



SCORMETRY:

A MULTI-PURPOSE EVALUATION SYSTEM FOR
PARAGON INTERNATIONAL UNIVERSITY

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Course: CS 401 Section 1

MEET THE TEAM



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INTRODUCTION

- Paragon International University is committed to becoming a leader in high-quality education and fostering academic growth through innovative solutions in Cambodia [1]. According to the University's goals, one of them is "maintaining mainstream quality assurance and evaluation mechanisms across all departments, programs, and related offices" [10].
- Instructors and event organizers had been observed to formulate evaluation mechanisms to assess the performance, achievements of the students, either through academic activities such as presentations, project defenses, or university hosted events, competitions and bootcamps.
- Usually, they use a rubric system to ensure that grading of individuals and teams stay consistent throughout the entire evaluation process [11]. In some instances, they also incorporate panel evaluation, which involves multiple judges for the process, ensuring reliability of the scoring [12,15].

[1] "The History of Paragon International University" Paragon International University. <https://paragoniu.edu.kh/about-us/the-history-of-paragon-international-university/>

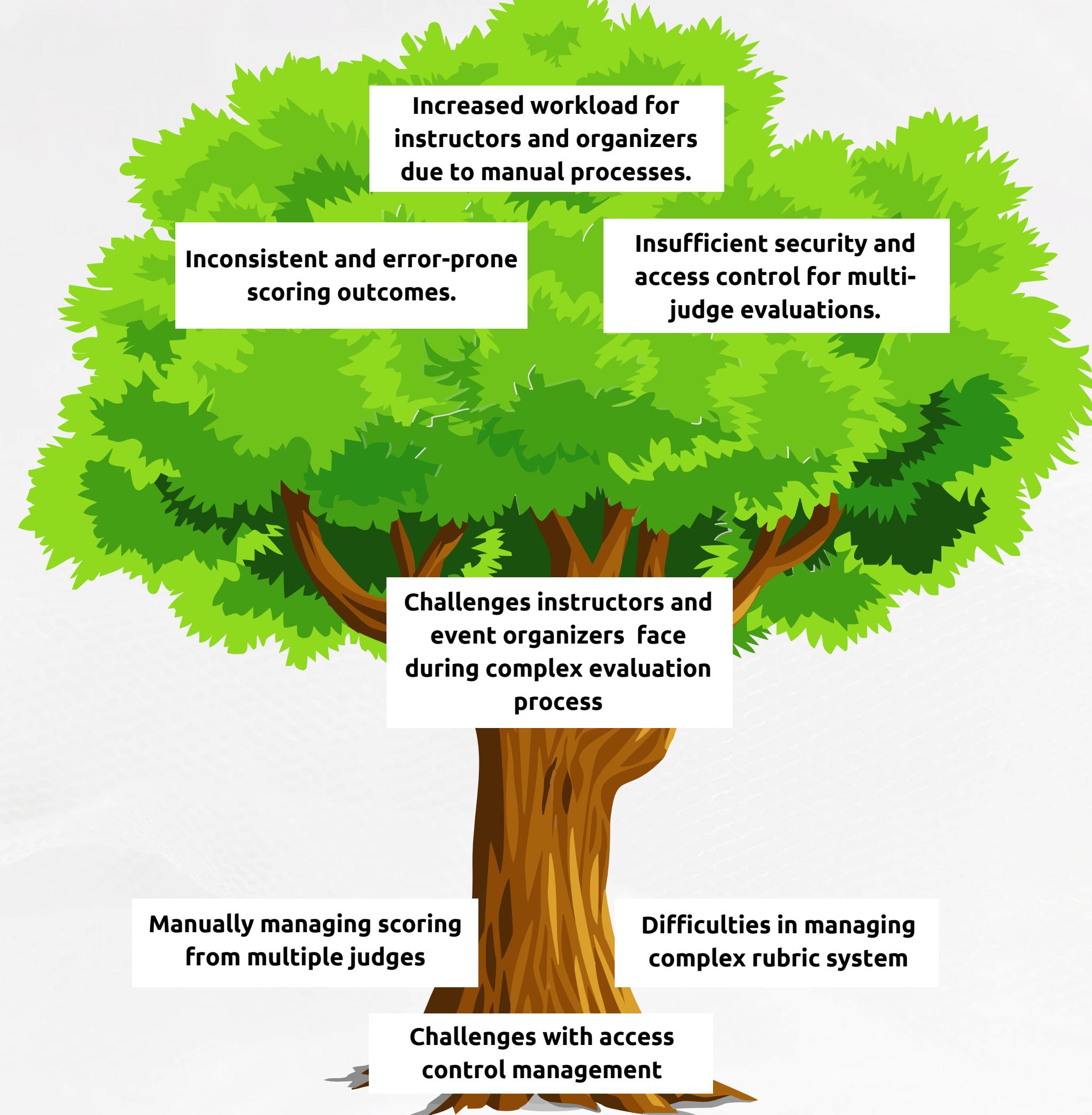
[10]"Vision, Missions & Core Values - Paragon International University," Paragon International University, Nov. 22, 2022. <https://paragoniu.edu.kh/about-us/vision-missions-core-values/>

[11] F. Chowdhury, "Application of Rubrics in the Classroom: A Vital Tool for Improvement in Assessment, Feedback and Learning," ResearchGate.

https://www.researchgate.net/publication/329986506_Application_of_Rubrics_in_the_Classroom_A_Vital_Tool_for_Improvement_in_Assessment_Feedback_and_Learning

[12] Z. Chan and S. Ho, "Good and bad practices in rubrics: the perspectives of students and educators," *Assessment & Evaluation in Higher Education*, vol. 44, no. 4, pp. 533–545, Mar. 2019, doi: <https://doi.org/10.1080/02602938.2018.1522528>

[15] T. White, "Adding Eyes: The Rise, Rewards, and Risks of Multi-Rater Teacher Observation Systems," 2014. Available: https://www.carnegiefoundation.org/wp-content/uploads/2014/12/BRIEF_Multi-rater_evaluation_Dec2014.pdf



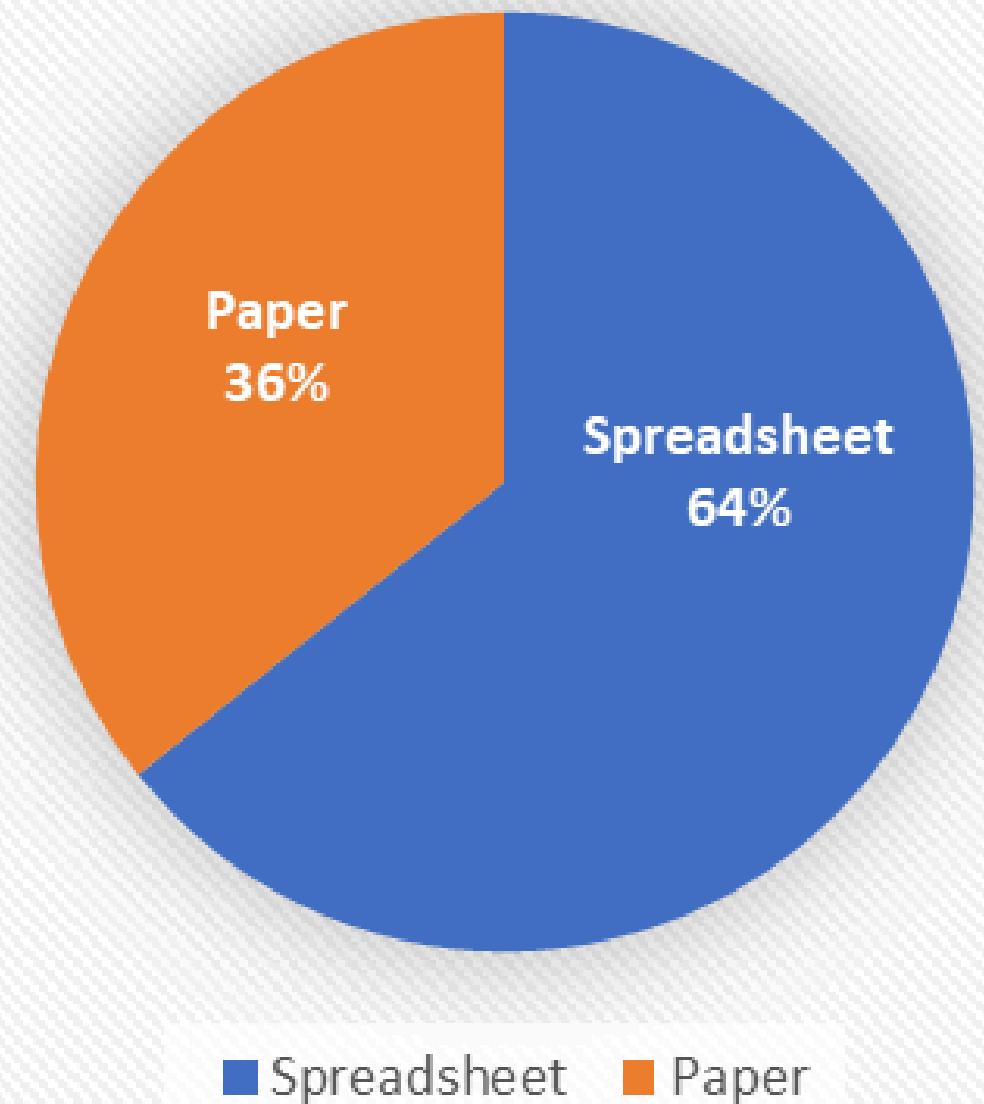
PROJECT CONTEXT

Preliminary Investigation

- Interview
- 9 Instructors
- 5 Event Organizers

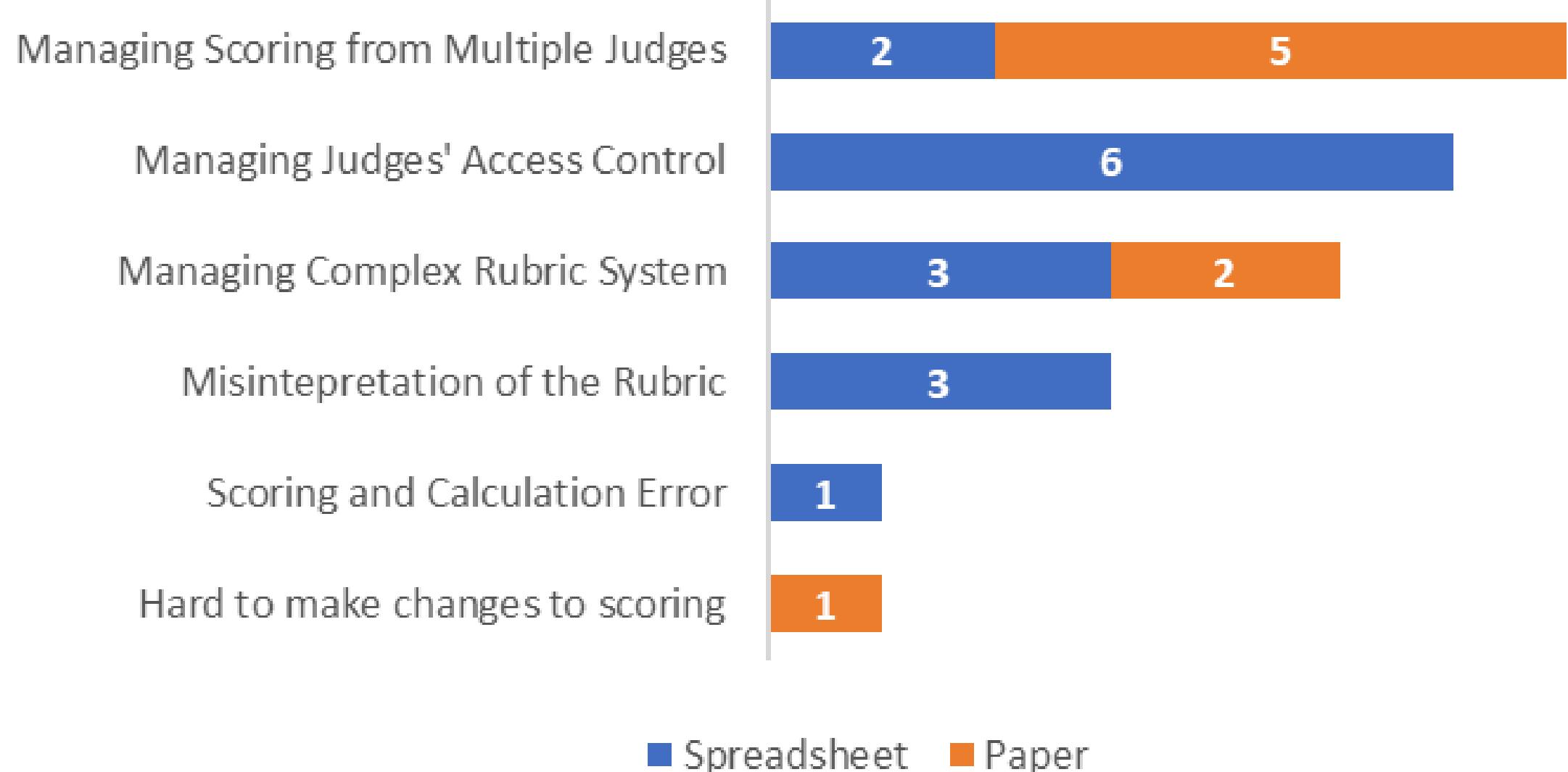
PROJECT CONTEXT

Tools Used for Evaluation Process



PROJECT CONTEXT

Problems When Using Paper and Spreadsheet for Evaluation Process



PROJECT DESCRIPTION

This study identifies the problems and challenges regarding the evaluation and tabulation process that the instructors and event organizers at Paragon International University are facing. To address these problems, the study focuses on creating a multi-purpose evaluation system that can support independent and supervised scoring, with built-in access control management, and can facilitate the management of a complex rubric system. It can be used for a range of use cases, including academic evaluations such as project defenses and presentations, as well as events, competitions and bootcamps.

PROJECT OBJECTIVE

- **Reduce workload** by reducing the manual effort required from instructors and event organizers in managing the evaluation and score tabulation process.
- **Reduce effort in access control management** by making it easy to assign judges, and control their permission and access, ensuring that each judge can only make changes to their own scoring for the appropriate teams or individuals.

SCOPE OF THE PROJECT

- **Preliminary Investigation:** Initial data collection through interviews with instructors and event organizers at Paragon International University to identify the challenges they face with the current evaluation process.
- **Literature Review:** Comprehensive review and analysis of existing studies, methodologies, and publications relevant to the topic. This includes identifying best practices, exploring current trends, gaps and addressing limitations in both academic and event-based evaluation contexts.
- **Identify the Gap:** Identify the gap after understanding the problems faced by instructor and event organizers.
- **Requirements Analysis:** Defines the system's functional and non-functional requirements, based on stakeholder input and literature insights.
- **System Design:** Designing our system based on the functional and non-functional requirements defined during the requirements analysis phase. This design will serve as a blueprint for the development process of the project.
- **Development:** Developing the system based on the designs, ensuring that the system meets all of the requirements defined during the requirement analysis phase combined with a chosen System Development Life Cycle (SDLC) methodology.
- **Quality Assurance Testing:** Conducting quality assurance testing, making sure that the software is functioning properly. This involves functional testing to verify features, stress and performance testing for peak load handling.
- **Deployment:** Deploying the platform on Paragon Cloud, allowing users to use the platform to help with their evaluation needs.
- **User Acceptance Testing:** Conducting user acceptance testing based on the Unified Theory of Acceptance and Use of Technology (UTAUT) to gather feedback, ensure the system meets user needs, and address any remaining issues.

LIMITATION

- The research focuses on addressing challenges within Paragon International University, without extending to a broader demographic.
- The system will not support synchronization features with the MyParagonU system.
- The system will be deployed on Paragon International University's cloud server infrastructure, and its performance will depend on the server's specifications and the university's internet connectivity.
- The research will not explore the business model of the system.

SIGNIFICANCE OF STUDY

For Instructors & Organizers:

- Enhances evaluation processes by ensuring secure access control, allowing judges to work only on assigned teams and sections while maintaining scoring integrity.
- Reduces manual effort, and improves accuracy through structured rubrics and weighted scoring.
- Offers flexibility for managing complex rubrics tailored to diverse academic activities.

For Paragon International University:

- Aligns with the mission of good governance by enhancing accountability and transparency.
- Promotes trust through secure, fair, and clear evaluation processes.

For Researchers:

- Provides a foundation for exploring digital evaluation platforms.
- Allowing other researcher to use this research as references.

REVIEW OF RELATED LITERATURE & STUDIES

- Evaluation is the judgement quality, or value. This judgement can help students understand their strengths and weakness, so they can improve [19].
- Integrating digital tools into evaluation processes has enhanced efficiency and accuracy [13].
- Classroom system lack the capability to handle complex evaluation process, particularly the support to handle scoring from multiple judges [4].
- Using paper-based system is not reliable, because scoring can be manipulated.
- Using spreadsheet software is more prone to errors [16]. Mitigating this issue requires validation, which increase workload [17].

[4] "Set up grading - Classroom Help," support.google.com. <https://support.google.com/edu/classroom/answer/9184995>

[13] J. I. Castillo-Manzano, M. Castro-Nuño, L. López-Valpuesta, María Teresa Sanz-Díaz, and Rocío Yñiguez, "Evaluating the design of digital tools for the transition to an e-continuous assessment in higher education," Journal of Computing in Higher Education, vol. 36, no. 3, pp. 875–893, Aug. 2023, doi: <https://doi.org/10.1007/s12528-023-09381-2>

[16] R. R. Panko, "Reducing Overconfidence in Spreadsheet Development," vol. abs/0804.0941, Apr. 2008, doi: <https://doi.org/10.48550/arXiv.0804.0941>.

[17] P.-L. Poon, Man Fai Lau, Yuen Tak Yu, and S.-F. Tang, "Spreadsheet quality assurance: a literature review," Frontiers of Computer Science, vol. 18, no. 2, Jan. 2024, doi: <https://doi.org/10.1007/s11704-023-2384-6>.

[19] "Effective Student Assessment and Evaluation in the Classroom." Available: <https://files.eric.ed.gov/fulltext/ED498247.pdf>

REVIEW OF RELATED LITERATURE & STUDIES

- When evaluating many groups or individuals, a rubric is often used to ensure that consistency in grading [11].
- Rubric can save time, as instructor don't have to write long comments.
- When multiple judges are involved, rubric can also promote reliability of the scoring [12][15].

- [11] F. Chowdhury, "Application of Rubrics in the Classroom: A Vital Tool for Improvement in Assessment, Feedback and Learning," ResearchGate.
https://www.researchgate.net/publication/329986506_Application_of_Rubrics_in_the_Classroom_A_Vital_Tool_for_Improvement_in_Assessment_Feedback_and_Learning
- [12] Z. Chan and S. Ho, "Good and bad practices in rubrics: the perspectives of students and educators," *Assessment & Evaluation in Higher Education*, vol. 44, no. 4, pp. 533–545, Mar. 2019, doi: <https://doi.org/10.1080/02602938.2018.1522528>
- [15] T. White, "Adding Eyes: The Rise, Rewards, and Risks of Multi-Rater Teacher Observation Systems," 2014. Available: https://www.carnegiefoundation.org/wp-content/uploads/2014/12/BRIEF_Multi-rater_evaluation_Dec2014.pdf

REVIEW OF RELATED TECHNOLOGIES

- **Google Classroom** lack multi-judge evaluation, team and individual scoring [4].
- **Google Sheets** require a lot of manual work to set up, especially for complex evaluation system.
- **Moodle** lacks the support for multi-examiner evaluation [7].
- **Krukit** focuses on classroom activity, cannot facilitate scoring from multiple judges [8].

[4] "Set up grading - Classroom Help," support.google.com. <https://support.google.com/edu/classroom/answer/9184995>

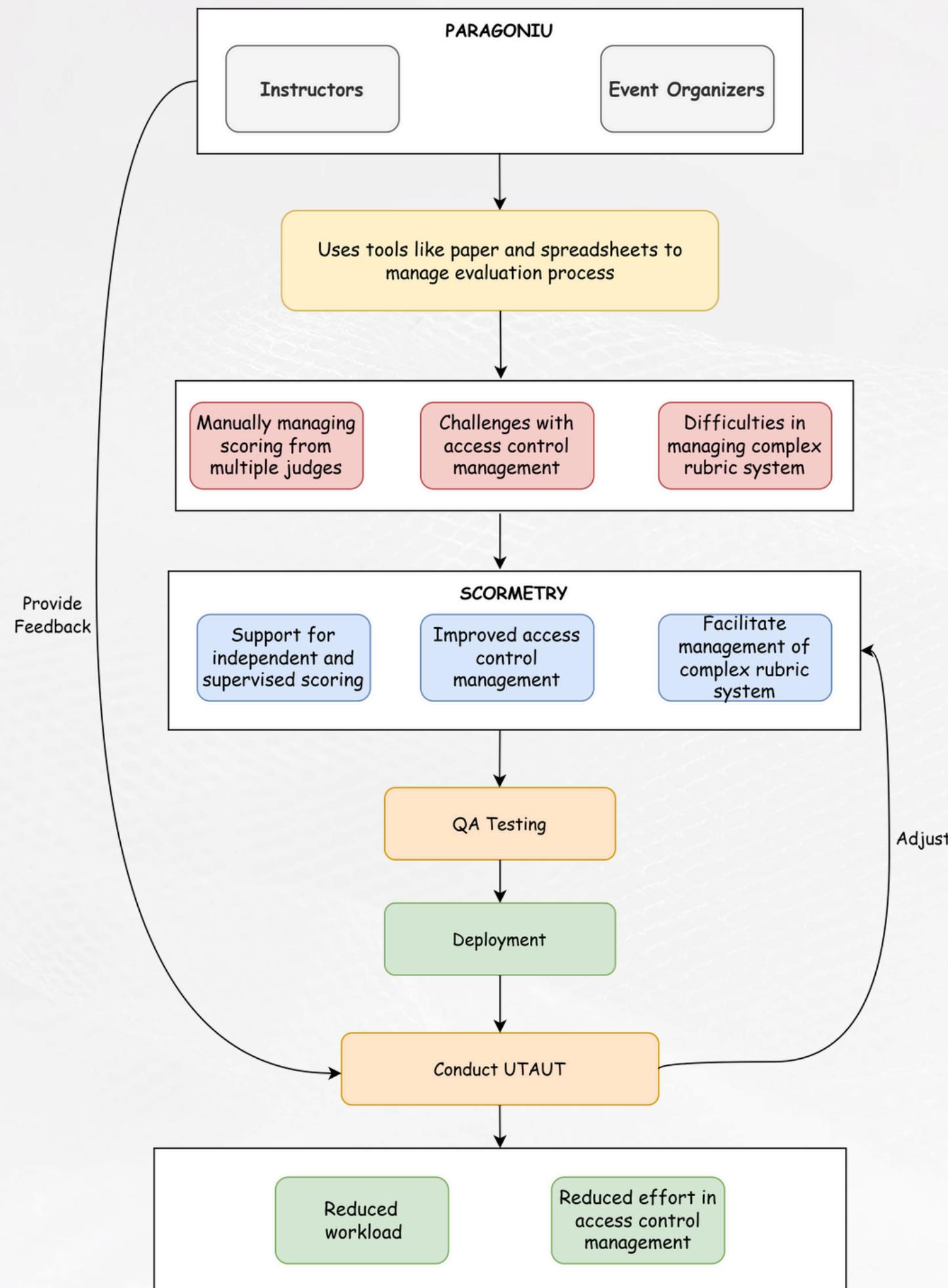
[7] Moodle, "Features," Moodle Docs. Available: <https://docs.moodle.org/en/Features>.

[8] R. Hang, P. Phok, and S. V. Sam, "Krukit: Assistive classroom teaching management software," Manuscript, Paragon International University, 2023.

SYNTHESIS

- Classroom system has limitation, particularly for multi-judge evaluation.
- Paper-based systems are inefficient and prone to inaccuracies.
- Spreadsheet are prone to error, and require additional work to minimize errors.
- Existing systems like **Google Classroom**, **Google Sheet**, **Moodle** and **Krukit** either lack the functionality or hard to use and manage.
- Importance of having a multi-purpose evaluation system.

CONCEPTUAL FRAMEWORK



THANK YOU