Judicial Court Information Management System (J-CIMS) for Regional Trial Court in the Philippines

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RESEARCH ARTICLE INFORMATION	ABSTRACT
  	To recognize the importance of electronic delivery of public services and identify areas for implementation that will ensure benefits for different users in court proceedings, Executive Order (E.O.) No. 47, s. 2011, Section 5 enhances infrastructure and information systems for e-governance to help boost the country's global economic competitiveness. The research study sought to develop a Judicial Court Information Management System (JCIMS) to digitize the process of filing a case and monitoring its status. The research methodology includes a study of the management of information systems in digitizing the process of filing a case and scheduling hearings. The JCIMS and the Electronic Court Record Keeping (ECRK) systems were established to accept new cases, add new users, and update case schedules. The researcher utilized the Technology Acceptance Model (TAM) to predict and explain the acceptance of the system. The results showed a substantial relationship between perceived usefulness (PU) and perceived ease of use (PEOU). PEOU also had an important direct influence on PU. Thus, in this study, criteria in the ISO 25010 software quality model was rated highly acceptable.

Introduction

In the present generation, technology is accessible to the public engaged in legal services and the advancement of digital technologies such as digital devices. The country is now seen as a global showcase of socio-economic development in e-government support plans such as online transactions, e-filing, and other e-government-related activities (Khalid, 2019). The Supreme Court en banc, in No. 13-04-11- SC, approved the full rollout of the Case Decongestion Activity implemented by The Asia Foundation's (TAF), otherwise known as the Hustisyeah!

The researcher used a self-assessment survey form to find out what people think about the Philippine Judicial Court System's services particularly on the construction of an e-court system. As a result, the researcher was able to utilize the e-court system by automated monitoring of cases to communicate between court proceedings and other parties with the case. The proposed system will be integrated toward the development of an e-court system specifically to create one for the Regional Trial Courts (RTC) in the Philippines.

The main purpose of this study was to develop a Judicial Court Information Management System (JCIMS) to digitize the process of filing a case and monitoring its status. Specifically, the study aimed to create a court management information system (CMIS) accessible to regional trial court personnel and to develop an Electronic Court Record Keeping (ECRK) system capable of accepting new cases, adding new users, and updating the case schedule. The system utilized the Technology Acceptance Model (TAM) to predict the acceptance of a new technology based on two aspects of the information system: perceived usefulness and perceived ease of use. Furthermore, it evaluated the acceptability of the developed JCIMS using the ISO 25010 software quality model.

The study involved research on the existing court management systems, threby designing and developing a system specific to the needs of the RTC. The researcher enhanced RTC proceedings in filing, viewing, and scheduling a case. The step-by-step process of filing a case includes adding a new case number, creating a list of cases, submitting payment, and setting a case schedule. The JCISM focused on the process of filing a case, enabling court personnel to input the docket number or case number and monitor the case's status.

In addition, the system limits the automation of the raffle, as stated by Supreme Court Circular No. 7 dated September 23, 1974, Administrative Order (A.O.) No. 6 dated June 30, 1975, and Administrative Circular (A.C.) No. 1 dated January 28, 1988, which requires strict procedures for the equitable distribution of assigned cases. The results of the raffle were encoded by the clerk of court who then administers the assigned branch number on the system. The JCISM implements CRUD (Create, Read, Update, and Delete) as part of the database management system. This functionality will allow users to search, create, update, and delete records in the database.

As part of the study, the technology acceptance model (TAM) was used to explain and predict the technology's acceptability (Holden, 2010). It presents the substantial factors determining whether the system can be accepted in terms of perceived ease of use and perceived usefulness. Figure 1 shows the TAM diagram as a paradigm for analyzing how consumers embrace and use developing technologies, especially in the workplace.
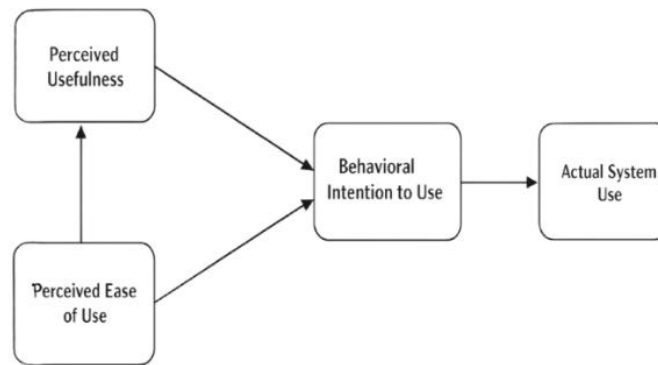
Figure 1. *TAM as the Theoretical Framework*

The researcher introduced "JuCo-IS", an e-court system implementation structure for the judicial system in the Philippines' Regional Trial Court (RTC), as shown in Figure 2. The structure centered on helping the judicial officers and the lawyer workflow. On the other hand, the administrator (authorized person) views other files: status reports, lists of cases, and lists of clients.
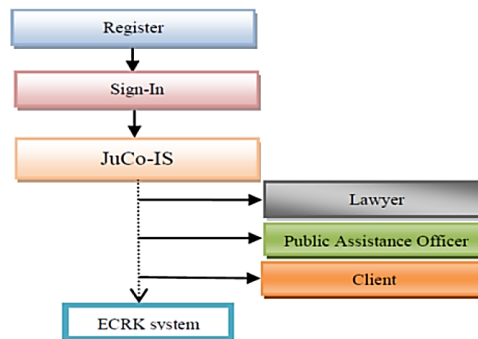
**Figure 2.** *System Flowchart*

Two important concepts, Case Information Management System (CIMS) and Electronic Court Record-Keeping (ECRK), formed the basis for the initial design. The play-actor is categorized into two groups: the court personnel and outside users. The court personnel manage the flow of procedures through the JuCo-IS module. The framework initially employed in the research helped the researchers gain a better understanding of the project, as shown in Figure 3. Based on the foregoing concepts, related literature, and studies presented, a conceptual model can be developed as follows:
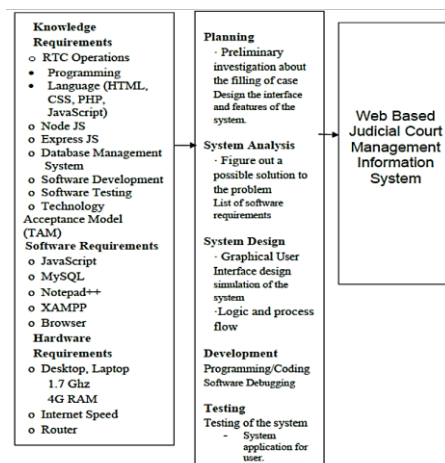
Figure 3. *Conceptual Model of the Study*

Methods

This study consists of several phases and each stage discusses the activities and deliverables required to form a complete process of software development. The objective of this method was typically for the outcome of one phase to act as the input for the next phase in sequence.
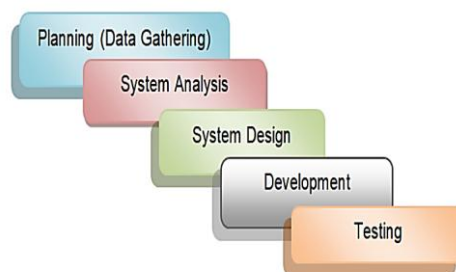

Figure 4. *Development Stages of the JCIMS*

Planning Stage

The researcher interviewed knowledgeable people in gathering related data in court precedent that serve as a parameter for the development of the JCIMS for RTC. The data was acquired through observation of processes, interviews with key personnel, self-assessment surveys, research, and comparisons with other case management systems (CMS). The researchers also interviewed court personnel involved in the court's operations, including clerks of court, PAO (Public Attorney's Office) lawyers, and administrators to gain insight into their roles and responsibilities.

System Analysis

The system requirements were gathered, and the project scopes were defined. Figure 5 shows the internal proceedings of a legal case, thereby enabling researchers to understand the filing procedure and other legal principles governing the digitization of court documents. The system actors comprised various users, including clients, judicial officers, judges, treasurers, lawyers, administrators, and clerks of court.
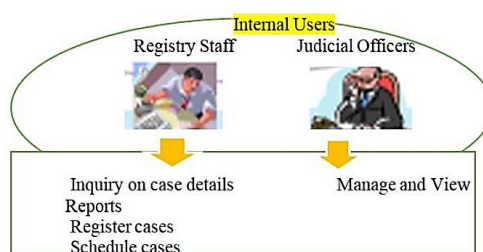
Figure 5. *RTC System*

System Design

The researcher focused on the design of both the hardware and software structure of the system. The system was designed to be accessed using a computer/laptop, such as Google Chrome and Microsoft Edge using the Hypertext Transfer Protocol (HTTP) protocol. A 25-mbps internet connection is considered moderate speed. The researcher opted for Hostinger as a web-hosting company to start the websites.

The JCISM was developed using PHP, JavaScript, HTML5, CSS3, Bootstrap5, and jQuery. The system created a user authentication system using a server-side PHP programming language, allowing users to create an account and log in to access the database. Likewise, the JCIMS enabled the users to view file case information, access records, and view hearing schedules. The data flow diagram represents the overview of the system of different levels of operations and scope as shown in Figure 6. This shows the system actors include the admin, clerk of court, lawyer, treasury, judge, and staff. It shows the incoming data and outgoing information flow between the actors and the proposed system.
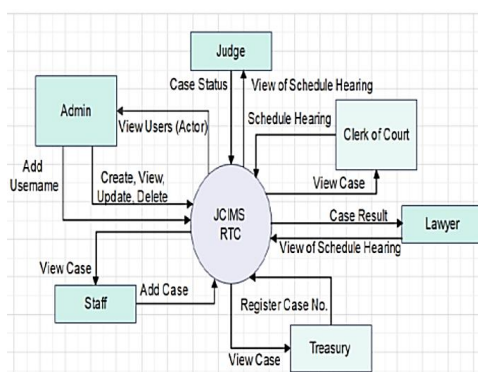
Figure 6. *Judicial Court Information Management System DFD*

Development

The design process involved the creation of the front-end design of a webpage, which included the JCIMS authoring markup. The JCIMS is a software application used to access information related to Information Systems (IS). The use of information and communication technology (ICT) has improved the effectiveness of the court system and the data it processes. The study was a revised version of a project called "JuCo-IS: A

Development of Web-Based Information System in Judicial Regional Trial Court," which was presented at the IEEE 10th International Conference on System Engineering and Technology (ICSET) in Shah Alam, Malaysia in 2020.

Testing

The researcher evaluated the system using TAM based on two aspects of the information system: perceived usefulness, and perceived ease of use in the context of ISO 25010 software quality model.

Ethical Considerations

The researcher clearly explained the purpose, procedures, risks, and benefits of the research, allowing participants to make an informed decision about their involvement. She also protected the privacy of participants by ensuring that their personal information remains confidential.

Results and Discussion

This section presents the technical specifications of the deployed JCIMS website. Based on the interview of the researcher at the RTC Bataan, the attorney interviewed their clients based on the case either criminal or civil cases, and collected necessary documents as evidence of the demand.

The users in the JCISMS system were allocated according to their specific roles such as clerk of court, judge, lawyer, treasury, and Personnel Assistant Of the Day (PADO) as shown in Figure 7. The specific roles and responsibilities define a person's position at work based on the assigned tasks in the RTC proceedings.
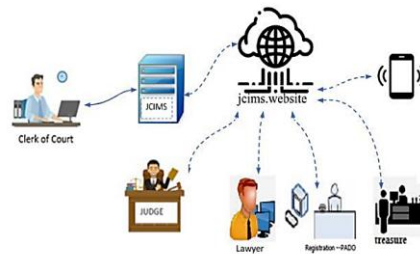
Figure 7. *JCIMS Account Users*

Figure 8 shows the procedure of entering the user information in the JCIMS system to access the filed cases. The module integrates various court cases with ECRK system components to benefit different users. The users were able to access the data through a database named ECRK as shown in the figure below.
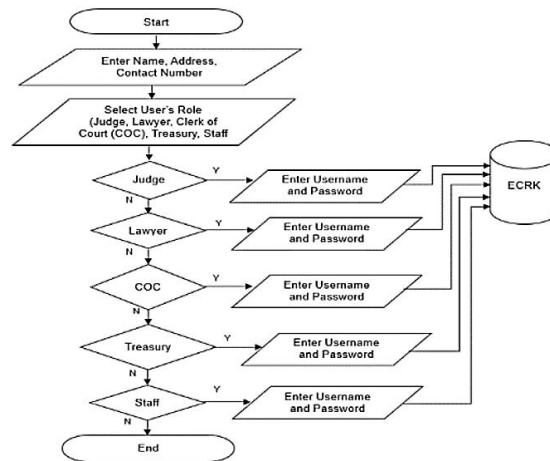
Figure 8. *Flowchart of the User of the JCIMS*

According to each role in the system, users provide their username and password as shown in Figure 9. The role of the admin is to input the user's RTC Branch and add new users to the JCIMS apps. The authorized user views the dashboard if the login and password are correct. If not, no action is taken.


Figure 9. *Login Page*

The dashboard monitors the content of a file case also known as a case management system (CSM) as shown in Figure 10. The CSM shows a graphical user interface of the JCIMS that interacts with the database (ECRK). The page contains the settings of the branches and the user roles.

Figure 10. *JCIMS Dashboard Page*

The researcher interviewed the Public Attorney's Office (PAO) regarding the process of filing a case. During the interview, it was explained that when submitting a new case, the PAO lawyer consults their record book. The last number in the record book serves as a point of reference for creating a new case number, which is then entered into the computer by RTC staff members. The filings presented by parties represented by counsel must be submitted through the judicial system. Figure 11 shows the entering of the case information such as case number, type of case, subject, parties, status, payment status, and date filed.
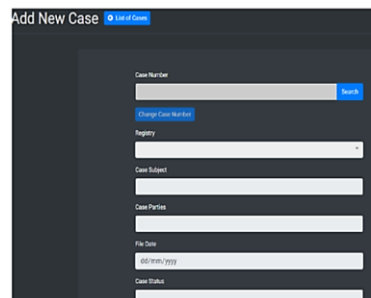
Figure 11. *Adding of New Case Number Page*

The RTC staff members encode information such as the case number, registry (civil or criminal case), RTC branch, subject, parties, filing date, and payment status. The JCIMS system can create, update, and view the case file. It records case information to monitor filed cases in real time. After the case is raffled, the clerk of court (COC) views it and assigns it to the respective branch, as shown in Figure 12.
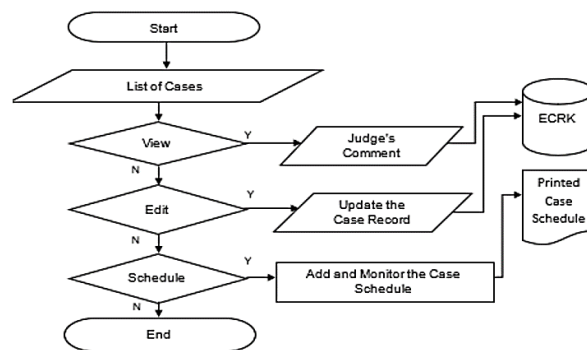

Figure 12. *List of Cases*

The JCIMS system has a search bar that makes it simple to access the records, and it then displays the results of the user's query. The system indicates color code to easily recognize the function of the system. The colors are identified as follows: blue for view - to view the details of the filed case; green for calendar - to view the schedule of the hearing, if any; orange for edit - to update the record, if needed; and red for delete - to delete the record if the case does not continue to court proceedings if necessary.

A court clerk's daily responsibilities include scheduling, case filing, raffles, and data entry of the judge's and lawyer's names. In the JCIMS, the clerk of court (COC) can add the user, add branch number, view, and monitor the case. Also, the COC can view the list of cases consisting of the case number, registry, RTC branch name, subjects, parties, file date, status, payment status, file case created, and updated date if the filed case has an update. The flowchart diagram shows how the list of cases is viewed, edited, and scheduled.


Figure 13. *Managing List of Cases Flowchart*

The JCIMS app system can also produce a softcopy file in the format of XLSX, CSV, or PDF as shown in Figure 14.

Figure 14. *Softcopy File in Different File Formats*

Figure 15 shows the clerk of court's case schedule, which includes the calendar and list of hearings. In addition, the user can view the case's schedule, as well as basic information such as date and time, based on the affiliated RTC Branch number.
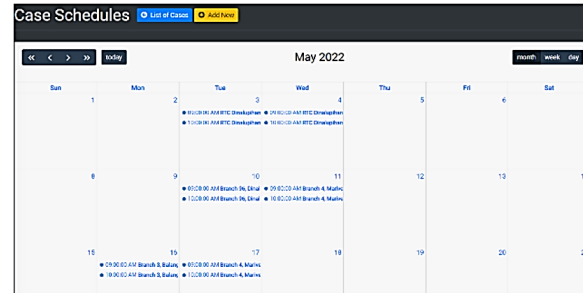
Figure 15. *Calendar of the Case Filed Page*

There were around 153 respondents in the survey. The data was collected to describe and analyze the effectiveness of the court's legal information. Thus, the users' perception towards the adoption of new technology could help facilitate further growth, particularly technology. Table 1 shows the effectiveness and consistency of questions in each factor of the TAM model which were evaluated using Cronbach's Alpha.

Table 1: Validity and Reliability of Construct

Factor	min	max	mean	Cronbach's alpha
Perceived of	2	5	4.118	
Usefulness	2	5	3.915	0.931
Perceived ease	2	5	4.111	
of Use	2	5	4.007	0.946
System	3	5	4.229	
Adaptable	2	5	4.203	0.774
	2	5	4.386	
The behavior of	3	5	4.627	0.782
Intention to Use	3	5	4.641	

Cronbach's alpha has been widely used to measure construct reliability. Figure 13 shows that all factors and items have an acceptable Cronbach's alpha, with reliability and consistency greater than or equal to 0.7 or 0.8, indicating their acceptability level. The average Cronbach's alpha result of 0.830, as shown in Figure 10, falls within the range of internal consistency of $0.8 \alpha \geq 0.9$, indicating 'good' remarks. The table above shows that the application can adapt to a new environment and change its specifications.
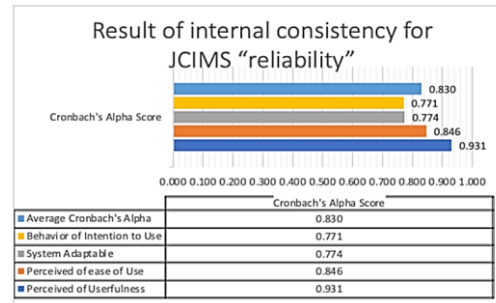
Figure 13. *Graphical Representations of Cronbach*

The study utilized the ISO 25010 product quality model criteria as a guide for evaluating the development of the JCISM system. The ISO 25010 evaluation form assisted in conducting the study to ensure that the JCISM system provided an efficient data entry process for users and allowed for feedback. Table 2 shows the total mean of 4.69, which is interpreted as "highly acceptable.".

Table 2: Evaluation Result

Criterion	Final Rating	Interpretation
Functionality	4.62	Highly Acceptable
Reliability	4.69	Highly Acceptable
Usability	4.76	Highly Acceptable
Efficiency	4.69	Highly Acceptable
Overall Total	**4.69**	**Highly Acceptable**

The table above shows the JCISM system in terms of its functionality to access the list of cases and users over the Internet. The total mean of this criterion is 4.62, which is interpreted as "highly acceptable". The evaluation result of this application based on functionality means that the application delivers the working functions of the system requirements. In terms of its reliability or system's capacity to provide website service that sustains its facilities and functions under given conditions for a specified period, the mean is 4.69, which is interpreted as "highly acceptable".

 In terms of its usability or the amount of effort required to use. The mean of this criterion is 4.76, which is interpreted as "highly acceptable". The result of the evaluation for this criterion implies that the JCISM can be used without the system developer's assistance. Lastly, in terms of its efficiency in the digitization of data for use in the e-court, the mean is 4.46, which is interpreted as "acceptable." The result of the evaluation implies that the system delivered a satisfactory performance.

Conclusion and Future Works

There are two important concepts presented in the study: developing a JCIMS and investigating the user acceptability of the system. The researcher was able to develop a JCIMS that digitalizes the process of filing, viewing, monitoring, and scheduling the cases. The researcher considers the user acceptability in digitalizing the process in the RTC Legal Court Office. In the existing software, the most critical aspects are the acceptability and functionality of the system within the present technology. The JCIMS was designed to digitize a system that enables the viewing of the status of cases

and generates reports. The system was developed and executed successfully in encoding the case number, payment, monitoring, and scheduling of filed cases.

The introduction of standardization, practice, technology, and strategy were the primary issues of the e-court system which must be acknowledged. The technology acceptance model was a good model for demonstrating the expectations of users about the information system. For future work, researchers may integrate a system such as a Queue Management System (QMS) that facilitates the queuing process of daily court transactions, framework, and algorithms.

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