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ETMS-Web: A Low-Cost Innovative Solution to Manage the Sale Staff

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ABSTRACT

The growing competition in the marketplace, suggests companies to adapt continuously to the emerging needs and obliges them to provide more services in order to maintain a good position within marketplace. Thus, monitoring and auditing the different company fields, is the most important competitive element. For the pharmaceutical sector (strongly limited by law) the promotion activity has to be executed in a directly through the Sales Staff (Pharmaceutical Promoters) and its monitoring is very critical. The Electronic Territory Management Systems (ETMS) now existing, allow a good control on the Sales Force, but they are exclusively used by the main Pharmaceutical company (leaders on the marketplace), because of the high costs related to developing and maintaining them. In this paper we present SOIN 2000's experience, that has realized the modeling of an ETMS web-based system (to be provided in Application Service Providing) in collaboration with University of Lecce. This solution allows, at a low cost, the small pharmaceutical company to provide advanced services to manage the Sales Force.

INTRODUCTION AND BACKGROUND

The health marketplace is strongly regulated by law bounds that prevent pharmaceutical companies to advertise their product using conventional mass media channel for ethical products.

Thus, the only way is the direct promotion activity made by sales force for medicals and health operators, the pharmaceutical companies real customers through the prescription of a therapy or a product to a patient.

This promotion activity, based on the direct contact (the "visit") between the promoters and the health operator, is fundamental. To improve the "visit" the company marketing management trains sales force in order to support its promotion activity.

In the large company, marketing management is structured in different levels, hierarchical sorted, each of them is coordinated by a sales manager. The business structure varies for the different companies depending on the marketing strategy and on the typology of treated products.

Apart from the business structure, the promoter coordinators check the sales objectives. These links between the different levels in the sale force are the basis of the **organizational structure.**

Because of the sales force activity is based on the visit, it results to be strongly connected to the territory, divided in different geographical areas (nation, region, province, brick, micro-brick) each of them assigned to one ore more ISF. Unlike the previous cases the territorial structure definition is the same for every pharmaceutical company.

ELECTRONIC TERRITORY MANAGEMENT SYSTEM

The pharmaceutical companies invest money to introduce customer centered initiatives. The technology evolution related to marketing created many opportunities to increase productivity and the efficacy for customer oriented actions. This evolution has leaded to PRM (Pharmaceutical Relationship Management): complex systems allowing company to acquire customer preferences in order to collect relevant information for marketing.

A PRM's system includes different activities such as managing the initiatives customer oriented, publishing of web sites centered on specific products, monitoring sales force activities, call center providing a support for customer interacting with pharmaceutical companies, Training, managing indirect sales (IMS sales)[1], managing direct sales.

We present a case study on an **Electronic Territory Management System (ETMS)** which allows an adequate checking for the sales force activity. ETMS is used by the sales management resources (back-end) to assign objectives and contacts to the sales force (front-end) in order to have an automatic report on a visit.

Given the fact that the main activity of promoters consists in making the visits at physician's office, the use of devices such as mobile devices is desirable; promoter needs, in fact, to register the data about visits, consulting contacts list, annotating his vacations or work permits, visualizing the trend of work activity in order to achieve the assigned aims so he can re-plan the diary. The adoption of a centralized ETMS system allows the company not only to manage better the sales force, but also to promoters to organize better their activities; for example allowing to physician/customer to access the system it is possible to negotiate the promoters visits according to physician's commitments.

The Proposed Solution

Many market solutions already exist to satisfy the requirements of an ETMS system. They are generally developed "in-house" by pharmaceutical companies with high costs for maintenance; on the contrary the small pharmaceutical companies, which needs a strong promotion and checking of the activities, is obliged to a manual manage of the system.

The proposed ETMS solution, called ETMS-WEB, allows the small pharmaceutical companies to provide advanced service. In order to reach the more companies, the solution is web-based and use the multi-devices (laptop, PDA) and it is in a modular structure.

To grant these advantages, the solution requires more attention during the design phase: designer has to manage all static and dynamic elements and has to see the inevitable interactions.

So the use of suitable design methodologies has a fundamental importance. If there exist consolidated methodologies to develop traditional software, it is not true for the developing of web applications. We use the **UWA** [2] [3] **(Ubiquitous Web Application)** methodology to model ETMS –Web system because this is within the academic methodology, the only one separating the informative, navigational and presentation elements from which related to the operations. The use of UWA methodology allows to improve the system quality, the application efficacy and usability, the design process and the efficiency of the whole developing and maintaining application cycle.

The UWA Methodology

UWA focuses on the user and models all the application considering his central position. After the indispensable phase of the Requirement Analysis, made following a goal-oriented approach, the methodology suggests a sequence of steps briefly summarizable in:

- Information Design describes the application information giving it a structured organization. Important features of this phase are that, during the construction of the information structure, the user point of view is held as fundamental.
- Navigation Design clears the most important aspect of hypermedia applications, reconsidering the information and its organization more typically from the viewpoint of its fruition, defining the user navigational paths.
- Publishing Design, using the results of previous steps, describes the application through "pages" and "fruition units".
- Operations Design: it's the step in which all the functional and transactional, being beyond the pure hypermedia paradigm, are modeled.

ETMS-WEB MODELLING

According to UWA, the requirements were collected through the requirements elicitation phase in which the stakeholders and the related objectives (called goals) are identified.

During the analysis phase, the use of stakeholder allows to obtain a global view of the. The only identification of the UML [4] actors who or what is interacting with domain of application (ETMS), results to be very limiting, on the contrary the stakeholder is who or what is involved or interested in a system even if it doesn't interact with it directly.

The identified stakeholders for ETMS Web Application are:

- **Software House X:** it's the ETMS-WEB application promoter to be proposed to the various pharmaceutical company
- **Sales Management Area:** it's the decision making area of a pharmaceutical company, responsible for marketing strategies leading the sales force activity.
- **Back-office Operator:** he is a human back-office area resource.
- **Configurator:** he is a human resource belonging to back office or to the Software House and his task consists in the execution of start-up, adaptation customization of the system for a peculiar pharmaceutical company
- **Certificator:** he is a human resource belonging to back office whose task is the execution of the activities needed to validate the ISF proposed contact.
- **Supervisor:** he is a human resource belonging to Sales force executing management tasks
- **Promoter:** he is a human resource belonging to Sales Force executing the front-office activity (visit to physician's office, promotion, etc.)
- **Installator:** he is a human resources with a technical profile executing the needed activities for booting and starting up the system.

For each stakeholders we have identified the high level goals and then these goals have been decomposed and detailed in order to define the system requirements.

The main objective for Sales Management stakeholder is to increase the profit through an increasing of sales. In order to reach this objective, it is necessary to identify the possible contacts for the visits slicing them according to some characteristics such as prescription attitude, patients number, etc. An other objective is to organize adequately the sales force making attention on the training and optimizing the distribution on the territory and the physicians assignment to a promoter.

The objective "distributing Sales Force on the territory" is in common with the Back office that have to insert and update the assignments decided by the manager. The sales force activity has to be checked continuously to verify the reachment of the established objectives.

After the requirements definition phase we have proceeded with the information model; the entities of the system, their semantic associations and their access structure have been defined.

Figure 1. Requirements Elicitation of the stakeholder "Sale Director"

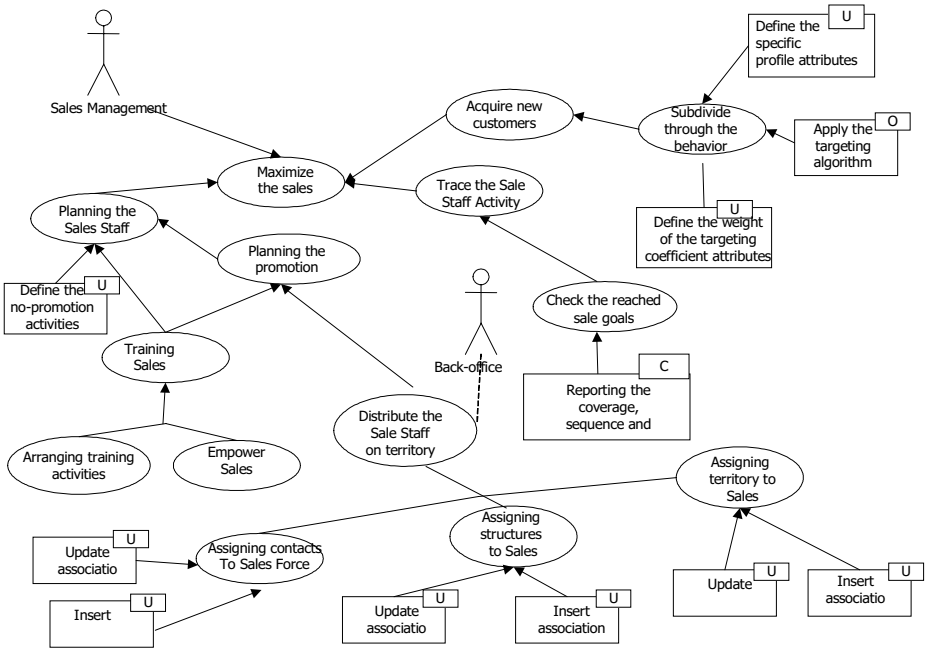
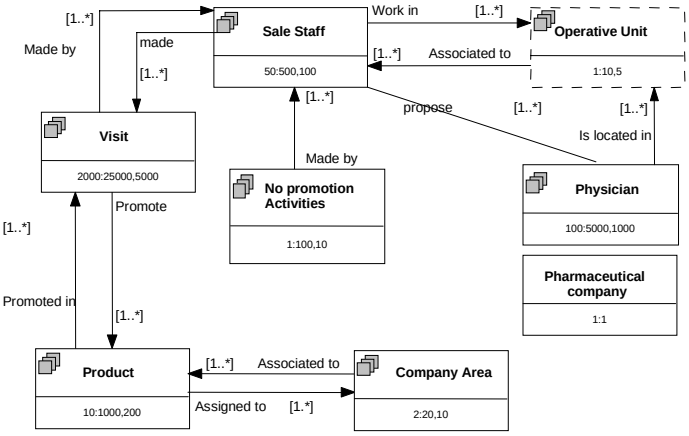


Figure 2. Information Model In-the-large diagram



The identified entities for ETMS Web Application are the following:

- **Physician:** this entity represents the physician visited by promoters
- **Human resource:** abstract entity specialized in sales force resource and back office resource
- **Product:** it represents the information related to pharmaceutical products proposed to physicians
- **Operative unit:** abstract entity representing information related to the structure or to the territory assigned to a promoter
- **Pharmaceutical company:** isolated entity representing the information related to the generic company
- **Visit:** it contains the information related to the visit to the physician's office
- **Company structure:** it represents the information about hierarchy
- **Task:** contains the information about the specific tasks assigned to the different human resources
- **Role:** contains the information about the roles of the different hierarchical level within company structure (sales manager, area manager, etc.)

We show below an example for in-the-large modeling i.e. a general view of all the entities and semantic associations for the Sales Management considered user. Each entity is then detailed describing the slots (in the small modeling)

For each entity we have realized the in the small diagram which allows to specify the information content through its components and slots. In figure 3 we can se as an example how the "sales force" entity is divided in components: personal data, career, objectives (information about the objectives such as n° of visits etc), curriculum.

After having specified information design in-the-large and in-the-small an identified the access structures we have defined the navigation model. After navigation design we have defined both publishing and operation design and then the implementation phase has begun and it is not yet concluded.

CONCLUSION AND FUTURE WORK

According to the proposed project objectives, we have analyzed the different stakeholder's needs through a complete Requirements Elicitation using a goal-oriented approach.

Moving from this requirements elicitation and using UWA methodological, we have realized the design of ETMS-Web application.

The UWA user centered approach allows to obtain a design aimed to the needs of each stakeholder so improving the application quality.

Thus we have designed a low cost tool to check the sales force activity and easily adapting to each requirements. The design phase is infact allows to manage better possible evolutions or adaptations. At the moment we are in the implementation phase of the first ETMS-Web prototype.

Once the implementation phase will be concluded, we have to realize a version of the tool compliant with different devices such as PDA or smart phone, in order to satisfy the mobility need of pharmaceutical products promoters.

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Figure 3. In-the-small *diagram of the "Sale Force" Entity*