



INDIANA UNIVERSITY

PURCHASING DEPARTMENT

Request for Proposal # RFP-TEC-1029-2023

Purpose

Indiana University (IU) is requesting proposals from firms interested in providing web application development and maintenance services for Terracotta (<https://terracotta.education>), as specified herein. Terracotta is a service of Indiana University. The intent of this Request for Proposal (RFP) and the ensuing process is to provide companies with the information, requirements, and specifications necessary for the preparation of a professional and comprehensive proposal. Specific terms and conditions are outlined.

Selection of the successful company (Supplier) will be based upon a variety of factors such as:

- Ability to Meet Statement of Needs
- Ability to Meet Technical Specifications
- Ability to Meet Compliance Requirements
- Total Cost of Ownership
- Acceptance of Terms & Conditions
- References

This criteria have been listed in order of importance.

As used within this RFP, "Participant" shall refer to those companies receiving and responding to this RFP. "Supplier" shall refer to the successful Participant of the process. "University" shall refer to Indiana University.

Schedule of Events

Request for Proposal issued: 9/27/2022

Q&A submission close date: 10/14/2022 by 5:00 p.m. EST

Proposals due by: 10/31/2022 by 5:00 p.m. EST

Selection of Supplier on or about: 11/11/2022

Implementation of services, on or before: 11/18/2022

All questions and inquiries regarding this document should be submitted via the JAGGAER Supplier Portal. If you experience issues you may directly contact Purchasing Contract Manager, Maria Nguyen, at nguyenmt@iu.edu . EXCEPT FOR CASES AUTHORIZED IN WRITING BY Maria Nguyen, DURING THE DURATION OF THIS RFP PROCESS, THROUGH SELECTION AND NOTIFICATION, ANY COMMUNICATION BY PARTICIPANTS WITH INDIANA UNIVERSITY STAFF OTHER THAN Maria Nguyen MAY RESULT IN IMMEDIATE REJECTION OF THAT PARTICIPANT. Questions regarding this RFP should be submitted through the Q&A Board within the Supplier Portal. Questions asked after the deadline may not be answered.

Background

Indiana University is one of the largest universities in the nation. Founded in 1820, Indiana University is a public, multi-campus, state-supported educational institution with undergraduate and graduate full-time equivalent students from throughout the U.S. and the world exceeding 91,000. It has more than 23,000 faculty, professional and support staff that support its educational, research and public service missions.

Terracotta (<https://terracotta.education>) is a web application that integrates with the Canvas learning management system (LMS). Terracotta's primary capability is that it can create an experiment inside an LMS assignment, automating random assignment, informed consent, experimental manipulation of different versions of an assignment, and export of de-identified research data. Terracotta is open source and managed at Indiana University.

Indiana University received funding to develop and maintain Terracotta from the US Department of Education, via the Institute of Education Sciences, in September 2021. Since then, we have supported Terracotta by borrowing web application developers' time from other IU projects, but staffing changes are causing these developers to become unavailable in November 2022. The current RFP seeks a partnership to support the remaining work in Terracotta for the outstanding duration of our current funding.

Statement of Needs

F1 Objectives

Terracotta's mission is to enable more rigorous, more responsible experimental education research. Currently it is one of five digital learning platforms to enable efficient education research funded by the US Department of Education's Institute of Education Sciences, and it is also one of three finalists in the XPRIZE Digital Learning Challenge. As such, Terracotta is a leader in pioneering the future of education research. Our team shares the common goal to advance social good through research; across the full range of social problems, we believe there is no solution more comprehensive than improving education.

In this RFP, Indiana University seeks proposals for comprehensive web application support and development services for Terracotta for the next 4 years. Proposals will maintain functionality in Terracotta's current codebase, create ad-hoc improvements as identified during periodic user research, and will build additional features as outlined in the scope of work. This work will be in close collaboration with the Terracotta team at IU; we use Agile project management methods, and we expect that the management of tasks will be within our Jira instance.

The Terracotta team maintains a Canvas sandbox instance (<https://terracotta.instructure.com>) that will be made available to the supplier for development and testing purposes.

F2 Scope of Work

The current RFP seeks a partnership to support the remaining work in Terracotta, and to provide routine maintenance for Terracotta, for the outstanding duration of our current funding (four years). By "routine maintenance," we specifically mean support to maximize service uptime, to promptly fix bugs (prioritizing those that affect functionality), and to ensure continued integration with the Canvas LMS. By "remaining work in Terracotta," we specifically mean the development of new functionality as outlined under "Deliverables," below.

Technical Specifications. Terracotta's full codebase is open source and available on the web, and a successful proposal will demonstrate fluency and expertise with this codebase as it currently exists. Indiana University hosts a multitenant Terracotta service in the Amazon Web Services cloud, on an AWS project site managed by Indiana University, which is in active use at multiple institutions. Terracotta is built using a Java backend (Spring), and a JavaScript frontend (Vue). It integrates with the Canvas LMS using learning tool interoperability (LTI) version 1.3, and a Canvas API token. It also emits live events according to the Caliper standard. Terracotta's creator is Dr. Benjamin Motz (Assistant Professor, Department of Psychological and Brain Sciences, IU Bloomington), and Terracotta also has a full-time project manager (Dr. Harmony

Jankowski) and an external UI/UX design consultant (Kimberly Burgas). We also have a world-class advisory board. We manage work in Terracotta using Jira.

Deliverables. The following deliverables are requested for this RFP:

1. (All Years) Provide general routine maintenance, fixes, and updates, in order to ensure continued functionality for tenants, at hourly effort levels which are customary for LTI tools, for the duration of the project.
 - a. Proposals should not include end-user support. IU staff will be user-facing. Proposals should be responsive only to IU staff.
2. (All Years) Make improvements to the Terracotta user interface to accommodate findings from ongoing user research. A successful proposal will reserve effort for modest ad-hoc improvements on a semi-annual basis, estimated at 60-80 hours total annually. These updates will be designed by Ms. Burgas.
3. (Year 1) Build an administrative web portal to allow designated IU staff to add/remove/edit tenants. At present, new tenants are managed by manually updating a database table that is under heavy access restrictions. This new portal will enable designated IU staff to manage tenants over the web.
4. (Year 1) Build a web portal to allow a tenant's administrator to view details of Terracotta deployments within their tenancy (to be designed by Ms. Burgas). At present, an institution that is using Terracotta cannot easily see the extent of utilization of Terracotta at their institution. This new portal will provide an institution with views of the number of classes, experiments, and students using Terracotta.
5. (Year 1) Build a "Results Dashboard" that displays results of experiments conducted in Terracotta to the user. At present, Terracotta allows a researcher to export all results as a zip archive, downloaded by the browser. This new dashboard will present a set of customizable analyses of the results of an experiment conducted in Terracotta. Results dashboard will be designed by Ms. Burgas.
6. (Year 2) Build support for custom interactive objects to be added into Terracotta. This should allow a custom web object (such as a jsPsych object, in particular) to be integrated into Terracotta, to be presented to students as an assignment in Terracotta, and to incorporate Terracotta's existing feature set (grading options, deadlines, feedback, etc.).
7. (Year 3) Build integrations with open science repositories (OSF.io, Zenodo, etc.), enabling research results to be automatically exported from Terracotta to an online repository, and experiments to be automatically preregistered.
8. (Year 4) Build a web-based community showcase (to be designed by an Ms. Burgas), to highlight uses of Terracotta and enable sharing.

Proposal Responses:

The Participant's response to this proposal should include answers to the following series of questions. So that the RFP Team can easily follow the questions and responses, please assure that the question is stated immediately before the response. In addition to point-by-point responses, you may include descriptive literature if you make reference to specific contents. In reviewing the proposals, university personnel will not search through general literature. Where a question is asked, answer the question and supply any supportive detail. Any deviation from this format and sequence may result in the proposal being immediately rejected.

While responses should address all solicitation items, it is important to note that we also encourage and will consider any creative ideas for improvements or cost savings related to this transaction that may not be suggested in this document. Functional, technical, and economic solutions beyond the confines of this solicitation may also be considered.

The responses should address all solicitation items. However the University reserves the right to consider other ideas and solutions, or only a restricted subset of the configuration discussed in this document.

All optional arrangements should be described and priced separately.

All proposal responses must include:

1. The name, phone, fax number, and email address for the duly authorized agent submitting the proposal.
2. Full description of company, including experience, qualifications and executive leadership chart.
3. Documentation of any intent to use another company(ies) or private individual(s) as a subcontractor(s) for any part or the whole of the services offered in response to this RFP. Indiana University reserves the right to approve or reject any subcontracting agent or to reject proposals based on the use of subcontracted work.
4. Copies of all documents that could become part of a final Agreement arising from this process. A legal review of the Participant's proposed Agreement terms will be part of the criteria in evaluating the Participant's offer.
5. Three references from previous clients.

6. Describe in detail your company's capability of providing the services required.
7. Describe in detail other products and/or services your company has provided in the past 3-5 years for an institution of higher education that has a traditional student population. If your company is unable to provide engagements specific to higher education, please advise and describe in detail similar engagements your company has executed for the same time period.
8. Describe your methodology for providing these services, how you organize your team and the IU team, and how you ensure you deliver a quality product that meets expectations.
9. Describe the individual staff members in your company that would be assigned to this project. IU reserves the right to request resumes as needed.
10. Include all other things that would pertain to this type of product or service.

Costs

11. Provide base proposal for services. Proposal should include an hourly rate for services rendered, however alternative pricing proposals may be considered. Please also indicate billing frequency based; our preference is no more often than monthly.
12. Indicate what price guarantees or caps are offered on annual maintenance and support, or any other component.
13. Specify the complete warranty terms and conditions for all products and services.
14. For all items, indicate the timeframe or expiration date for the price quoted. If prices are subject to change, indicate the pricing beyond the expiration date.
15. Attach a copy of all relevant terms and conditions.
16. We encourage submitting vendors to be creative and flexible in offering pricing, financing, or other options. Indicate any other terms, discounts, conditions, opportunities, or arrangements that may be of

value and interest to IU.

Data Privacy and Security

In the course of performing the activities that are the subject of this RFP, your organization and personnel may access, collect, receive, maintain, distribute, process, store, use, transmit, dispose of, and otherwise handle or be exposed to sensitive institutional data of Indiana University (hereafter, "data activities"), including but not limited to: identifiable student enrollment data, identifiable student performance data, identifiable student activity data, identifiable research data. The data will be in electronic format, and will be stored in an AWS project site that is managed by Indiana University (which will be accessible to your organization and personnel).

17. Please describe the measures your organization and personnel will take to ensure that:

- a. all data activities are performed in a sufficiently secure manner to protect against reasonably anticipated threats or hazards to the security or integrity of such data, and to prevent unauthorized access to or use of the data;
- b. all data activities involving Indiana University (IU) institutional data are performed in accordance with all applicable laws and IU policies, as well as prevailing commercial best practices with regard to the type(s) of data involved. These include but are not limited to:
 - (i) The Safeguards Rule of the Financial Services Modernization Act of 1999 (Gramm-Leach-Bliley or GLB);
 - (ii) The Health Insurance Portability and Accountability Act (HIPAA) Privacy and Security Rules;
 - (iii) The Family Educational Rights and Privacy Act (FERPA);
 - (iv) The Payment Card Industry Data Security Standards (PCIDSS);
 - (v) The Fair and Accurate Credit Transaction (FACT) Act of 2003 and amendments thereof;
 - (vi) Indiana University Information Technology Policy IT-12;
 - (vii) National Institute of Standards of Technology (NIST) standards found at <http://csrc.nist.gov/publications/PubsFIPS.html> and <http://csrc.nist.gov/publications/PubsByLR.html> applicable as identified by Indiana University;
 - (viii) General Data Protection Regulation (EU **GDPR**).

- c. you are able to detect and respond to security breaches that may expose IU institutional data to unauthorized access or use;
- d. as applicable, you have a written program in place to identify, detect, and address warning signs of identity theft, pursuant to the FACT Act and corresponding "RedFlag Rules;"
- e. you conduct regular internal security tests and/or audits including vulnerability scans, application security assessment scans and penetration tests conducted by personnel or contractors with appropriate expertise;
- f. you are able to promptly discover and respond to publicly-known software bugs or other security threats that may expose IU institutional data to risk of unauthorized access or use;
- g. you retain, and can provide to IU on request, authentication and other relevant system logs for a minimum of 60 days to facilitate the investigation of security incidents;
- h. in accordance with Indiana Code 4-1-10, your organization and personnel will not disclose to any third party any Social Security Numbers received or obtained from IU, except (i) as required by state or federal law or a valid court order or (ii) with prior written authorization from IU;
- i. your organization will notify IU immediately in the event of a breach of your electronic or paper records systems that reasonably appears to have resulted in the disclosure or exposure of IU institutional data, and cooperate fully with IU's efforts to investigate the incident and to provide notice as appropriate to the individuals whose data was involved and to others as required by law or deemed appropriate by IU;
- j. IU institutional data is only accessed and used for the purpose of performing the activities that are the subject of this RFP, and will not be used for targeted marketing purposes;
- k. IU institutional data is only accessed and used by those personnel within your organization, or approved subcontractors, who require access to perform activities that are the subject of this RFP;
- l. IU institutional data will not be shared with any third party except as required by state or federal law or a valid court order, or with prior written consent from IU and the individual(s) whose personal records would be disclosed; and
- m. your personnel and approved subcontractors understand, accept, and have received appropriate instruction regarding their obligations to handle IU institutional data with the proper security as described above, and all such personnel and subcontractors will have read, understood, accepted, and received appropriate instruction as to how to comply with, the data protection provisions reflected in this RFP and the ultimate agreement between your organization and IU.

18. Please provide a copy of all policies and procedures within your organization that relate to the measures described in #17 above.
19. What procedures and safeguards are in place to ensure the return of University data, or provide permanent access to University data, even if the relationship terms.
20. Please provide the name(s) and contact information for the person(s) responsible in your organization for electronic and paper records security.

Accessibility

Please describe the measures your organization and personnel will take to ensure the following regarding accessibility.

Development

21. How do you ensure that the web applications you develop meet the Web Content Accessibility Guidelines 2.0 Level AA? Please describe and provide supporting evidence of the process you follow.
22. What percentage of your software development and QA testing team is focused on accessibility?

Testing & Issue Tracking

23. What automated manual testing do you perform accessibility for people with impairments? Please describe your testing process in detail.
24. Does your product undergo accessibility testing prior to each major release?
25. Do you use a third-party accessibility evaluation company to verify your accessibility compliance? If so, are you willing to provide a copy of your most recent evaluation report?
26. Which assistive technologies do you test with in order to evaluate access for people who are blind or visually impaired? Please describe and provide supporting evidence of your assistive technology testing process.
27. What is your policy and process for responding to issues tagged as accessibility errors for applications in development and production environments?

28. How do you track and prioritize accessibility issues?

Vendor Internal Training

29. Do your developers and project managers receive or engage in accessibility training on a regular basis? Please describe the extent of such accessibility trainings.

Support

30. Do you have a designated accessibility representative to address issues or questions and provide oversight related to the accessibility of your product?

31. What methods do you use to inform customers of accessibility errors?