

Help Desk Management System

Roel P. Masongsong and Maria Amelia E. Damian

Abstract: The concern of the study is to develop and design an Automated Help Desk. Specifically it sought to solve the following problems: 1. What support tools are available to the help desk and available to its clients? 2. How does the performance of proposed help desk measure the information?

The system was deployed from schools in Metro Manila to test its functionality and usefulness. Based from the findings, the researchers herewith drawn the following conclusions:

1. The assessment of the respondents in terms of support tools to help desk which is available to the clients reveals that help desks provide a variety of online tools and resources for the clients to use to resolve their IT-related problems. Self-help tools can effectively extend the help desk's hours of availability, allowing clients to get answers to their questions when the help desk is not staffed. Even during the help desk's normal operating hours, the availability of self-service resources can reduce demand for direct interaction with the help desk staff while keeping service availability and quality.

2. The assessment of the respondents in terms of proposed automated help desk performance shows that personnel has knowledge of information technologies to enhance teaching and learning, research, administration with continuous updates. Moreover, they appreciate the help desk especially the features and tools that it provided them as they utilized the system. These tools can stand alone, and are functionally interrelated and integrated to the help desk automation systems.

Keywords: Automated Help Desk; Customer Support; Service Level Agreement; Subservice; IT related problems

I. INTRODUCTION

Information technology (IT) support for end-users has emerged as one of the leading concerns of organizations. Continuous adapting and updating of new technologies have made development of effective and efficient help desk services challenging for organizations. Organizations must actively search for new ways to provide better help desk services that can satisfy the growing customer demands and expectations. A number of commercial products using artificial intelligence techniques such as expert system and case-based reasoning become popular.

Help desk is a customer support center in an organization that provides information, administrative and technical supports to users, with the view to solving problems that users encountered in the course of using the organization resources or facilities. A help desk could comprise of one person or group of persons that make use of telephone devices or software applications to keep track of problem(s) status and thus provide solution(s) that satisfy the users as Sheehan (2007) cited.

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1Roel P. Masongsong, St. Mary's College Quezon City, Philippines
roelm12001@gmail.com , +63 917-868-9109

2Maria Amelia E. Damian, University of the East, Caloocan City, Philippines, jonamear@yahoo.com +63-917-709-0659

Helpdesk could also be seen as an information and assistance resource that supports the functionality of an organization by responding to users' requests in a timely manner. It is hence, a core sector through which problems, complaints and requests are reported, managed, coordinated and resolved. Help desk software is a solution application that is used for managing organization's help desk. It is accessible to customer support personnel who could direct request(s) to servicing department(s).

Technical concerns are becoming a normal scenario in everyday work environment both in education and corporate. Thus, need to constantly and effectively monitor these concerns. These require a system that can handle them. With this in mind, an Automated Help Desk: Customer Support for Information Technology Resource Center is a fit solution that can provide effective approach in handling all reported technical concerns with proper record keeping and monitoring to clients and technical personnel as well as systems administrators.

Background of the Study

Regularly the term help desk is utilized for interior backing within the organization or for outside care groups. Numerous organizations are turning to help work area to mechanize a mixed bag of errands and, at the same time, lessen costs by cutting staff and giving more client help from the current staff. Organizations need to give high caliber client administration and backing to get by in today's business surroundings. Having the right help work area would guarantee high client fulfillment. Customer help consolidates profits that help a customer or customer fathom and benefit from things limits by noting request, handling issue and giving online information. The preferences of automated help work area are basic in that they permit fewer individuals to manage larger work volume.

The help desk is increasing its importance as companies move to client-server architectures. Users who interface with the help desk often form a general perception of the information system group. Information systems help desks plays an important role within an organization. The help work area is in charge of uniting an association's assets with a specific end goal to give its clients quality help and administration.

Help desk is designed and customized to provide businesses with an internal support system as well as a link for providing support to its customers. Help desk applications host a number of benefits that includes:

1. Giving existing clients with information and Frequently Asked Questions (FAQ's) concerning the organization's frameworks and approaches.

- 24-hour availability thus catering to the trend of office personnel working late and to those overseas or in different time zones.
- Troubleshooting peculiarities gives clients the capacity to take care of numerous help issues all alone. This apparatus gives the clients with brisk and simple arrangements and sparing the organization's cash.
- Serves as an instrument for following and recording help work area concerns, which gives an information base of resolutions to past exchanges concerning comparable issues.
- Supplies information concerning trends and other issues, which aids in the continuing improvement of products and services.
- specify their personal concerns.
- Critical information such as passwords is secured.
- It allows dynamic and easy management for work-flow processes which higher officials can control extended permissions through a provided control panel.
- It is also accessible outside the office since it will be web based since the system will be based on LAN and web technology.
- Each employee will be provided with an authentication level that controls the way they interact with the system.
- Help desk facilities with each work-flow function requires approval assigned to the work-flow system that controls its flow.

Theoretical/Conceptual Framework

Help desk automation is for many companies the first application area of knowledge-based systems. "The help desk is an automated knowledge distribution while payroll was an automation of record keeping... a universal application that fits the new technology like a glove"[1].

The theory above anchors on the help desk management system which has attracted a number of research works. Such as, in developed world, help desk has been established as a tool for inquiries made by users like students and staff of an institution for facilities and services.

Further, the help desk information retrieval mechanism will be suitable for users in managing the complaints and proper system maintenance. The system helps improve help desk usability and functionality.

The figure above shows help desk system entails the following, receiving requests queries and complaints, generating reports on identified problems, classification of mails received, filing mails, responding to problems/ queries/ complaints stated in mails, and keeping track of problem status.

Statement of the Problem

This study focuses on Automated Help desk: Customer support for Information Technology Resource Center. In order to evaluate the scheme, it needs to characterize the performance in terms of quality of the output, time to process requests, and extent of usability.

Specifically, it will seek to solve the following problems:

- What support tools are available to the help desk and available to its clients?
- How does the performance of proposed automated help desk measure the information?

Assumptions

Many of the daily tasks required by most offices, the ITRC will tentatively give the following grounds for this study.

- The propose project has a multi domain support which means that the system can serve multiple services directly without any modifications.
- It has a user management where administrators can monitor work-flow, and manage permissions and notifications that simplifies simulating the actual paper-based work-flow.
- It enables employees to easily create new accounts that will speed up the set up process where they can directly

Scope and Delimitation of the Study

It is because relatively few higher education IT organizations are formally implementing resources for helpdesk practices, this study will focus on those practices per service that will have borne little fruit. This is to include the largest number of population and gather the most broadly applicable findings about help desks that researchers in the undertaken study will be decided to couch questions in general terms that would be recognizable to respondents familiar with the ITRC help desk.

This will be to investigate on the operation process of ITRC as the interface between clients and central IT through some basic processes such as the following:

- Incident management, in its traditional reactive role in dealing with clients' technology problems;
- Configuration management, by verifying or recording information about the client's IT resources;
- Change management, by facilitating or troubleshooting IT environment changes;
- Service level management, by representing the central IT organization in matters relating to service agreement it has made with the campus.

Significance of the Study

The major benefits of implementing automated help desk systems are as follows:

Staff. It is helpful for the staff especially in fixing technical problems, negative comments are far more frequent and can be pointed most often to a lack of customer service orientation.

Users/Clients. The help desk is the face of central IT which can give benefits for the campus to be efficient where clients can give direct attention to support them immediately.

Students. The help desk enhances technical support to the entire academe thus system maintenance will be efficient as well, greatly affecting the needs of the students.

Academe. This has the central point of contact for clients with problems as a formal client service organization such as a support center, service desk, and customer hot line.

II. REVIEW OF RELATED LITERATURES AND STUDIES

In this chapter, theoretical and technical definitions of Automated Help desk Customer will be further to discuss in

order to promote the understanding and cycle of what help desk entails.

Related Literature

The help work area administration framework an asset proposed to give the client or end client with data help identified with an organization or establishment's items and administrations [2]. The motivation behind a help work area is as a rule to troubleshoot issues or give direction about items, for example, machines, electronic supplies, nourishment, attire, or programming. Organizations generally give help work area backing to their clients through different channels, for example, without toll numbers, sites, texting, or email. There are likewise in-house help work areas intended to give support to workers.

In an online Wikipedia the Help work range structure can in like manner be described as the spot where laborers get specific help relating to their affiliation's IT establishment, the degree of the term has extended in essentials and use. In genuine educational foundations, "help work zone" can moreover imply help gave in an insightful library. The 2012 HDI Practices and Salary Report reported that unprecedented for a time consequent to its starting, the name "organization work region" (at 32.3%) is a greater number of in many cases used than "help work zone" (at distinctive names (which mean 40.1%). The fundamental reason is inclined to be the overall gathering of the expressing of the Information Infrastructure Library (ITIL), which uses the outflow "Organization Desk" to delineate a one-stop limit giving support and help, supplanting the thought of a "Help Desk" inside the association of the acquisition of IT sponsorship.

Offices administration help work area contrasts from a data innovation (IT) help work area. Giving a client help benefit through the help work area for an association's whole property portfolio is altogether different and substantially more troublesome than the IT help work area. For instance, calls which may go from a blocked latrine to a genuine force disappointment require additional time and assets to manage, a reality that will be reflected in the kind of framework needed to record, process and manage such a wide assortment of requirements. The standard, through is basically the same; to react to a client's request as fast as could be allowed and complete it until it has been attractively determined. Help work area in an association is critical to the running of the association. It has developed as a paramount piece of associations and has been perceived as a spot where associations can pick up playing point. Throughout the most recent ten years, help work area has climbed to unmistakable quality as a standout amongst the most critical zones of the IT and client administrations industry. On the other hand, not all help work areas have the same necessities, for instance the help work area working in scholarly situations end up with different circumstances and issues.

Robotized coding and order frameworks are a rising innovation. Scientists are building and assessing such frameworks. It is essential to investigate what is known concerning the execution of computerized coding and order frameworks to decide how material these frameworks are to the business wide coding process as of now used to assemble information.

The ITRC Management work gathering, met to investigate machine aided coding, reported that manual coding work process is lavish and wasteful in an academe where information needs have never been more prominent. The business needs robotized answers for permit the coding methodology to end up more gainful, productive, precise, and predictable. Machine applications for robotizing this procedure are accessible yet presently not generally utilized, undoubtedly in light of the fact that the frameworks are still being developed and their execution underway doubtful. This precise writing audit was embraced to recognize all distributed investigations of mechanized coding and characterization frameworks to figure out whether any framework can perform the coding process right now utilized expansive to accumulate information. Perceiving that a lot of examination has been completed around there, with just a little partition concentrated on regulatory coding characterization frameworks, it resolved to survey numerous types of mechanized coding and arrangement assessment studies. As being what is indicated, the deliberate writing audit on any machine application intended to consequently produce from free-content reports.

In exchanging and sharing soft data between employees is an important aspect of office automation systems [3]. Systems that allow information to be shared by many users are also called groupware. Emails, voice mails and fax machine are example for such electronic data exchange. Real-time data exchange could be possible using specialized chatting & audio/video applications, such systems allow online conversation, video and audio streaming.

Related Studies

Online Help work area in a Guide to Customer Service Skill and Help work area Professional is a `single purpose of contact an organization for dealing with client's issue and demand and giving arrangement situated help administrations'. Online help work area is additionally characterized as a critical thinking apparatus intended to give specialized help concerning a particular item or administration [4]. Help work area is generally known as a division inside an organization that reacts to client's specialized inquiries. Most huge programming organizations have help work area frameworks to answer client questions. There is even help work area programming that makes it less demanding for the individuals running the help work area to rapidly discover answers to normal inquiry.

The issue of a thesis of [5] was to provide a systematic framework to improve the identification of resources being responsible for service quality degradation. The framework therefore primarily aims to address the service fault diagnosis task, but has interfaces to service fault detection and resolution as well as to service management in general.

The main benefits that are in the focus of the framework are twofold. At first, the overall fault resolution time shall be reduced by minimizing the time needed for the identification of a resource whose current performance affects the service quality. Examples of such a performance problem can be a complete failure of the resource, a high utilization leading to weak performance or a wrong configuration. As stated before, this is especially needed for service level agreements (SLAs) which often contain time constraints for fault

resolution. The application of the framework should therefore allow keeping previously agreed SLAs and shall also enable the provider to offer stricter guarantees in future SLAs. Another benefit the framework aims at is the reduction of the provider's effort for service fault management which can be achieved by a systematic treatment of fault messages. And the main issues were fault management workflow, methods, and information modeling.

In the research journal of [6] entitled "Customer Services – Help for the Help Desk", to meet the expanding needs and challenges faced by their Center, the author developed a web-based application that they call SystemsReference, or SysRef for short. SysRef is a front end to other behind-the-covers applications. It has been enhanced to such an extent over the past few years that it is now our primary support tool. The basic philosophy in designing SysRef was to make use of existing tools or web pages wherever possible and build or enhance existing tools where necessary. When they built on existing structures, they tried to do so in a cost-effective manner, using approaches that would provide us with flexibility down the road.

Any service desk solution should provide a comprehensive feature set that supports best practices service-desk processes. If adopting ITIL processes, look for a solution that implement ITIL processes out of the box. That greatly speeds implementation and enables you to achieve faster time-to-value. Look for a vendor that offers solutions certified as ITIL process compliant, which means the technology is driving true IT process improvements and efficiencies in accordance with ITIL best practices [7].

The service desk solution should automate processes to eliminate manual steps where possible. Automation helps ensure that best practices processes are followed, and it increases the agents' productivity. The solution should empower end users to help themselves on requests, such as password resets and access to enterprise applications and data. User self-service takes a huge load off the service desk, freeing up staff members' valuable time, while at the same time decreasing resolution times and improving customer satisfaction.

As indicated by Access (2014) time used looking for missing or misfiled records is non-beneficial. A decent records administration project can help any association overhaul its record keeping frameworks so that data recovery is improved, with relating upgrades in office productivity and benefit. A generally outlined and worked recording framework with a powerful list can encourage recovery and convey data to clients as fast as they need it.

Associations must take after a generous number of regulations concerning the demolition of their reports. Basically destroying records when they are considered unnecessary can bring about punishments including fines, however the more serious result may be the incidental pulverization of paramount data.

It is vital for organizations to sort out the greater part of their paper records, in light of the fact that it's not difficult to forget about fundamental data, for example, which office it has a place with and when its qualified for annihilation. For instance, if a recording bureau is loaded down with unsorted papers and envelopes, the probability of one report being blundered is really high.

III. METHODS AND PROCEDURE

This chapter provides information on the research methods of this project capstone. The sampling technique was described followed by the measurement procedures. The survey instrument was designed using Likert categorical scale to measure its variable.

Research Design

The descriptive survey method of research was used in the study to determine the current help desk system. It will utilize the survey instruments such as the status of SMCQC regarding the said system.

Respondents and Sampling Techniques

This project was based on purposive techniques, the alternative use of probability sampling will not be considered due to limited time and resources. The researchers will make random sampling techniques by giving them personally to at least sixty (60) respondents comprises of both faculty and staff of the school including the two (2) expert in the system.

Measurement Procedures

Questionnaire. This particular instrument was chosen due to the unique characteristics of the study population and the efficiency of data collection which also be considered as survey form. The survey was composed of close-ended questions formulated aiming to ensure more in-depth information is provided.

Methodology

The researchers will describe the methodology used to develop the Automated Help desk System. A methodology formally defines the process that is used to gather requirements, analyze, and design an application that meets the objective. The project methodology for this project starts from defining the project goals until the closure of the project. This chapter will also describe each phase in the Waterfall model and describes the importance in deploying this methodology.

The preference of waterfall improvement is that it takes into account departmentalization and managerial control. Improvement moves from idea, through outline, execution, testing, establishment, troubleshooting, and winds up at operation and support. Each one period of advancement returns in strict request, without any covering or iterative steps. Waterfall model identifies the system requirements long before the implementation begins and also minimizes the changes to the requirement.

On the other hand, there are a couple of impediments of waterfall headway. It doesn't consider much reflection or rectification and once an application is in the testing stage, it is amazingly tricky to do an inversion and change something that was not well generally considered in the thought stage.

Operation and Maintenance

In this phase the online helpdesk system is installed and utilized. This stage involves monitoring and maintaining the system at an acceptable level of performance. The support

and maintenance provided for this system will also be in this phase.

Statistical Tools

The statistical treatment depends in the environment of the research, the proponent will use different computations to analyze the gathered data.

Frequency Distribution. The researchers will tally the results of respondent number who will favor for a particular item.

Percentage. The researchers will use percentage in order to determine what part of the total respondents will answer or will prefer a particular item.

$$P = \frac{N}{T} \times 100$$

Where:

- P = Percentage
- N = Number of respondents who preferred for the item
- T = Total number of respondents

Weighted Mean. The proponent will use the measure of central tendency to point where the majority of the respondents will answer to a question cluster.

$$WM = \frac{(f1x1)+(f2x2)+(f3x3)+(f4x4)+(f5x5)}{N}$$

where:

- WM = is the weighted mean
- f = frequency of rating in each given criteria
- N = total number of respondents

Table III
Five Point Rating Scale

Scale	Interval	Description
5	4.51 – 5.0	Strongly Agree
4	4.00 – 4.50	Agree
3	3.00 – 3.99	Neutral
2	2.00 – 2.99	Disagree
1	1.00 – 1.99	Strongly Disagree

The table 111 shows the five-point scale. It was used in order to determine the scale and its description of the weighted mean of the responses for the existing system and proposed automated help desk. The fields was represented the rating, range, and the description for each rating

IV. PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

This part exhibits the result of gathered data by the researchers. It includes analysis and interpretation of each result that will give meaning to the study and will clarify the outcome.

Table IV.1
The Ratings on Support Tools to Help desk which is Available to the Clients

	Weighted Mean	Verbal Interpretation
Service Level	4.85	Strongly Agree
Customer Satisfaction	4.65	Strongly Agree
Response Time	4.65	Strongly Agree
Time with the Customer	4.7	Strongly Agree

Table IV.1 shows The Ratings on Support Tools to Help desk which is available to the clients. The items “Service Level” leading with a weighted mean of 4.85, while “Time with the Customer” with a mean of 4.70 follows while “Customer Retention” and “Response Time” in an equal weighted mean of 4.65 respectively having same verbal interpretation of “Strongly Agree”.

The table reveals that help desks provide a variety of online tools and resources for their clients to use to resolve their IT-related problems. Self-help tools can effectively extend the help desk’s hours of availability, allowing clients to get answers to their questions when the help desk is not staffed. Even during the help desk’s normal operating hours, the availability of self-service resources can reduce demand for direct interaction with the help desk staff while keeping service availability and quality high.

Table IV.2
The Rating of the Proposed Automated Help Desk Performance

	Weighted Mean	Verbal Interpretation
1. The speed has great implementation and enables to achieve faster time-to-value.	4.6	Strongly Agree
2. A help work area computerizes this methodology by utilizing email.	4.9	Strongly Agree
3. The service desk solution provides a comprehensive feature set that supports best practices service-desk processes.	4.9	Strongly Agree
Average Weighted Mean	4.8	Strongly Agree

Table IV.2 presents the Rating of the Propose Automated Help Desk Performance. All items such as “A help work area computerizes this methodology by utilizing email.” and “The service desk solution provides a comprehensive feature set that supports best practices service-desk processes” with the same weighted mean of 4.90 respectively and “The speed has great implementation and enables to achieve faster time-to-value” with a mean of 4.60, with all have the same verbal interpretations of “Strongly Agree.”

The table shows that personnel or staff has knowledge of information technologies to enhance teaching and learning, research, administration with continuous updates. Moreover, appreciates the help desk especially with the feature and tools that it provides them as they utilized the system. These tools can stand alone, and they are functionally interrelated and integrated to the help desk automation systems.

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The motivation behind this section is to abridge the study that was directed including the statement of the research questions, the research methodology used, and a summary of the study results, conclusions and recommendations.

Summary of Findings

The following were the summary of findings based on the interpretation and analysis:

1. The assessment of the respondents in terms of Support Tools to Help desk which is available to the clients on “Service Level” is leading with a weighted mean of 4.85, while “Time with the Customer” has a mean of 4.70 followed by “Customer Retention” and “Response Time” in an equal weighted mean of 4.65 respectively having same verbal interpretation of “Strongly Agree”.

2. The assessment of respondents in terms of the Propose Automated Help Desk Performance. All items such as “A help work area computerizes this methodology by utilizing email.” and “The service desk solution provides a comprehensive feature set that supports best practices service-desk processes” with the same weighted mean of 4.90 respectively and “The speed has great implementation and enables to achieve faster time-to-value” with a mean of 4.60, with all have the same verbal interpretations of “Strongly Agree.”

VI. CONCLUSION

Based on the foregoing summary of findings, herewith were the following conclusions:

1. The assessment of the respondents in terms of support tools to help desk which is available to the clients reveals that help desks provide a variety of online tools and resources for the clients to use to resolve their IT-related problems. Self-help tools can effectively extend the help desk’s hours of availability, allowing clients to get answers to their questions when the help desk is not staffed. Even during the help desk’s normal operating hours, the availability of self-service resources can reduce demand for direct interaction with the help desk staff while keeping service availability and quality.

2. The assessment of the respondents in terms of proposed automated help desk performance shows that personnel has knowledge of information technologies to enhance teaching and learning, research, administration with continuous updates. Moreover, they appreciated the help desk especially the features and tools that it provided them as they utilized the system. These tools can stand alone, and they are functionally interrelated and integrated to the help desk automation systems.

VII. RECOMMENDATIONS

Based on the foregoing conclusions, herewith were the following recommendations:

1. It is to recommend the full implementation of the proposed system.
2. The regular monitoring of access based application at best time to avoid the slow systems processing due to large volume of users.

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