Chapter 4.6
The Support of E-Collaboration Technologies for a Blood Bank

P. Sasi Kumar
National Institute of Technology, India

P. Senthil
National Institute of Technology, India

G. Kannan
National Institute of Technology, India

A. Noorul Haq
National Institute of Technology, India

INTRODUCTION

E-collaboration technologies are broadly defined as electronic technologies that enable collaboration among individuals engaged in a common task (Kock, Davison, Ocker, & Wazlawick, 2001; Kock & Davison, 2003; Kock 2004, 2005). The reasons to enter inside the Internet are huge market value and effective data transactions (Perkins, 2000). The developments of electronic collaborations turn out the hard task into a soft one. This technology development allows the whole sectors to leverage the powers of the Internet and communication network to coordinate their efforts and the e-business models have provided the workable infrastructure for group communication and information processing (Jian Cai, 2004). Many published studies have also shown that, besides technologies the social aspects are essential for the success of collaboration (Briggs, 2003; Easley, 2003). The social aspects that lie behind this article are the speedy and effective services provided by the collaboration technologies for the patients. This article mainly speaks on how the deficiency of the blood can be solved by the blood banks. For this purpose a standard model has been created, in which the blood donors can be connected electronically with patients under the network assistance provided by the blood banks and the hospitals.

BACKGROUND

Human blood is the fluid that helps the circulation of oxygen to the cells and carbon dioxide to the heart, to maintain the body temperature, to fight against the foreign organisms, and so on. During the time of emergency the amount of blood decreases inevitably, which can be leveled by injecting the required amount of blood (Encyclopedia of Health Science).

The current setting of the blood bank in various locations of the state is following a conventional procedure. i.e., they can store the donated blood for the extent of one week and the list of donors are also kept in a file for their future reference, but this will not work effectively and there is a chance for the expiry of the valuable blood and a possibility for losing the data.

The new setting of the blood bank is derived from the standard process model, which operates through the help of network and Internet technologies. They typically operate 24 hours a day, 7 days a week, rather than more restricted work hours to search and serve for requirement (Sharp, 1995). For our research, a Web site for the blood bank is designed by Web page designing software, which has the facility for login privacy, donor's registration, and communication with telecom network, mailing, and so forth, as menu driven. It also has the facility to store and access the blood donors list at any time. A password is also provided for security purposes, and can be accessed only by the blood bank user or administrator. All the blood banks situated in different cities of the state are connected with each other by this networking technology. This will help to exchange the details of the blood donors within each blood bank.

LAYOUT OF THE MODEL

The process starts when a patient is in an emergency situation with inadequate blood. At that time, the hospital has to enquire with local blood banks for the availability of particular group of stored blood. In case of unavailability, either the blood bank or the hospital has to search the blood donors, in order to make them available at the hospital for donating blood. The flow of this process can be changed according to the circumstances and requirements through a chain practice of the blood bank user.

THE WEB-BASED BLOOD BANK

To overcome the emergency situation, a standard process model has to be created by the blood bank for the betterment of the patients. Within operations management, the most obvious example model is the European quality model (European foundation for quality management, 2002). The standard process model from the example model is shown in Figure 2 and explained in the following steps, which helps in developing the blood bank Web site.

Incoming Mail and Registration

Initially, the blood bank has to advertise through media or other sources about their Web page.

Figure 1. The structural layout of the model