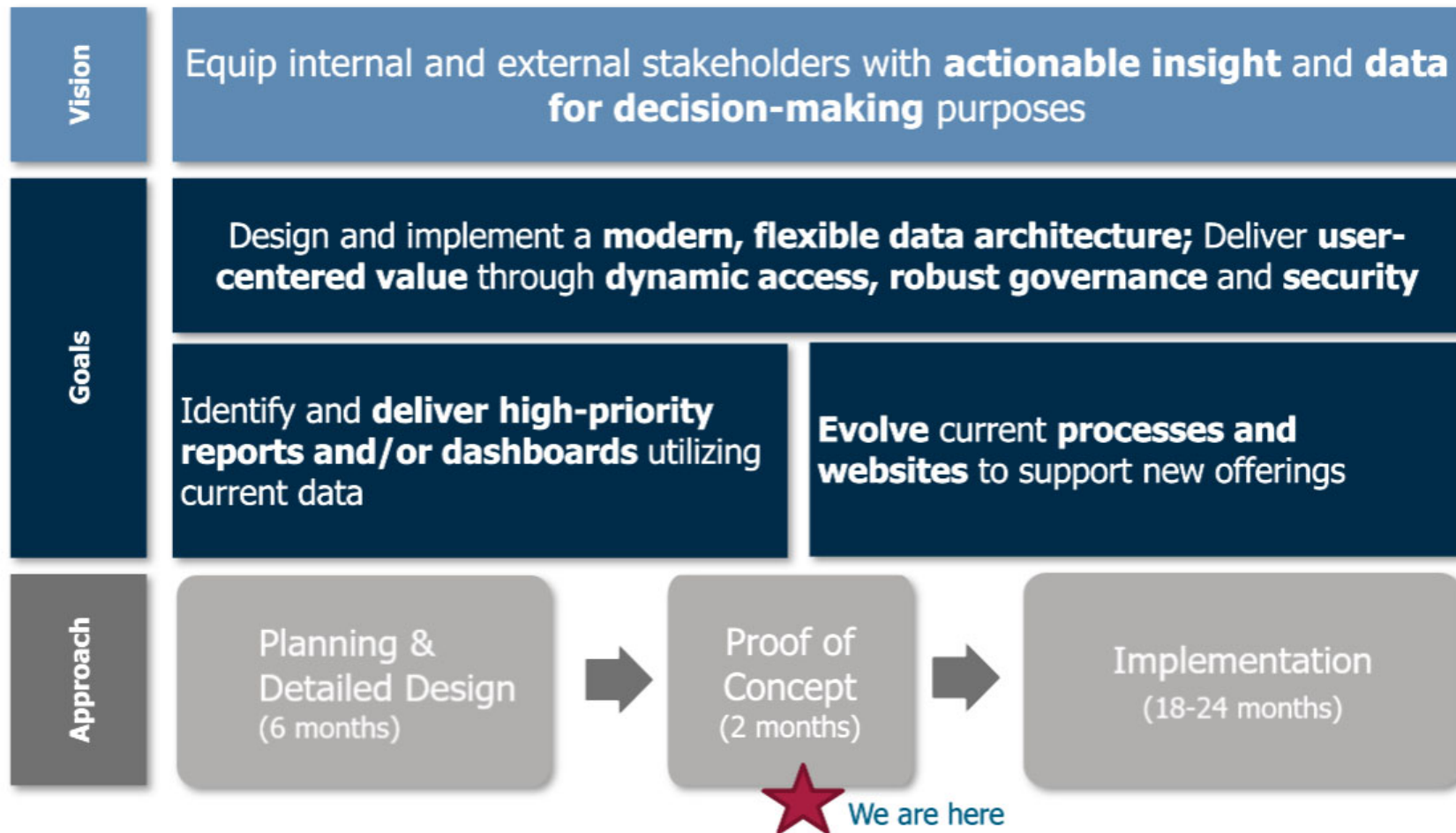
The mission of the THECB is to provide leadership and coordination for Texas higher education and to promote access, affordability, quality, success, and cost efficiency through 60x30TX, resulting in a globally competitive workforce that positions Texas as an international leader.

Data Modernization Project Background:

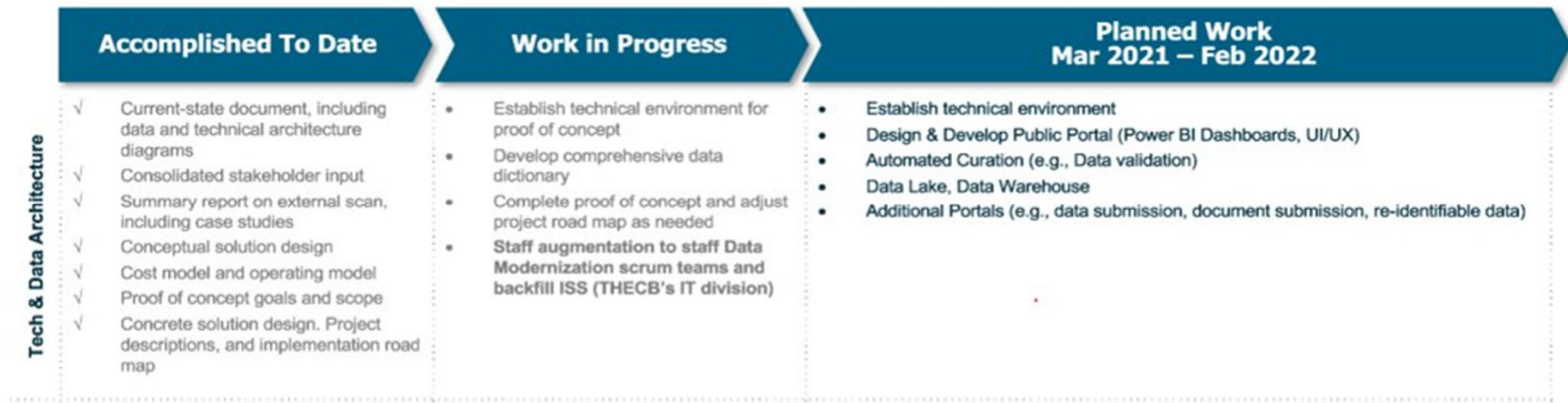
The THECB is undertaking critical efforts to modernize and improve state educational and workforce data infrastructure to better inform and support students and families on their paths from enrollment, to completion, to the workforce and to provide insight to support institutions, policymakers, and other stakeholders in making informed decisions.

The agency is the steward of a wealth of educational and workforce data, and this support and the right partnerships will enable the agency to deploy new tools that turn this data into actionable intelligence for students and families, institutions, employers, and policymakers.

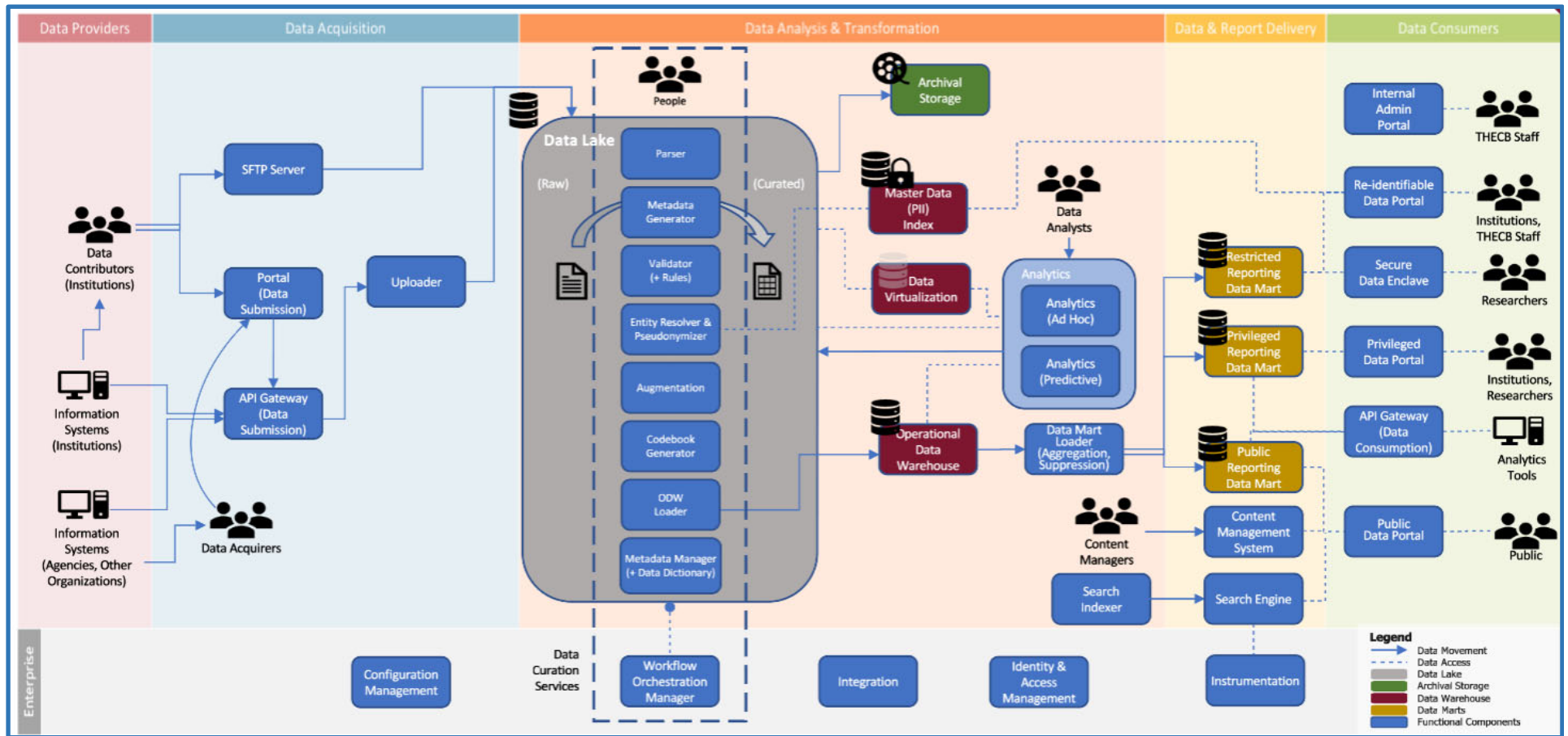
Data Infrastructure Modernization Overview



High-Level Implementation Roadmap



Conceptual Solution Design



Contractors who will be working on the three scrum teams

2 senior software developers with web application development skills in C#.NET, Azure App Service, Azure Functions, Azure API Management, Cosmos DB and integration with Azure Active Directory B2C.

1 senior web developer and **3 senior data analyst/report writers** with skills in developing Power BI dashboards, web server development, and content and document management.

1 senior data modeler, 1 senior data engineer (level 3), and 1 data engineer (level 2) with skills and experience building data analytics pipelines using Azure Data Lake Gen2 (Blob Storage), Azure Data Factory (Pipelines and Data Flows), Azure Data Catalog, Azure Event Grid, Azure Service Bus, Azure SQL Database, Synapse Analytics.

3 senior developers with web application development skills in C#.NET, Azure App Service, Azure Functions, Azure API Management, Cosmos DB and integration with Azure Active Directory B2C.

Contractors who will backfill current IT positions

5 senior developers with experience with C# and .Net MVC5, WebAPI, JQuery and object-oriented design. Working experience in Azure Cloud environment and Visual Studio 2017. Working experience with MS SQL and SQL Server Management Studio. Working experience with application design, development, and support.

1 senior project manager with more than 7 years of experience managing projects in IT environment. Experience with Microsoft Office products, effective written and verbal communication, and problem-solving skills. Works under limited supervision with considerable latitude for the use of initiative and independent judgment. Implementation of information systems, system integration and project delivery experience. Experience working with external vendors and/or Quality Assurance efforts a plus.

1 senior quality assurance analyst with more than 4 years of working experience with different types of testing in Functional, Integration, API, Regression, Security and Database Testing. Working experience with Test management and defect tracking tools such as TFS, JIRA or Similar Working experience with basic SQL skills and use of SQL Server. Fundamental knowledge of Azure Cloud environment.

Contractors who will backfill current IT positions

1 senior system analyst with technical experience in applications software development and systems analysis. Competent to work at a high technical level for most phases of applications systems analysis and programming activities. Experience in integration/customization of commercial off-the-shelf (COTS) products and Content Management System (CMS) development and maintenance. Proficient in Hypertext Markup Language (HTML), Extensible Markup Language (XML), Java, C/C++, or other application engines as required.

1 senior network engineer with experience performing advanced computer systems architecture, design, and analysis work in an Azure and Windows environment. Architecting, design, and implementing new systems or to improving existing systems. Experience leading cloud infrastructure adoption and migration efforts.

A List of Projects in Sequence (1 of 3)

| Sequence | ID | Project | In Scope |
|----------|----|--|--|
| 1 | T1 | Cloud Environment Setup Network, Firewall and Security components to establish POC, development, test and production environments | <ol style="list-style-type: none"> 1. Infrastructure setup (network, firewall ports etc.) for PoC, development, test/QA and production environments 2. Security monitoring & incidence response |
| 2 | T5 | Public Portal (UI/UX) will restructure the current public facing websites to provide a consistent user experience through improved information architecture, search, visualizations and analytics | <ol style="list-style-type: none"> 1. Database consolidation 2. Application UI Refactoring (two large complexity and three medium complexity applications) 3. Enhance UI with embedded BI or Visualization capabilities |
| 3 | T2 | Enterprise - Configuration Mgmt will enforce a rigorous process to manage the deployment and operation of infrastructure components | <ol style="list-style-type: none"> 1. Installation and initial configuration of the configuration management application 2. Installation and initial configuration of CI/CD pipeline including deployment processes and testing automation |
| | T3 | Enterprise - IAM Internal will provide user authentication and fine-grained authorization for internal users | <ol style="list-style-type: none"> 1. Configure existing Azure AD for access to data pipeline environment 2. Establish role-based access management solution |

A List of Projects in Sequence (2 of 3)

| Sequence | ID | Project | In Scope |
|----------|-----|---|--|
| 5 | T7 | Data Lake will provide consolidated, secure and flexible storage of all data and prepares it for consumption by modern analytics toolsets | <ol style="list-style-type: none"> 1. Design & implement metadata management / indexing service 2. Migrating historical (raw) data |
| | T8 | Automated Curation will validate, augment and enable data certification within the Data Lake | <ol style="list-style-type: none"> 1. Implement Admin interface to maintain data model and validation rules 2. SQL Validator that handles currently received reports. 3. Event-based Workflow Manager, including human interactions through data Submission Portal. 4. Augmentations that generate additional variables per record. 5. Codebook Generator that produces summarized statistics of each file. |
| | T9 | Data Warehouse will create logical or physical SQL structure for data analytics | <ol style="list-style-type: none"> 1. Define initial longitudinal data model 2. Implement initial data model as Serverless SQL or Data warehouse 3. Integrate with Data Lake (ODW Loader) (only if physical DW) 4. Preload historical data (dependency on Automated Curation) (only if physical DW) 5. Retarget existing Applications to new data pipeline |
| | T13 | Internal Portal (Admin) will allow THECB administrators to view system status | <ol style="list-style-type: none"> 1. Dashboard showing status of each service/application in new environment 2. Drill-down into exception/error indications 3. Interactive screens to perform manual exception resolution |
| 6 | T4 | Enterprise - IAM External will extend authentication and fine-grained authorization to external organizations without overburdening internal staff | <ol style="list-style-type: none"> 1. Implement B2C IAM solution 2. Migrate the accounts to new platform 3. Extend RBAC solution to cover external use cases |
| | T6 | Public Portal Integration and Personalization will create public data mart and connect it to the existing Public Portal | <ol style="list-style-type: none"> 1. Data Mart back-end integrated with Analytics pipeline 2. Data Mart Loader which produces ~25 predefined aggregations and data suppression (SAS scripts) 3. Development of ~10 small complexity applications and reports |
| | T17 | Privileged Data Portal for privileged users to access restricted / privileged data | <ol style="list-style-type: none"> 1. Data Mart back-end integrated with Analytics pipeline 2. Data Mart Loader which produces predefined aggregations without data suppression 3. Access control |

A List of Projects in Sequence (3 of 3)

| Sequence | ID | Project | In Scope |
|----------|------|--|---|
| 7 | T15a | Data Submission Portal to submit and certify data will improve and simplify the data collection process | <ol style="list-style-type: none"> 1. Portal 2. API Gateway 3. IAM, access control 4. Integration with Data Lake 5. Automation of Certification process |
| | T15b | Document and Form Submission Portal (AQW and similar) to submit documents and form data will improve and simplify the data collection process | <ol style="list-style-type: none"> 1. ~10 Web Applications / Portal (e.g., AQW) 2. IAM, access control 3. Integration with Data Lake |
| TBD | T10 | Entity Resolution will enable new and more accurate linkages between data sets | <ol style="list-style-type: none"> 1. Master ID (PII) data store 2. Validation of ID (SSN) against additional demographics 3. Error resolution via workflow 4. Entity pseudonymization (generated master ID) 5. Entity re-identification |
| | T12 | Predictive Analytics will leverage vast wealth of THECB data to identify trends | <ol style="list-style-type: none"> 1. Configure ML services 2. Integrate with Data Lake 3. Build one use case and publish |
| | T14 | Re-identifiable Data Portal will allow THECB business users to view cross-department data | <ol style="list-style-type: none"> 1. Institution and Internal Staff persona use cases 2. Re-identification of individuals |
| | T16 | Secure Data Enclave will create a community of practice for Researchers and may provide alternative to ERCs | <ol style="list-style-type: none"> 1. Ability to spin up an Azure Windows Desktop from a predefined image that includes analytics tools 2. Approved data is loaded as part of provisioning |

Procurement

Project Need:

The THECB is seeking a vendor(s) to assemble and coordinate a team of twenty-one (21) ITSAC contractors to assist with the initiative.

- The proposal should include how vendor will successfully complete the Project including how the qualified team will be assembled, coordinated, and overall monitored.
- Preference will be given to those vendors that can demonstrate how the team they assembled can work cohesively on this project.

HUB Opportunities:

The THECB encourages vendors to identify HUB Sucontracting Opportunities

Timeframe:

- Timeframe - Phase I of the engagement will last for 12 months. THECB's goal is to contract by the end of March.

Submitting Questions and Proposals

- Deadline to submit a proposal is **11:59 p.m. CST/CDT, Monday, March 8, 2021**. Proposals received past the deadline will not be accepted.
- Submit questions and your proposal to ebids@highered.texas.gov. Hard copy proposals mailed or delivered to the THECB will not be accepted. No other THECB staff members will informally respond to questions to make this a fair procurement.

Q/A Session

Note: Questions answered during presentation are not official until the THECB posts as an addendum to the solicitation.

Questions

Will all the 21 candidates be selected from 1 vendor?

It is the THECB's preference to work with one vendor, but open to issuing multiple awards. An evaluation criteria is reviewing proposals to understand if contractors assembled can work cohesively as a team. The vendor's proposal plan should include a one-page summary demonstrating the team's cohesiveness.

Can we submit resumes only for selective positions? Yes, but the project team needs to understand how the selected individual fits in with the larger team in the vendor's proposal plan.

Does vendor need to provide all the 21 resumes to be considered for this project?

The THECB will consider multiple awards. If vendor can assemble a team with less than the 21 contractors, the evaluation team will compare it with other proposals to assemble the full team.

When will be the answers posted on website? Yes, on the THECB's Procurement site and will be emailed to all 96 vendors

Questions

What should be included in the vendor's Proposal Plan?

- One-page summary demonstrating the team's cohesiveness.
- Identify proposed staff, by name, and state the roles that they will perform. The following areas shall be addressed for each proposed staff member, as applicable:
 - Related/similar projects including the function/role fulfilled;
 - The number of years of professional experience the individual has in providing the services; and
 - Resume demonstrating experience and qualifications.
- Describe its staffing methodology and include details regarding how workload will be balanced amongst proposed staff. Provide information on how it will onboard additional personnel should a contractor be removed from the team.
- Estimated cost of Proposal
- Identify HUB Subcontracting Opportunities

Q/A Session Live

Use the Chat function to send questions to Linda Natal

Vendor Poll



Texas Higher Education Coordinating Board

Thank you for participating! We look forward to reviewing submissions.

Submit proposals to ebids@highered.texas.gov

Deadline: Monday, March 8, 2021, by 11:59 p.m. CST/CDT