Sales Force Automation for Decision Support

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Abstract—**Sales representatives of pharmaceutical companies are regularly faced with the challenge of achieving high sales performance and productive calls. Every day, they are faced with voluminous amounts of raw data from different sources, which they need to process in order to recommend the right products and quantities that their regular customers should order. An information system that automates sales transactions and provides decision-making support will allow them to perform their work more effectively and efficiently.**

Index Terms—**customer relationship management, decision support system, sales force automation, sales force management system.**

I. INTRODUCTION

The nature of selling or traditionally called as "salesmanship" is a craft harnessed by sales representatives in persuading such valuable accounts in purchasing the products offered by the benchmarked organization. As a matter of fact, most organizations spend a handful of its financial resources in training its sales force given that part of its job function is to engage themselves with their respective accounts [1] and to translate the strategy of the company into actual sales by creating key product differentials. A survey was conducted involving 200 corporate executives as part of the 2002/2003 Accenture High Performance Workforce Study. Based from the survey, the core functionality of sales is considered to be the most important corporation function and the sales force of one's organization is a critical factor towards corporate success [2].

As time passes by, a number of organizations have witnessed how significant technology is in enhancing the efficiency and effectiveness of one's sales force and to capitalize on the countless opportunities that it brings. One must adapt and explore the multiple dimensions of technology (i.e. accessing, analyzing, and communicating information) taking into account the different aspects of sales [3].

One powerful tool used to improve the sales performance

of an organization is the Sales Force Automation (SFA). The SFA is the application of technology to support the core functionality of sales including order processing, contact management, information sharing, inventory monitoring and control, order tracking, customer management, sales forecast analysis, and employee performance evaluation. It oversees the user to become more efficient and productive in performing administrative tasks (examples of which include automated reports) due to the quick and precise retrieval of information [3].

II. METHODOLOGY

The authors developed an SFA functional prototype using the Systems Development Life Cycle (SDLC) methodology. SDLC is a traditional structured analysis technique for planning, analyzing, designing, implementing, and supporting information systems [4]. The SFA prototype was developed with the activities in the first three phases of SDLC as basis.

During the planning phase, the authors performed preliminary investigation to understand the processes of a pharmaceutical company. A series of interviews were conducted among several sales representatives and managers. From these interviews, the authors gathered that the company's existing sales process includes designing, planning, and executing a sales strategy which is done on a quarterly basis. At the end of each quarter, a performance review is done to look for possible causes of missed targets so that adjustments can be made for the next quarter. Each sales representative has a work plan that details the "Calls" that need to be completed per month and the target sales for each account he is handling. The term "Call" refers to the scheduled visits made by the sales representative in order to conduct the "Basic Call Procedure (BCP)". The BCP refers to the eight primary steps performed by the sales representative during the Call namely: 1) review plans, 2) conduct physical count, 3) priority check, 4) collection, 5) priorities, 6) sales closing, 7) resale, and 8) call analysis. The BCP is a complex process which requires the sales representative to perform manual computations and analysis of sales performance, month-to-date and year-to-date sales variances, trending products, suggested order quantities, sales and call progress, among others. At the end of the Call, a list of products for purchase is suggested to the customer. The confirmed orders of the customer are then entered in a system through a dashboard and sent to the upper management for upload in an enterprise system.

At the end of the planning phase, the authors were able to identify problem areas in the organization's processes that can be addressed by an information system. These problems are discussed in the next section.

During the analysis phase, the authors conducted requirements analysis and modeling. Processes were modeled using data flow diagrams while data were modeled using entity-relationship diagrams.

During the design phase, the blueprint of the system was created. It was also in this phase when the interface for the SFA was designed and a functional prototype was developed. After which, a User Acceptance Test (UAT) was conducted. The purpose of conducting a UAT is to assess if the proposed system can support day-to-day business and user scenarios and ensure the system is sufficient and correct for business usage. These tests are created to verify if the system's behavior is consistent with the requirements and are used to reveal defects within the system. [5] The results of the UAT are discussed in Section VI.

III. PROBLEM ANALYSIS

The performance of a member contributes to the overall performance of a team, and defines the performance of an organization [6]. In a study conducted by a private company, it has been discovered that a full 2/3 of all sales people miss their quota while 67% of sales professionals do not attain their individual quota [7]. These performance statistics are consistent with the major problem encountered by a pharmaceutical company, which is "poor sales performance and low productive calls". This problem is caused by several factors described below.

- Inability of the sales representative to immediately access vital information such as the purchase history and the inventory details and the unavailability of confirmed orders, store count, and product availability

In a recent study, 24% of small businesses admit that they do not have enough client information to hand during a sale where in fact information plays a key role in doing a business most especially in providing substantial and factual decisions and recommendations [8]. A problem like this arises for the reason that such vital information commonly cannot be accessed through the existing system of the company and two underlying causes are the multiple sources of information where different information could inefficiently be accessed through different sources, and the unavailability of the data.

- Difficulty in computing and analyzing sales data

The sales representative encounters this kind of problem due to the lack of vital information and the tedious process of manually computing and analyzing sales data. Adding to the tedious process is the complex product lineup of the pharmaceutical company. Instead of focusing on the client engagement itself, the sales representative spends most of his time manually computing and analyzing the needed sales data which is really time consuming and requires loads of paper work.

- Difficulty in suggesting orders

With the inability to immediately access vital information and the difficulty in computing and analyzing of sales data the authors learned that sales representatives often experience difficulty in suggesting orders resulting for them to rely mainly on gut feelings rather than basing on factual information. Through unreliable resolutions, salespeople miss the opportunity to focus on high potential customers [8]. Moreover, such actions lead to inaccuracy and inconsistency of judgments which can affect not only the performance of the salespeople but also the trust and loyalty of accounts as well.

IV. SYSTEM SOLUTION

In order to solve the aforementioned problems, the SFA was developed. SFA has four main modules namely: Account Management, Call Management, Inventory Management and Sales Analysis. Below is a discussion of each of these modules. Sample screenshots of these modules are provided in the Appendix section.

A. Inventory Management Module

Bearing in mind that the pharmaceutical company manages an estimate of 100-150 types of products, the Inventory Management Module was designed to immediately access such vital information with regards to inventory management. A catalogue was provided incorporating the name of the product and its corresponding availability (i.e., whether a product is currently "available" or discontinued"). Moreover, the changes regarding the availability of the product are also managed within the said module. With the Inventory Management Module, the quick retrieval of information considering the variety of products was made possible.

B. Account Management Module

The concept of the Account Management module is somewhat similar with the Inventory Management module but it focuses on the benchmarked accounts instead of the products offered by the pharmaceutical company. In terms of accessibility, it makes it easier for the sales representative to access and manipulate the essential data of a specific account such as the basic information and the equivalent call and sales performance. It helps the sales representative to identify which accounts are performing well from those who are not with the data provided by the system.

C. Call Management Module

From the several Calls conducted with different and multiple accounts, the Call Management module is designed to assist the sales representative in managing its handheld accounts based on call performance.

Fundamentally, it filters the Call Data of a specific account and determines the call dates when the sales representative visited or missed the call with respect to the account. Lastly, notifications were made available for the sales representative to be aware of the accounts to be visited within the day. Through the Call Management Module, it allows the sales representative to review and recognize which accounts are regularly visited and vice versa based on call performance.

D. Sales Analysis Module

Considered as the heart of the system, the Sales Analysis

module has the ability to process such a mass volume of raw data into precise and useful information in supporting crucial decision-making situations. From the previous transactions that have been made with different and multiple accounts, reports are generated and used as the core or basis in performing the necessary adjustments in managing the business activities of the organization and in performing the much needed adjustments aimed towards success.

V. UAT RESULTS

The UAT was conducted with the sales representatives and the administrators of the benchmarked organization, mainly the two types of users entitled to use the system.

The proposed system was first tested by the sales representatives then a set of questionnaires were given upon the completion of the UAT. Based on the results, majority of the sales representatives approved the functionality of the proposed system as there were no difficulties in navigating the system. In addition, it has been said that the information processed and illustrated by the system were accurate, reliable, and easy to understand. Unfortunately, the system responded slow, taking into account the duration in processing the mass volume of data which was pointed out by the sales representatives.

The same procedure applies in performing the UAT with the administrators. It has also been emphasized that the reports generated by the system were simple but flexible. There were no difficulties upon using the system but the same issue arises with reference to the response time of the system in generating the vital reports as such.

Through the UAT, the authors have identified the areas which needed improvement and tailored the proposed system to the primary needs of the organization.

VI. CONCLUSION

This project aimed at developing an information system that solves the problem of a private organization. After gathering data about the current processes, the authors were able to identify the problem and define the solution. The SFA functional prototype proved to be beneficial especially to the sales representatives. This work may further be extended to the implementation of a full-featured SFA and the integration of the SFA to the other systems used by the organization.

APPENDIX

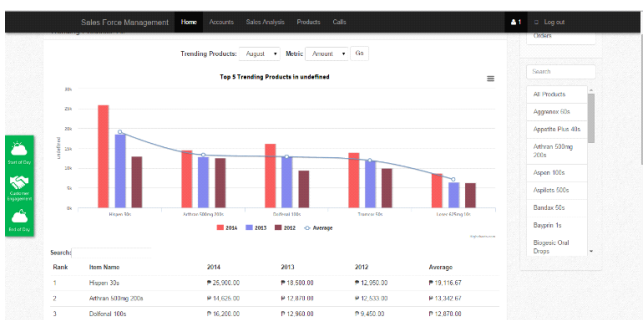Below are sample screens of the SFA functional prototype.

Fig. 1. Trending Products.

This page displays the top five top selling products for a specific month.
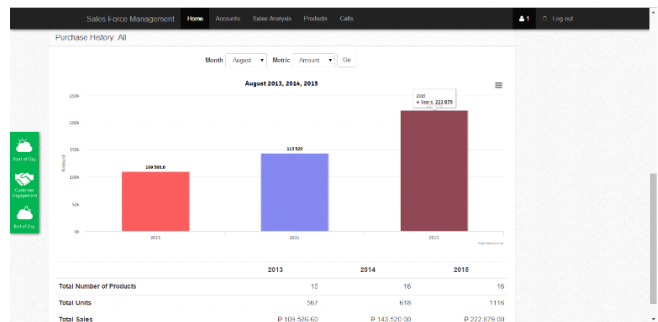

Fig. 2. Purchase history.

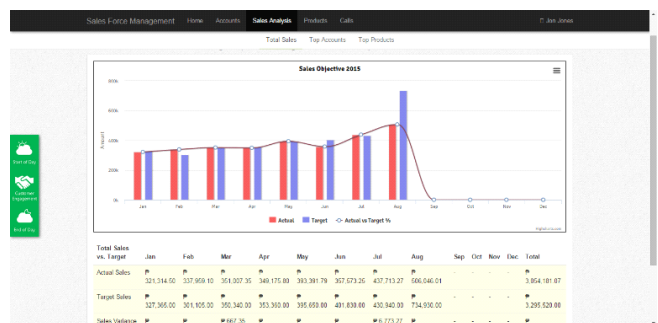This page displays the historical purchases made by a certain account.

Fig. 3. Sales analysis.

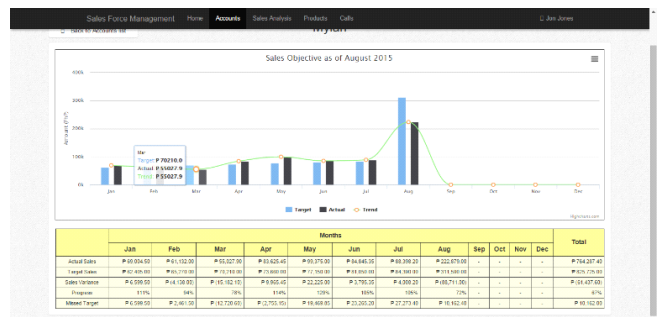This page displays the total sales made by a specific sales representative.

Fig. 4. Sales objective by account.

This page displays the sales made on a specific account.

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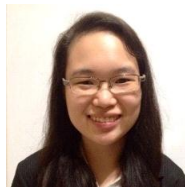
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