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Development and Evaluation of Centralized Collection and Delivery System of New Canaan Insurance Agency, Inc.

JANELYN A. AMBRE
http://orcid.org/0000-0001-5593-014X
janelyn.ambre@gmail.com
Abra State Institute of Sciences and Technology, Philippines

ABSTRACT

The use of information technology at present is considered as one of the solutions for business establishments for their expense and quality issues. It is their key to staying ahead of their competitors. The study is intended to trace and monitor the transactions of the New Canaan Insurance Agency, Inc. (NCIA) involving collection, payment, delivery, and pick-up. It also monitored the performance of the liaison officers and the request of transaction is centralized. The researcher developed the Centralized Collection and Delivery System (CCDS) of New Canaan Insurance Agency, Inc (NCIA). The descriptive and applied types of research were employed in the study. Data were gathered through interview and feedback form. The respondents were from the 28 employees of NCIA. The Evolutionary Prototype model was used in the development of the system and the USE questionnaire to test its usability. The gathered data were analyzed and interpreted using frequency count and mean. Findings revealed that the procedures on collection, delivery, payment, and pick-up start with an employee's request forwarded to the liaison officers which is done manually. Using the Evolutionary Prototype Model, the Centralized Collection and Delivery System was developed. The developed system was found to be efficient because it was designed to fit the needs of NCIA.

Keywords **-** Information Technology, centralized collection and delivery system, ease of use, ease of learning, evolutionary prototype model, descriptive design, and Makati City, Philippines

INTRODUCTION

In offices, the use of computer machinery operated tools to create, store, manipulate, and relay information needed in accomplishing tasks and goals is relevant. Business areas use at least one computer business application designed for productivity in the course of its daily activities. Even the smallest companies and institutions are utilizing it for sustaining the services delivered in an organization.

According to Johnson and McElroy (1995) a computer based records management system comprises an information filter for assuring that record data units offered to the system for storage are complete and not redundant. For business operations the staff must have the information that the company requires and be able to retrieve it quickly for effective management to exist. Furthermore, the personnel must be able to determine conclusively if the required information does not contain the available stored information. It is also important to escape the flood of irrelevant and unnecessary information.

Davenport and Short (2003) stated that to improve the way a work is done, it must begin to apply the capabilities of information technology to redesign its business process. Consider FedEx – the first package freight company to offer package delivery software customers could use to request electronically package pickup and check the status of packages during delivery. All other major package delivery services such as UPS and RPS, just to name two, were forced to develop quickly similar software. They could not risk losing their customers to a company that provides a more innovative and efficient way to handle the information-processing tasks related to delivering packages. Furthermore, Liabsuetrakul, Petmanee, Sanguanchua, and Oumudee (2012) stated that having a Cooperative Delivery System (CDS) can reduce delivery costs. It consists of common stock point for good consolidation that uses the trucks of participating companies for distribution instead of third party or neutral carriers.

New Canaan Insurance Agency (NCIA) is a multi-line agency offering competitive commercial and personal coverage through top-rated insurance companies. New Canaan's phenomenal growth can purely be attributed to outstanding customer satisfaction at all times because every single person in the organization, from Founder and Chief Executive Officer (CEO) to all the

Client Liaison Officers, all subscribe to New Canaan's one mantra, Promises Kept Consistently.

Promises are kept constantly because of their fair customer service commitment. They represent more than 16 of the leading local and international insurance companies, positioning them to solicit and find the best combination of price, coverage, and service that works for personal or business needs. However, as an independent agency, they work for their clients, not for the insurance company.

To cope with the advancement of technology, the NCIA adopts automation in their processes like an accounting system, but even if automation is evolving in the company, there are still transactions that are manually done like collection or payment of premiums, and delivery or pick-up of insurance policy, claims document, check settlement, government payment, and marketing collateral. They do not have a database for monitoring that is why every member of the team needs to ask the liaison officers to do delivery, pick up, collect, and payment of premiums from time to time.

Hence, the researcher developed a centralized collection and delivery system. The system was created specifically to meet the needs of NCIA to check and monitor the collection, delivery, payment, and pick up transactions of the company and to render good service to their clients.

FRAMEWORK

Figure 1 displays the research paradigm that is composed of input, process and output. The input variables include the procedures made in collection, delivery, payment, and pick-up that were used in the development of the system.

The output is the Centralized Collection and Delivery System. The feedback of the study was based on the results of the system being tested and evaluated by the users or respondents and this provided room for improvement.

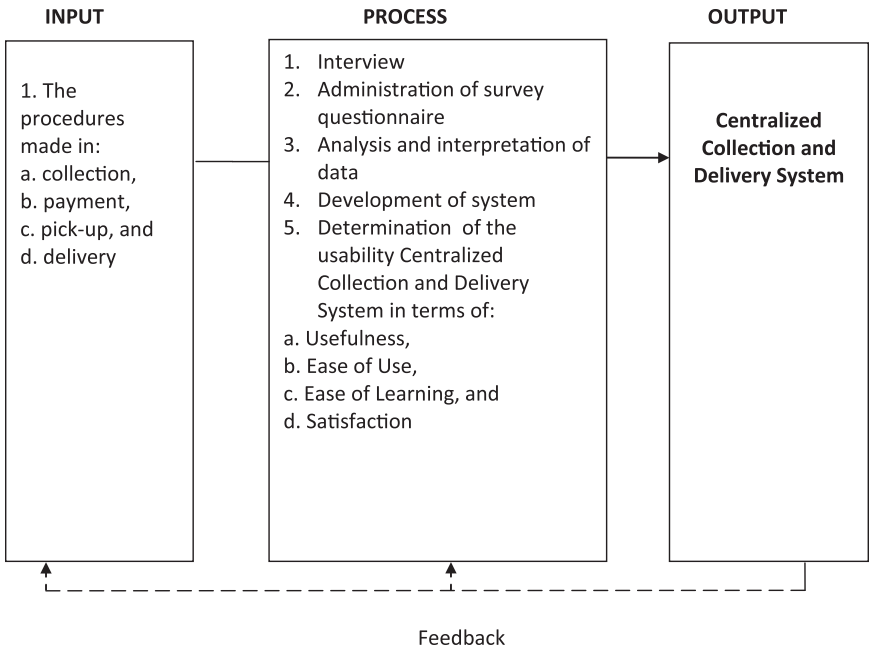

Figure 1. Research Paradigm

OBJECTIVES OF THE STUDY

The study aimed to develop a Centralized Collection and Delivery System. Specifically, it identified the procedures made in collection, payment, pick-up, and delivery. It also developed the Centralized Collection and Delivery System, and lastly, it determined the usability of the Centralized Collection and Delivery System in terms of usefulness, ease of Use, ease of learning, and satisfaction.

METHODOLOGY

Research Design

The descriptive and applied types of research were used in the study. Descriptive method was used to manage thoroughly the identification, presentation, evaluation, and interpretation of gathered data from the employees of NCIA. This type of research includes research methodologies and procedures like survey questionnaires and interview. Therefore, the researcher conducted an

interview and administered survey to the employees of NCIA.

The design of the study is primarily applied because it focused on the development of the Centralized Collection and Delivery System. For the system development, the researcher used a model that is, The Evolutionary Prototype Model.

Research Site

The study was conducted at the New Canaan Insurance Agency, Inc. 19F Citibank Tower, Citibank Plaza, 8741 Paseo de Roxas St., 1226 Makati City. The chief financial officer served as the respondent to identify the procedures on the collection, delivery, payment, and pick-up.

On the other hand, a total enumeration of 28 employees from four departments were selected to evaluate the usability of developed system regarding its usefulness, ease of use, ease of learning, and satisfaction (see Table 1).

Table 1. Distribution of respondents in the Usability of Centralized Collection and Delivery System

Department	Population
1. Property and Casualty	5
2. Life and Benefits	5
3. Claims	4
4. Finance and Admin	
4.a. Revenue Management	6
4.b. Financial Reporting and Compliance	4
4.c. Fund Management	4
Total	*28*

Instrumentation

For objective 1, an interview with the chief financial officer of NCIA as the internal control of the company was conducted to identify the procedures on the collection, delivery, payment, and pick-up an. Documentary analysis was used to analyze the documents that were gathered like pair reports.

For Objective 2, in the development of Centralized Collection and Delivery System, the researcher used the Evolutionary Prototyping Model, which consists of four phases namely, identification of the initial concept, design and implementation of first prototype, refinement of the prototype until acceptable, and completion and release of the prototype (see Figure 2).

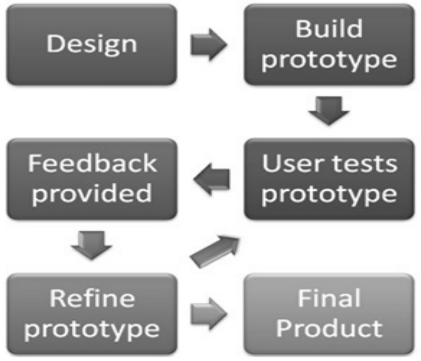

Figure 2. The Evolutionary Prototype

Identification of initial concept. This was the basis for all other phases. The researcher identified essential information needed to develop an efficient system. This stage included tasks such as determining the procedures employed in collection, delivery, payment, and pick-up. Furthermore, the researcher built user interface flow diagram and use case diagram to know the static and functional view of the system (see Figure 3,4,).

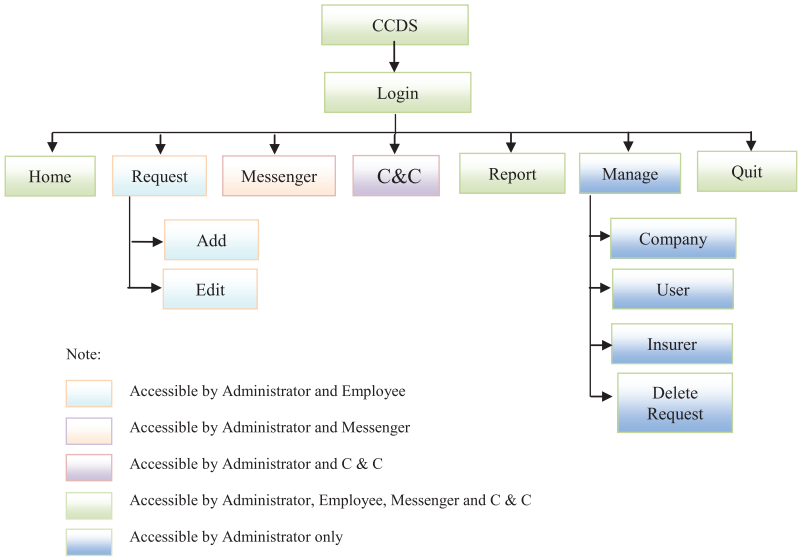

Figure 3. User Interface Flow Diagram of Centralized Collection and Delivery System

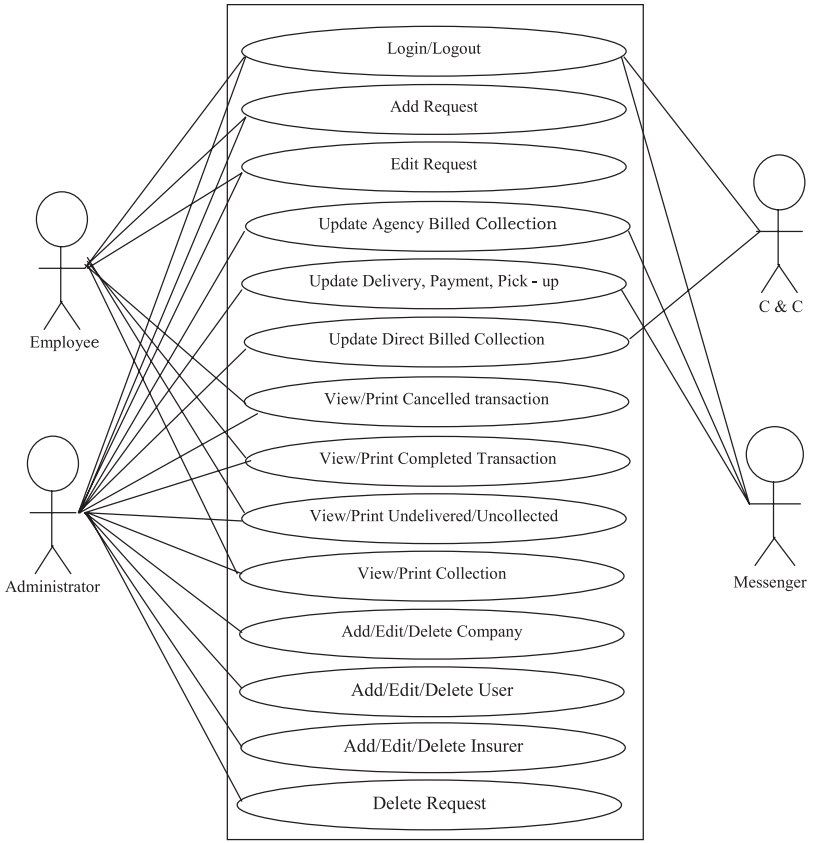

Figure 4. Use Case Diagram of Centralized Collection and Delivery System

Figure 4 displays the use of case diagram of the developed system to represent the functionality of the system from a user's point of view. It describes the features that the user expects the system to provide. Different users including administrators, employee, messenger, and C & C interact with the system. The administrator has a control over the system and users of the system. The administrator's roles and privileges include making and editing a request, updating completed request, generating reports, adding new users, insurers, and company, and deleting a record. The employee can add and change requests and produce reports. On the other hand, the messenger can update completed request for agency billed collection, delivery, payment, and pick-up while the C&C can only update the direct billed collection.

Design and implementation of the initial prototype. This involved the complete design of the system. This phase created the database that specifies the content of records and files that were included. In designing, the researcher considered the user interface and user-friendliness of the system. The researcher used the Visual Basic version 2008 as the programming language and MySQL as the database platform to develop the system and make it usable. During implementation, the system was delivered to the target users of New Canaan Insurance Agency, Inc. The researcher presented how the system has to be installed and used including all necessary elements in the distribution such as Xampplite installer, MySQL connector, and system installer. These software are relevant to make the developed system fully functional. The users tested and evaluated the prototype. Feedbacks from the evaluators were considered and integrated to the modifications of the system.

In addition, the operation of the Centralized Collection and Delivery System must consider these software requirements.

- Windows operating system that supports VB .Net framework,
- MySQl Data Provider, MySQL Connector,
- Display resolution of at least 1024 x 768 pixels,
- Dual core processor or higher, at least 1 Gigabyte (GB) physical memory, and 80 GB hard disk drive, and
- Dot matrix printer.

Refinement of prototype until acceptable. The researcher produced the next version of the system wherein testing and evaluation have been done again by the employees of NCIA. Moreover, every feedback is essential until such time a perfect system was created.

Completion and release of the prototype. From series of testing and refining until the creation of the complete system based on users' preference, the centralized collection and delivery system was deployed and used by New Canaan Insurance Agency Inc.

For objective 3, to determine the usability of the Centralized Collection and Delivery System, the researcher used the USE questionnaire by Lund (2001). Since the instrument was already utilized by the previous researchers and these were truly used in evaluating systems in the ICT world, it is presumed to be valid and reliable and that no more validation and reliability tests were conducted.

Data Collection

The data gathered from the 28 respondents were analyzed and interpreted using statistical treatments such as frequency count, mean and 5 point Likert scale.

The researcher used a five-point rating scale to determine the usability of the Centralized Collection and Delivery System of New Canaan Insurance Agency, Inc. This five-point scale rating was computed and formulated by the statistician consulted. The obtained means were interpreted using the following range of values and corresponding descriptive interpretations:

Scale	Statistical Range	Descriptive Equivalent Rating (DER)	Descriptive Interpretation
5	4.20 - 5.00	Strongly Agree	Usable
4	3.41- 4.19	Agree	Usable
3	2.60-3.39	Neutral	Usable
2	1.80-2.59	Disagree	Not Usable
1	1.00-1.79	Strongly Disagree	Not Usable

If the grand mean will result to 2.60 or higher, the developed system is said to be usable. Having a grand mean lower than 2.60 would mean the produced system is not usable for the NCIA.

RESULTS AND DISCUSSION

Procedures in Collection, Delivery, Payment, and Pick - up of New Canaan Insurance Agency, Inc.

From the interview conducted with the chief financial officer of New Canaan Insurance Agency, Inc., the procedures of NCIA in transactions that involve collection or payment of premiums, and delivery or pick-up of insurance policy, claims document, check settlement, government payment, and marketing collateral are done manually. The employees do the request and forward it to the liaison officers. Since these are done manually, every member of the team needs to ask the liaison officers to do delivery, pick up, payment, and collection from time to time.

General Description of Developed System

The Centralized Collection and Delivery System was developed to check and monitor the collection, delivery, payment, and pick – up transactions of NCIA. The employees can make request effortlessly by filling out the request form. A terminal report is created and to be forwarded to the messenger. The credit and collection officer can update the system if the requested transaction is completed. Furthermore, the administrator can easily verify the completed and canceled proceedings. He can also check the performance of the messenger. Moreover, the Centralized Collection and Delivery System of New Canaan Insurance Agency Inc. was developed based on the Evolutionary Prototyping Model.

Features of the Centralized Collection and Delivery System

Snapshot of codes

This is a snapshot of codes used in the program particularly in the request form**.**

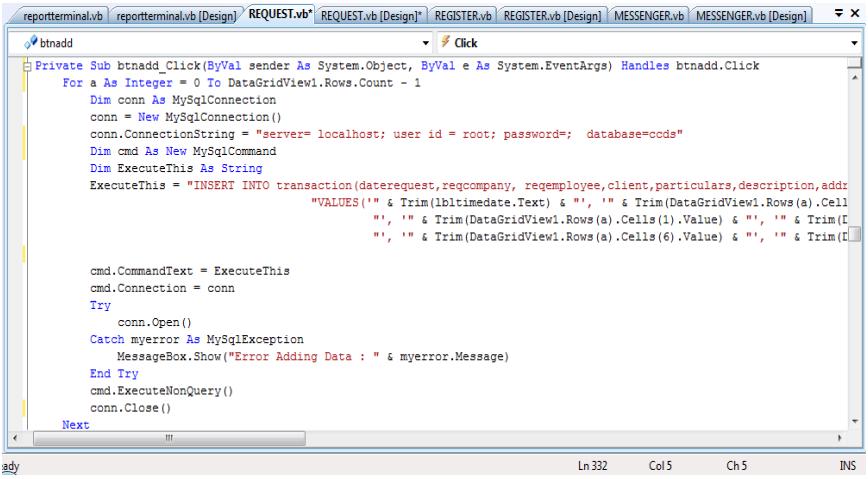

Plate 1. Snapshot of Codes

Home Menu

The home menu of the Centralized Collection and Delivery System of New Canaan Insurance Agency, Inc.

Plate 2. Home Menu

Request Form

The request form is used to request transactions involving collection or payment of premiums and delivery or pick up of insurance policy, claims document, check settlement, government payment, and marketing collateral. A terminal report is created after request.

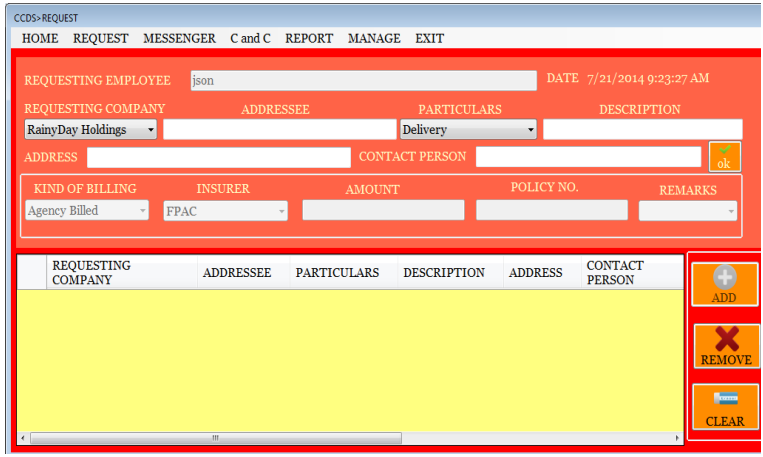

Plate 3. Request Form

Messenger Form

Messenger form is used to update completed or canceled transactions in agency billed collection, delivery, and pick – up.

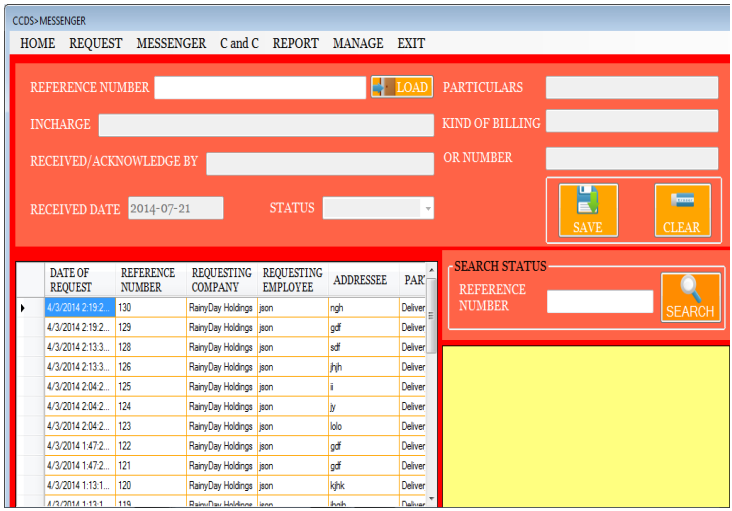

Plate 4. Messenger Form

C & C Form

C & C form is used to update completed or canceled transactions in direct billed collection only.

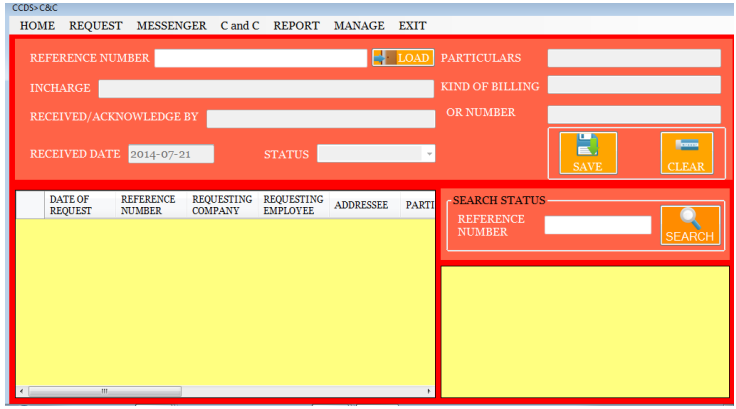

Plate 5. C & C Form

Report Form

The report form is used to create reports of canceled, done, delivered, and undelivered. In addition, daily collection and monthly collection can be generated.

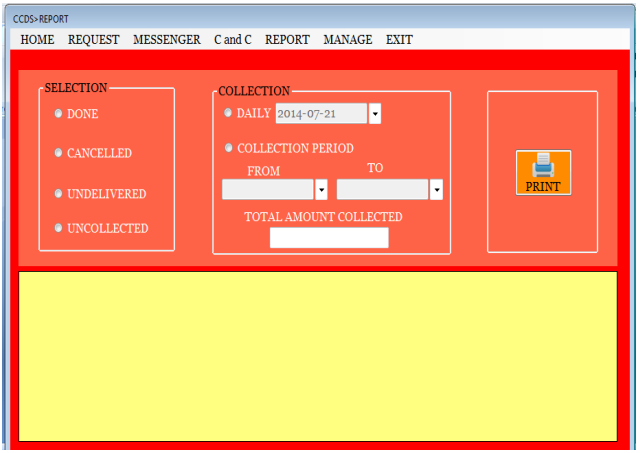

Plate 6. Report Form

Manage Menu

Through the Manage menu, the administrator can add, update, and delete a company, user, and insurer. Moreover, it allows you to remove a request.

Plate 7. Manage Menu

Login Form

The login form allows only registered user to manipulate the system. A user can be categorized as Administrator, C & C, employee, and messenger.

Plate 8. Login Form

Usability of the Centralized Collection and Delivery System

Usefulness

The result (see Table 2) implies that the system satisfied their needs to make their work easier. The findings strengthen the view of Dick, Steen and Detmer (1997) that gathering the data to prepare reports can be immediately time-consuming and costly when they are manually abstracted from paper records, but with a Computer-Based Patient Record (CPR), reporting on aggregate data can be a by product of capturing data electronically.

Table 2. Usability of the Centralized Collection and Delivery System regarding Usefulness

Indicator	Mean	Descriptive Equivalent Rating	Descriptive Interpretation
1. It helps me to be effective.	4.16	Agree	Usable
2. It helps me to be productive.	4.33	Strongly Agree	Usable
3. It is useful.	4.16	Agree	Usable
4. It gives me more control over the activities on my life.	3.83	Agree	Usable
5. It makes the things I want to accomplish easier to get done.	3.92	Agree	Usable
6. It saves me a time when I use it.	3.83	Agree	Usable
7. It meets my needs.	3.67	Agree	Usable
8. It does everything I would expect it to do software is very useful.	3.75	Agree	Usable
Overall Mean	**3.96**	**Agree**	**Usable**

Ease of Use

Results showed (see Table 3) that the system is easy to manipulate by anybody even without user training. "I can recover from mistakes quickly and easily" is the lowest indicator with a mean of 3.92. The result means that even without looking at the user manual, the user can recover from mistakes effortlessly. The results support the notion of Clark and D'onofrio (1999) in his invention to provide a friendly graphic user interface in a single or multiple user environments for initiating transactions, retrieving data, and communicating with on-line processors.

Table 3. Usability of the Centralized Collection and Delivery System regarding of Ease of Use

Indicator	Mean	Descriptive Equivalent Rating	Descriptive Interpretation
1. It is easy to use.	4.25	Strongly Agree	Usable
2. It is simple to use.	4.25	Strongly Agree	Usable
3. It is useful.	4.33	Strongly Agree	Usable
4. It is user-friendly.	4.35	Strongly Agree	Usable
5. It requires the fewest steps possible to accomplish what I want to do with it.	4.5	Strongly Agree	Usable
6. It is flexible.	4.17	Agree	Usable
7. Using it is effortless.	4.25	Strongly Agree	Usable
8. I can use it without written instructions.	4.33	Strongly Agree	Usable
9. I don't notice any inconsistencies as I use it.	4.17	Agree	Usable
10. I can recover from mistakes quickly and easily.	3.92	Agree	Usable
11. I can use it successfully every time.	4.00	Agree	Usable
Overall Mean	**4.23**	**Strongly Agree**	**Usable**

Ease of Learning

The results (see Table 4) indicated that users can easily operate the software. The lowest indicators were "I learned to use it quickly" and "I quickly become skillful with it" show that mastery of using the system is simple. The findings strengthen the study of Edmund, Ramaiah, and Gulla (2009) entitled, *Electronic Medical Records Management System* that through this development, it achieved convenience of use, and information is more organized and easier to read compared to paper records. Moreover, it improved efficiency of processes such as data collection, data management and data retrieval.

Table 4. Usability of the Centralized Collection and Delivery System regarding of Ease Learning

Indicator	Mean	Descriptive Equivalent Rating	Descriptive Interpretation
1. I learned to use it quickly.	4.42	Strongly Agree	Usable
2. I can remember how to use it.	4.50	Strongly Agree	Usable
3. It is easy to learn to use it.	4.50	Strongly Agree	Usable
4. I quickly became skilful with it.	4.42	Strongly Agree	Usable
Overall Mean	**4.46**	**Strongly Agree**	**Usable**

Satisfaction

Results revealed that the users are well satisfied at the functionality of the system that is why they may recommend it to others (see Table 5). The results support the claim of Dick, Steen and Detmer (1997) that to manage the delivery of care in an Integrated Delivery System (IDS), a health system must have efficient and accurate ways of capturing, managing, and analyzing clinical data collected at all different sites where care is provided.

Table 5. Usability of the Centralized Collection and Delivery System regarding of Satisfaction

Indicator	Mean	Descriptive Equivalent Rating	Descriptive Interpretation
1. I am satisfied with it.	3.67	Agree	Usable
2. I would recommend it to a friend.	3.58	Agree	Usable
3. It is fun to use.	4.00	Agree	Usable
4. It works the way I want it to work.	4.33	Strongly Agree	Usable
5. It is wonderful.	3.58	Agree	Usable
6. I feel I need to have it.	4.00	Agree	Usable
7. It is pleasant to use.	4.00	Agree	Usable
Overall Mean	**3.88**	**Strongly Agree**	**Usable**

Summary on the Usability of the Centralized Collection and Delivery System

It is apparent that the system is usable to the New Canaan Insurance Agency, Inc. garnering a total grand mean of 4.13 (see Table 6). It means that the respondents are satisfied with the functionality of the system. They can feel the impact of its usefulness in their company.

It is noted that the highest mean is 4.30 which is the indicator "ease of learning." The result implies that users strongly agreed that they find it easy to learn the system even without user's training. The lowest mean value was "satisfaction" with 3.88 which indicates that the users agreed that the Centralized Collection and Delivery System satisfied their needs in performing their daily tasks.

The result of determining the usability validates the Ten Usability Heuristics of Nielsen (2005) that to make the system usable, the status should be visible, matches the real world, and has user control and freedom. It also includes consistency on standards, has error prevention and recognition rather than recall. Furthermore, flexibility and efficiency of use, aesthetic and minimalist designs should also be included. Lastly, the users should recognize, diagnose, and recover from errors, and help and documentation should be incorporated too.

Table 6. Summary table of the usability of the Centralized Collection and Delivery System

Indicator	Mean	Descriptive Equivalent Rating	Descriptive Interpretation
1. Usefulness	3.96	Agree	Usable
2. Ease of Use	4.23	Strongly Agrees	Usable
3. Ease of Learning	4.46	Strongly Agrees	Usable
4. Satisfaction	3.88	Agree	Usable
Grand Mean	**4.13**	**Agree**	**Usable**

CONCLUSIONS

On the identification of procedures made in collection, delivery, payment, and pick-up, it is noted that it is done manually and very tedious on the part of the employees because tracing and monitoring of transactions are complicated.

With this, the Centralized Collection and Delivery System was developed using the Evolutionary Prototype Model and it is achievable and reliable with its development and deployment. Additionally, the system is also usable because it was designed to fit the needs of NCIA to easily check the collected and uncollected premiums, and delivered and undelivered insurance policy, claims, check settlement, government payment, and marketing collateral. They can also monitor the performance of the liaison officers and the request of transaction is centralized.

TRANSLATIONAL RESEARCH

The development of the Centralized Collection and Delivery System were conceived primarily for the benefit of the NCIA. The output is mainly intended to trace and monitor the transactions of the company involving collection, payment, delivery, and pick-up. The system has been deployed and used by the company as part of their daily business operations. As the company uses the system, some enhancements were adopted on the fast changing business environment like a more user- specific filtered reports, ticketing system or at best a customer link request system.

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