THE IMPACT OF OFFICE AUTOMATION IN LEBANON:
A SURVEY OF TWENTY FIVE
LEBANESE FIRMS

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Chapter I

INTRODUCTION

Over the centuries, human beings have attempted to facilitate their work and to increase their productivity by using tools and machines to accomplish their tasks. Collectively, these attempts are referred to as "MECHANIZATION".\(^1\) A comparatively more recent development process has been trying to increase the extent to which machines can function by themselves with little contribution from muscle or brain, a process which was defined in the 1940's as "automation".\(^2\) At first, automation was mainly applied in factories in the productive and quality control processes for the purpose of increasing efficiency and reducing production cost. Nowadays, however, automation has assumed a broader and more accurate definition: "It is not a case of replacing people with machine. It is rather a redirection of skill to maintaining and monitoring automated equipment and performing more quality assurance than previously possible."\(^3\)

2) ibid, pp 45-56
3) ibid, pp 75-86
Office technologies have evolved considerably over the past few decades, and great improvement both in product and prices have been subsequently realized. "Technology is becoming a survival issue in service industries like banking, brokerage, and sale. If you do not use the available technology to supply the same or better services as your competitor you cannot win in the market plan." Nowadays it is not a question of whether to automate an office or not, but rather how. However, a particular system's technical capabilities are not enough to ensure increased competitiveness. To fully realize automation benefit, a good working relationship between the employees and the system adopted must be developed.

Statement of the Purpose

The commercial and service sectors in Lebanon constitute an important segment of the economy. According to 1977 statistics, these sectors contribute respectively 28.3% and

4) "Information System for Tomorrow's office," _Fortune_, October 15, 1984, pp 13
23.4% to the Lebanese GDP. Moreover, a large portion of the Lebanese labor force is employed within these sectors. Each of the four sector enumerated transportation & communication commerce, financial services, insurance, real estate and business services, and personal services, and especially the financial services sector, involve a good deal of office work. It can therefore be deduced that a larger portion of the labor force in Lebanon is involved in office work, and that the human issues related to office automation in Lebanon are also worth considering.

**Performance Objectives**

The objective of this study is to explore the available technologies in Lebanon. The degree of their deployment, and their potential implications and effects on both the office environment and the labor structure and behavior.
Chapter II

DEFINITION AND EVALUATION OF OFFICE AUTOMATION

This chapter will define what is Office Automation, how each author perceives it, and what is the best definition for it. In addition, to the evaluation, application and technologies of office automation.

Definition of Office Automation

According to Einzing, automation "... is not a case of replacing people with machines, it is rather a redirection of skills to main training and monitoring automated equipment and performing more quality assurance than previously possible."\(^1\) Also he states that "Automation is a technological method that tends to reduce current production costs in terms of man-hours per unit of output"\(^2\).

According to Einzing, Office automation is a new technology through which cost can be reduced, production will increase and management will have a better control over the whole

2) ibid, pp 21.
organization. Also office automation doesn't mean to replace people by machines, yet it provides the machines for the employees as a productivity tool with the aim of enhancing his or her performance. In contrast, office automation has been defined by Sandor Soichet as the "... utilization of Technology to improve the realization of office function". The term "function" here is not used in the sense of a task or a narrowed activity; it is "a major and on-going activity whose accomplishment satisfies an operating goal of an organization". "Just as a factory processes tangible products, the office like the factory, must throw out a tangible product". Information output, for instance, can take many tangible forms: printed reports, graphics presentations, written reports, verbal communications, correspondence communications, or electronically conveyed messages. The type of the output varies according to the degree of automation.

6) Ibid, pp 94.
Sandor Soichet believes that office automation is the restructuring of the ways and methods by which information whether documents or ideas are communicated within an organization. This restructuring is built around the best available and most efficient information technologies, such as reports (word-processor), memos (electronic mail) and forecasting (spread sheet). The aim of all this is to achieve efficient communication that contributes to the realization of the organization objectives.

According to Zeisman, "office automation refers to the applications of computer technology, communications technology, systems science and behavioral science to the vast majority of less structured office functions which have not been amenable to the traditional data processing technology". However, office automation does tend to be confused with computerization or data processing. Computerization is only one fact of the overall scope of office automation, which covers several technologies other than computers, a simple example being the telephone. Tasks are eventually computerized in the automation of an office, but initially there is an attempt to coordinate and integrate the particular office's functions as a whole, and then the system is automated.

Again according to Sandor Soichet, the nature of most electronic data processing (EDP) activities is operational and structured. Office Automation however must involve a wider variety of tasks for it deals also with semi or unstructured tasks. Whereas EDP is mainly concerned with producing reports of structured activities, in an office automation user system there is interaction, and human communications play an important role in the success of the overall automation process.

By now it is clear that there is more to office automation than the initial concept the term implies to most people; i.e. the introduction of EDP facilities into the workplace. For office automation is the integration of widely descriptives to achieve a smoothly running, highly productive, and cost efficient business environment. It can take many forms. Some of these are:

- the providing of easy access to communication links within an office, simplest form of which is an intercom telephone system, as well as with the world outside.

- a well conceived and efficient information filing system like using indexed and catalogued filing.

- the arrangement of the office layout with the aim of facilitating and speeding the flow of work when many people are involved at one stage or another in the accomplishment of a task.
providing a pleasant workplace for employees to boost their productivity and prevent fatigue, e.g. lighting, decoration, furniture, facilities.

Of course computers have been employed to provide for many of the above, especially in the areas of filing, communication, and document handling. But the extent of computer usage should not be a gauge of the degree of office automation. They are rather an efficient tool in implementing the overall concept.

For example computers provide the capability of being locally and remotely networked to other computers, thus making communication of documents and ideas easier and faster. They can process words and figures quite efficiently using word processors and electronic spread sheets. They can store information for structured and easy retrieval when needed, something known as data base management systems in the computer field. Finally, computers fit quite nicely into the overall picture of an organized and systemized office. Since they easily lend themselves to the idea of an overall strategy, one doesn't have to sacrifice integration of functions to attain the full services computers can render. Different applications can be modules within a complete system that insures data portability between different functions, thus furthering the idea of efficient communication.
Office automation is at the center of a technological revolution taking place within offices everywhere, a revolution fueled by rapidly increasing costs and expanding volumes of information.

Office automation is not really about flashing light, the executive console and conversing computers. "It's not just about shopping with one vendor in preference to another. It is concerned with an appraisal of what an office is for, how yours works, where the critical operations and the high cost are, and how the operations of the office can be improved or amended the better to fit our requirements." (9)

The Evolution of Office Automation

According to Zeisman, an organization passes through four stages of growth as its use of information systems matures.

1- Initiation: In the first stage, applications of office automation cover mainly structured tasks such as test and data processing. They are mostly chosen on a cost-justified basis to reduce labor costs and save time in performing repetitive tasks.

2- Expansion: during this stage, the success of automation in the basic structured task will make the demand for automation grow rapidly. This unplanned growth creates chaos and organizational problems. Nevertheless, the stage is still that of tasks mechanization and not of functions automation, addressing secretarial and not managerial work.

3- Formalization: Here, planning for automation is formalized and given more importance. There would be a shift towards integrating applications and facilities into more cohesive systems. The process of automation begins to address the more unstructured tasks of office processes.

4- Maturity: By this stage, all disturbances caused by the changes would have settled. The system begins to work with fewer problems and more profitable applications. Yet, management should not consider this situation as static but rather adjust constantly to the rapidly changing technologies.
Office Automation Applications and Technology

Office automation can be classified into five categories: Communication, information storage/retrieval, analytical tools, test preparation and editing, and personal support tools.

Communications

Currently, the most advanced office system is electronic mail which can take one of several forms. The oldest method is the telex which is a comparatively slow transmission of electrical messages. A facsimile is a more advanced piece of equipment that behaves like a remote copies and permits transmission of a replica of a document over telephone channels.

Recently many organizations have taken advantage of the advances in communication technology to integrate their word processing or computer stations, thus providing their employees with on-line data or test communications capabilities. Even voice communication is greatly facilitated and improved today with the modern digital systems and multifunctional telephone.
Ultimately voice, picture, and data communication will be integrated, giving rise to the "paperless society". One example already in use in teleconferencing, which permits managers to confer remotely, thereby producing savings in time, cost and energy expanded commuting or traveling.

**Information Storage and Retrieval**

Micrographics (microfilms and microfiches) is a growing and relatively not expensive technology for archival storage and retrieval. It allows for the storage of condensed copies of the original data or test on microfilms, saving space and freeing the office from paper files.

A more sophisticated and dynamic form of data storage is a computer data base system, perhaps more expensive than micrographics, but it offers quick access and retrieval of information, factors critical to effective decision-making. However, it should be pointed out that these on-line systems can be quite a wast of instrument where dynamic information processing is not required. A new technological invention, computer output microfilm, has partly solved this problem. COM combines both technologies, digital processing and...
Micrographics: it operates by means of computer output signals which are sent to a CRT rather than a printer, and the image is reduced by a lens system and focused onto a microfilm. The concept of COM has been combined or integrated with other systems so that on-line COM, intelligent COM, distributed COM, laser recording COM and graphic COM are now available.

Analytical tools
The computer represents the main analytical tool. Personal computers and distributed processing computers are now storming the business office. In addition to main frames, which are the oldest and largest type of computer, smaller computers are gaining more importance as they are becoming more powerful and yet less expensive than mainframes. Small computers can be divided into three categories:

a- Minicomputers, "which are used primarily as processing tools by sophisticated users who develop usually their own software for specialized applications." 

b- Small business computers which come with general purpose applications software, high-level programming languages and a high degree of manufacture distribution support.

c- Desktop or personal computers which are characterized by low prices and availability through retail store outlets.

Although these three categories appear to be separate, they have boundaries that are becoming increasingly vague. For example, manufacturers are now producing superminis large enough to handle the high input/output and large business data bases of mainframes.

Generally, computers offer speedy and cheap data processing capabilities. It is a powerful decision support system when programmed with the appropriate decision analytical model, enabling managers to consider and analyse various alternative scenarios.

**Text Preparation and Editing**

The oldest technology of test preparation and editing is the typewriter. The first typewriter was invented more than two hundred years ago and many improvements have been added over the years. Nowadays, the word processor, an electronic typewriter with a screen monitor, is threatening to replace the classical typewriter as the basic office equipment.

The first word processor developed was simply a typewriter with limited memory for only a single typed page. It lacked both a display and communications. Now the users have choice between the electronic typewriter, or word processing workstations in which the system's memory is invariably distributed among terminals and controllers.
Word processors offer speedier document creations, faster editing, improved document quality, rapid information retrieval, and now most of the existing word processors are equipped with communication capabilities.

**Personal Support Tools**

Some of these office tools, like desktop calculators and cash register, have been widely accepted and used through the stages of mechanizations.

"With the age of automation, they retained their importance as an integral part of an office system rather than as independant units."¹⁰

For the most part, OA systems are blind i.e., they deal with words, numbers, and tones, but rarely with images. It is the copier that permits production and distribution of replicated images of documented business activities, and it is to be found now in every business office. Modern copiers have a microprocessor-based control system allowing users to monitor the office copier's operations remotely. They also offer higher resolution through a retrofitting of a new imaging technique that produces better than plain paper copies, enlargements or reduced copies of originals. Copier technology has been interfaced with computer printers to produce printouts of unstored documents.

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Another important office tool is the dictating machine with the non up-to-date models becoming smaller, lighter and easier to use. Manufacturers, nowadays, offer a computer based, centralized dictation system accessible by telephone, it makes use of voice synthesis to answer cables and to record messages.

**Office Automation and Human Resources**

The introduction of office automation affects the human elements. As an agent of change, it will generate employee resistance at different organizational levels and with different intensities. OA is more than the simple introduction of new technologies; it may potentially lead to a full restructuring of the work environment, changing job requirements, requiring new labor skill, and possibly creating threats of unemployment.

Do the benefits derived from OA justify the cost and threats involved? Answering such a question may be irrelevant today as OA has become imminent with the increasingly competitive business environment which are relying more heavily on advanced technologies.
With OA, many organizational and behavioral issues arise, some of which are peculiar to the Lebanese environment. Such issues relate to the extent of OA applications in Lebanon, the conception of OA prevailing among Lebanese managers, the technologies available in the Lebanese market, and the level of employees involved in the planning, control and implementation of OA systems in Lebanese firms.

The human issues also depend on the following questions:

How does OA affect the working environment or the job structure? Is employee behavioral resistance of any major concern to top management? Has OA led to any unemployment or work displacement? Are new skills being required for the same job as a result of using the technologies? In general, when and how are OA technologies being used, and in what way is the labor force in Lebanon being affected and reaction to its use?

A final important note is that most Lebanese firms are family-owned with the structures being greatly influenced by the Lebanese political and sectarian forces. With such a contrast to the institutional systems of industrial world, the human implications of OA in Lebanon could be expected to differ from those experienced in the industrial countries.
Suppliers affect a market by means of the variety of products they offer and the marketing strategies they adopt, and they affect the product user's attitude by means of the support and maintenance services they are prepared to provide. For example, a supplier who promotes a new product with an aggressive marketing strategy that could include, for instance demonstrations and after-sale service, will both familiarize a potential purchaser with the product and encourage him to buy it.

This section studies briefly the Lebanese market and the incentives offered by its suppliers of OA technologies, it describes also the user's attitudes to OA technologies and the problems hindering the expansion of these technologies in Lebanon, as perceived by the suppliers and based on their experience with the users.

The information included in this section was obtained from brief interviews with four Lebanese suppliers: Computeknix, El-Haceb, Isticharat, and a consultant who preferred to remain anonymous.
Available Technologies

The OA technologies market can be divided into two main parts: Hardware and Software. Some suppliers provide both. With respect to hardware, OA technologies can be categorized into three main groups:

1- Office equipment, which includes desktop calculators, cash registers, photocopiers, and word processors.
2- Computer systems
3- Communications technologies, including telex machines, private automatic board exchange like telephones and interphones, and telefax copiers.

With respect to software systems, it is to be noted that consulting constitutes an essential part of the OA industry. To automate an office it is not enough to acquire the necessary hardware needed. It is important to undertake a

1) The voice and data transmission service in Lebanon is a totally public one. Like all other public sectors in the actual circumstances in Lebanon, it suffers from inefficiency and the fighting has caused major damage to it.

2) A detailed list of the above technologies and their suppliers is given in Appendix (A).
planning process before this acquisition. Studies should be done upon the types of technologies but suited to the company's needs, the way of introducing them, and the order in which tasks should be automated.

However, in my opinion consultancy services, the usage of which is outlined above, do not really exist in Lebanon. There does exist some good local software firms but their success has been limited to the development, programming and implementation of tailored software for mostly structured activities such as accounting and payroll systems.

Support Services

Most of Lebanese suppliers provide training for client's employees. Some have training centers, while others provide training at the client's company. Few also provide preliminary studies before installation of any equipment to define user's needs. Provision of spare parts and maintenance is almost totally monopolized by the suppliers of the respective equipment.

Software systems suppliers affirms that they always provide up-to-date revisions of the software they write for their clients, and may even assist in recruiting for their EDP department.
The software house generally define an important problem faced by both themselves and the users as one of non-standardization of software systems because of the different procedures of work adopted by firms in the same business. As a result, constant training and smooth change in EDP personnel are required to ensure continuous maintenance and development of the existing software systems.

Hopefully, such problems may be eased in case of accounting with the government's new standard accounting regulations. The Lebanese government has now set standard norms and procedures for accounting, "Le Nouveau Plan Comptable" and requires all companies to standardize accordingly their accounting programs.

**Marketing Strategies**

Based on the interviews conducted, it appears that the marketing strategies adopted by the Lebanese suppliers are not very sufficient. The suppliers complain of the lack of user education, but don't appear to make a great effort to help the users to improve their knowledge. For example, Computeknix's strategy is to contact only people already familiar with the technologies.

A second problem arises with the manner in which suppliers handle inventory. Certain suppliers do not even maintain stock with country in order to avoid technological obsolences.
and to always offer up-to-date systems. But because of the conditions in Lebanon, these suppliers are faced with frequent delays. Other who keep stock domestically sometimes, to avoid carrying obsolete stock, dump old technology on the market to accommodate newly developed systems. This marketing strategy leaves the Lebanese market a step behind the more advanced markets.

**User's Attitudes**

According to suppliers, user's resistance to OA is caused by the lack of suitable technical education which is reflected in low productivity and a passive attitude towards institutional commitment. In most case, this passive attitude is also contributed to buy the obvious lack of concern on the port of the employee for the employee's opinions. At the managerial level, suppliers reported that the manager's attitudes and primitive perceptions of computers is an important element in the buying decisions. For instance, managers tend to go sometimes for the computer with the biggest processing and storage capacity, even if it is not needed. Such an attitude leads usually to system industrialization.
User's Problems

The suppliers defined two main problems that the user faces when introducing OA. Firstly, the security situation in Lebanon discourages investments such as those needed for acquiring sophisticated OA technologies, and secondly, the infrastructural technical deficiencies, such as electricity shortages and inadequate communications, constitute a major obstacle for the deployment and integration of business information networks. Frequent electricity shortages require additional investments in stabilizers, UPS, etc... while the inadequate telecommunications network prevents network integration of the establishment of real on-line systems.

This section was considered crucial to the study's analysis. Some causes of the negative effects of OA on users may include poor choice of technology or poor implementation. Some may be related to the supplier's market approach to the users, and therefore the cooperation of the suppliers be needed in order to arrive at an appropriate solution for the user's problems.
Human Issues In Office Automation

Office work is labour intensive, the office employee being the center of the office. This part concentrates on defining the human issues that are pertinent to OA, and which are assumed to represent the best indication of its implications on personal and human behavior in Lebanon.

Employee's Attitudes

Employee attitudes is one of the most important factors determining the success of the implementation of OA. Non-participation workers can defeat the whole purpose of the process to attempt to increase labor productivity and employee cooperation and support is certainly instrumental toward achieving OA objectives. While their attitudes may vary from enthusiasm to full resistance, nevertheless they depend on several factors.

1. Involvement in the Decision of Automation. In most cases, when employers offer their employees a say in the decision involved in office automation and the process of implementation, this offer will act as a challenge to the employees. This challenge will be an incentive that will
ensure employee participation and cooperation. At the same time, the employee's involvement will familiarize them with the concept of OA, its objectives and the technologies in use, thus rendering them more productive and efficient.

2 Education. It is a debatable point whether the user's level of education is an important factor affecting their attitudes towards automation. According to Ellis, "Some opinions affirm that a more educated employee is usually more ready to accept innovation, while others argue that the users' attitudes are not related to their level of education, but is a function of age and character". However, what is certain is that suitable reeducation of employees, that is, offering them lecture and training sessions, will help in making them adopt a favorable attitude towards automation.

3 Employee Job Level. Employees at the clerical level have structured jobs requiring modest skills that can be provided by a considerable number of people in the labor market.

However, managers, particularly top-level, are not so easily available since a good manager needs, besides his managerial skills, good knowledge of the institutions with which he is working. Moreover, managers play an important role in the decision for automation and the methods of implementation. These two factors will contribute to the lower-level employee feeling his job more threatened by the introduction of automation, and this will subsequently lead to resistance.

4 **Incentive System.** Employees will favor the automation process if they perceive that it is a good opportunity for promotion. This can be realized if, at the time of introduction, management includes in the objectives of automation the relief of the employees from routine tasks so that they will be free to deal with more interesting tasks. Also, job promotional and monetary incentives such as bonuses or a rise in wages may be encouraging. These incentives, plus patience and support from manager, are necessary to overcome resistance, especially when it is caused by an attachment to routine.

5 **Planning And Phased Implementation.** The introduction of OA and its implementation all in one step, without detailed preliminary studies, will result in disorganization, and an increase in work and inefficiency.
Employee's resistance, in this case, may be the indicator of the existence of real problems. Management should prepare for the introduction of OA, by setting carefully studied short, medium, and long term plans strategies (Financial, personnel, organizational, technical etc…) and implementation programs to meet the firm's stated objectives. Follow up is an essential requirement for successful implementation to ensure the realization of the OA benefits, for better control, effectiveness and employees responsiveness.

The Employment Effect

The trade-off between labor and capital investment in the office is viewed as a potential threat leading to unemployment at office level and in the society as a whole. According to Harmin, there are three major types of employment impacts to examine:

1- The disemployment effect, since the structural change in production brought about by the automation will reduce the demand for human labor.

2- The employment effect of automation which will create jobs or increase the demand for labor (for every industry or firm destroyed a new one may appear, and expanding opportunities in information-related activities will more than offset jobs lost to more productive electronic equipment).

3- The supply effect the information revolution will affect the supply side of the labor equation. Teaching machines, televised university courses and interactive home terminals will greatly increase the quality of the labor force. The changes may lead to reduced work hours, increased holiday time, early retirement, and a withdrawal of part of the population from the labor market.\textsuperscript{5)

Another opinion on the employment effects states that OA creates no unemployment on the global level, but rather the changes brought about by it will be in the types of jobs performed and not in the number of people employed i.e. there will be displacement of the labor force.

The Productivity Effect

The rate of productivity of employee after OA is implemented is a function of the degree of planning, the manner of implementation and the level of education of the managers. Careful introduction and implementation by well-informed managers of the appropriate technologies in the office should lead to an increase in productivity. In contrast, when the introduction is implemented haphazardly it will result in chaos and a decrease in productivity.

Job Description And Satisfaction

The importance of the job description and the status of the job constitute a source of pride for the employee who, when enthusiastic about his job is much more productive. For some, office automation threatens status and job responsibilities. For example, an employee's status may change from an accountant to a computer operator, the job will lose its importance to the employee, becoming meaningless and unrewarding. Another example is the employee of the isolated computer center whose job will no more provide him with the privilege of controlling the flow of information after the change to an on-line system in the office.

Some employees, however, look at OA as a source for more job satisfaction and new opportunities. They will regard their jobs as less mechanical and more challenging. The attitude will depend greatly on the type of employee. The latter point of view will be that of the creative and ambitious type, while the former point of view will represent the less creative and passive type of employee.

According to Louis H. Mertes, "OA makes work more abstract requiring more judgements than mere calculations and simple thinking. This will lead to the emergence of two types of
workers: on the one hand the paper shafflers who need their job to be structured and who will feel useless because of automation, and on the other hand, the creative people who will use the added time to search for new interests."

The Communication Effect

The largest divisions of OA technologies are communications technologies. Thanks to such things as electronic mail, telephones, teleconferencing, communications have become a lot easier and swifter. The clarity of the information produced eliminates the need for time-consuming meetings. Video conferencing, for example has solved the problem of length trips.

However, a serious human issue is raised here, caused by the fact that communications technologies eliminate human or personal contact. Employees may experience an increased sense of social isolation since they become deprived of socializing in their work environment. This feeling of isolation may also be a source of work alienation for the employees. Moreover, some managers, deprived of the face-to-face contact, will feel that they no longer control the work of their subordinates.

6) "The Information Trail", Information Systems, April 1984, pp 156
Organizational Effect

The change in job qualifications and types of employees needed, and the decrease in the amount of clerical work done by humans will no doubt entail some change in the classical organizations structure. According to Zuboff, "with information technologies, managers will do a variety of tasks that others once did for them. Because of this, we are likely to see a gradual shift in the overall shape of the organization from pyramid to something closer to a diamond shape with a diminishing clerical support staff, swelling number of professionals and middle managers, and a continually more remote, elite, policy making groups of senior manager".

Another organizational issue raised is whether automation will mean delegation of manager's work to their subordinates. Some argue that managers, because of the clarity and accuracy of the reports produced, will be able to delegate more work. They will maintain authority only at the very important decision-making level, without any decrease in their managerial control since all information will be directly available to them at any time they need it. As Simon states, "management will change from work pushing and expediting, to planning and systems thinking".


However, another opinion states that managers will never be able to overcome their lack of trust in their subordinates and will have more work to do and more reports to read since they want to have full control over every decision taken in their office.

In Lebanon, not all the issues described are pertinent. However, prior to examining these issues it is important to specify the "automation stage" in the Lebanese companies the way the technologies are introduced and the different employee reactions. Delegation of work, for instance, may be an important issue since the Lebanese organization of work is usually highly centralized and Lebanese managers are not inclined to delegate authority.

Another important issue is the question of job description since the Lebanese employee is very sensitive to his status at work. In contrast, an issue that may not be very relevant is the communications effect since the Lebanese infrastructure does not allow for the installations of real on-line systems or sophisticated systems such as teleconferencing.
Chapter IV

METHODOLOGY, OBSERVATIONS AND ANALYSIS

In order to obtain feedback from the companies operating in Lebanon, field work was undertaken to study the effects of OA on personnel in Lebanon. This chapter describes the methodology of the survey conducted, and the major observations.

Methodology

There exists a wide variety of Lebanese firms, and each one presents a different background for office automation with respect to the type of business, size, employee distribution, and background. Collecting detailed information about these various business through the distribution of a structured questionnaire was judged to be the best way to serve the objectives of this study. This method of data collection was considered preferable to other methods such as calls, which are impersonal and do not allow for elaboration of details. It is also preferable to informal personal interviews, which allow the respondent to mention important characteristics peculiar to his business, but tend to be time consuming for both the respondent and the interviewer.
Sample Selection

The selection of Lebanese firms for the sample was made with the objective of including both the banking and the non-banking sectors. In fact, it has been observed that the banking sector constitutes the largest most expanding division in the Lebanese services sector.

A large number of business firms and nonprofit organizations were contacted to test the possibility of obtaining responses to the questionnaire. The number of businesses that indicated willingness to respond were twenty-five. They included thirteen banks and one or two representative organization from each of the following sector: auditing, trading and manufacturing, oil, insurance, commerce, conglomerates, and university education. Table (1) shows a general description of the firms.

Limitations

The difficulties faced in this study are not peculiar but are, according to past experience in research work, common to all field studies in Lebanon. Such difficulties include:
<table>
<thead>
<tr>
<th>SECTORS</th>
<th>NUMBER OF BRANCHE</th>
<th>NO. OF EMPLOYEES</th>
<th>NO. OF DEPARTMENT</th>
<th>CAPITAL L.L</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-5</td>
<td>6-10</td>
<td>&gt; 10</td>
<td>0-50</td>
</tr>
<tr>
<td>BANKS:1</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>3</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>5</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>6</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>8</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>9</td>
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<td>X</td>
<td>X</td>
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<td>10</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>11</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>12</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>13</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>UNIVERS.1</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>INSURANCE</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>TRADE. 1</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>OIL CO.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>COMM.CO.1</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>AUDIT. CO</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SERVICES</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CONGLOMER</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
a) The difficulty of covering all Lebanese territories due to security reasons.
b) The attitude of many Lebanese managers who consider answering such a questionnaire is a wast of time. Alternatively, they may be unwilling to reveal any information whatsoever about the business.
c) The difficulty of arranging meetings with managers without the assistance of a third party known to the managers.

These limitations described above may have created some constrain in the results obtained. These results tend to describe the banking sector in Lebanon rather than the services sector generally since banks constitute a majority in the sample chosen. For this reason, institutions surveyed were divided on the basis of two categories: banks and non-banks.

Another limitation brought about by the variation in the position of the respondents. A middle manager may diagnose the cause for employee's attitudes differently than an EDP manager, while a general manager may place all the blame for any disorganization in work on the employees. Moreover, a general manager may tend to describe his company as a perfect environment and its introduction of automation immensely successful, an EDP or middle manager may be more realistic and honest in his answers.
Conducting the Survey

The position of the respondent varied from that of the head of the EDP department in some firms, to a middle-level manager in others. In two firms, only it was possible to get the general manager to answer the questionnaire himself. This variation was due to the fact that the questionnaire was to be answered by any qualified person available at the time of the interview.

After explaining the objective of the study and any questions which could perhaps create some confusion, the questionnaire was left with the respondent for a period of ten days. However, it was found that a second and sometimes a third visit was necessary in order to ensure that the questionnaire was answered. In some firms, it was possible to conduct a brief interview with the respondent so that additional and more detailed information was obtained.

Description Questionnaire

The questionnaire is divided into two main parts. (1) The objective of the first part is to supply information pertaining. A second objective of this descriptive section is to determine if there exists a relationship between the different characteristics of the business and the effects of OA.
a) The background of the organization, namely the type of the organization, number of its branches and number of the employees.

b) The kind of technologies in use is obtained by inquiring about hardware, and software applications they use, kind of communication system, and any other office equipment that is related to OA such as typewriter, copier etc....

c) The driving force behind the OA is its use of global attributes such as productivity, efficiency, competitiveness, organizational such as control, necessity, or economics in terms of cost and time saving.

d) The selection criteria to introduce OA at their premises, ie what criteria is determined for the purchase decision: price, storage capacity, or support.

e) Benefit and costs ratio, in terms the benefits that could be provided by applying OA. Would it be performance, productivity, or better organizational system? And what problem are incurred from introducing OA? Would it be that the large capital invested in OA is not justified by the benefit OA offers?

f) The application they use; accounting, marketing or planning. Who is responsible for the OA? Is it the end user or outside server? And what department use the OA planning, marketing, or accounting?
The second part of the questionnaire has also two objectives. The first objective is to describe the method of introducing O.A, and the employee's reactions to this introduction. The second objective is to study the effects of this introduction on the quality and quantity of work at two levels: clerical and managerial. It included questions about the following.

a) How were the employees introduced to technologies? Does the application of the new system require heavy training, or new skilled personnel? What was the reaction of the personnel? Was it resistance to change or acceptance?

B) What happened to the size of personnel in the department? Larger or smaller? What were the changes on the jobs after O.A? More assignments, less paper work, or new created jobs? How did OA affect the work and attitudes? Better work, More commitment or less work alienation?

c) Do managers feel that OA give them more control, more work, or nothing changed? What about the communication between managers and their subordinates, has it been reduced or increased?

1) A copy of the questionnaire is attached as appendix (B).
Observations And Analysis

This part is based on the findings from my questionnaire as well as the researcher personal observations. Tabulation and analysis of results will be undertaken in this section, quantitatively as well as qualitatively.

Concept of Office Automation

The results obtained revealed a lack of awareness of the meaning of OA among Lebanese users. They all stressed the objectives of OA, that is speed, effectiveness, etc..., without elaborating on the process itself. In addition, the majority of the respondents confuse OA with mechanization. They define it as the use of methods, machines and technologies in the office to increase production, save time, improve work and decrease costs (Table 2). Many of the respondents also limited OA in their answers to computerization. The only technology they mention, in fact, is computers. For example, the head of the EDP department of a bank stated that "OA is letting the computer handle different kind of jobs to increase productivity, efficiency, and performance."

An exception, where systems and integration of functions was mentioned, was from the head of the planning department in a conglomerate. He defined OA as a "computer based systems integrating office functions (hardware, software, human) and allowing for ease and timely access to information by all concerned."
### TABLE 2

THE MOST IMPORTANT
OBJECTIVE OF OFFICE AUTOMATION

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>Banks</th>
<th>Non Banks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO.</td>
<td>%</td>
<td>NO.</td>
</tr>
<tr>
<td>SPEED</td>
<td>3</td>
<td>24</td>
<td>2</td>
</tr>
<tr>
<td>TIME</td>
<td>2</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>ACCURACY</td>
<td>2</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>MORE PRODUCTIVITY</td>
<td>2</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>EFFICINCY</td>
<td>2</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>COMPUTERIZATION</td>
<td>1</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>LOW COST</td>
<td>1</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>13</td>
<td>100</td>
<td>12</td>
</tr>
</tbody>
</table>
We can ascertain from the responses that the Lebanese users still have a long way to go before succeeding in implementing OA as long as the users needs and systems's integration are not given the necessary technologies as the only important part of automation. The only problems he expects to face are technical one, and his ignorance of the need for integration and the importance of the human factor will ultimately create organizational and human problems that he will not be equipped to handle.

Application Of Office Automation

The functions and tasks for which OA technologies are used constitute further proof that OA in Lebanon is still at the mechanization stage, not only conceptually but also in practice. Tables (3) show the technologies used by the firms samples.

Technologies have been introduced in the structured functions of accounting and data filing for all firms, and in marketing for the commercial firm and oil distributor (Table (4)). The only firm that reported the use of the relatively more sophisticated applications was the conglomerate. If it is permitted to draw any conclusion from the experience of one
### Table 3
#### TECHNOLOGIES IN USE BY OFFICE AUTOMATION

<table>
<thead>
<tr>
<th>Computer system</th>
<th>Banks</th>
<th>Non Banks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAINFRAME (SUPER MINI)</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>MINICOMPUTERS</td>
<td>15</td>
<td>26</td>
<td>5</td>
</tr>
<tr>
<td>MICROCOMPUTERS</td>
<td>34</td>
<td>59</td>
<td>64</td>
</tr>
<tr>
<td>TOTAL</td>
<td>58</td>
<td>100</td>
<td>69</td>
</tr>
</tbody>
</table>

### Table 4
#### APPLICATIONS USED BY OFFICE AUTOMATION

<table>
<thead>
<tr>
<th>Applications</th>
<th>Banks</th>
<th>Non Banks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>ACCOUNTING</td>
<td>13</td>
<td>40</td>
<td>9</td>
</tr>
<tr>
<td>FINANCE</td>
<td>8</td>
<td>24</td>
<td>1</td>
</tr>
<tr>
<td>MARKETING</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>PRODUCTION</td>
<td>2</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>DATA ANALYSIS</td>
<td>9</td>
<td>27</td>
<td>4</td>
</tr>
<tr>
<td>TOTAL</td>
<td>33</td>
<td>100</td>
<td>22</td>
</tr>
</tbody>
</table>
the firms, one may say that an educated environment and a clear conception of OA provides a good background for a successful and rapid implementation. It was observed employees are predominantly university graduates with an average age in the late twenties.

The Lebanese users' application of OA is similar to his conception of its technology oriented and not systems oriented. He uses a typewriter, a copier, or computer (Table 5), as independent units without combining them in an integrated set. Moreover, their use is not introduced on the level of the firms as a whole, but rather is limited to certain departments, and structured functions and tasks. All the users of OA technologies are incorporating them mainly the departments where automation can be cost justified and not necessarily where it is most needed in achieving the overall objectives of the firm.

Here, also, the conglomerate proved to be an exception for it is the only firm in the sample where the planning, and not the accounting department (Table 6), was the first department where automation was applied. We may say that the fact the employees of this firm have the highest average level of education among all the firms of the sample could have helped them to see the wider scope for automation, and to integrate it in their future plans instead of regarding it as a solution for their timely needs.
Table 5
OFFICE EQUIPMENTS USED IN OFFICE AUTOMATION

<table>
<thead>
<tr>
<th>Office Equipment</th>
<th>Banks</th>
<th>Non Banks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>TYPEWRITERS</td>
<td>108</td>
<td>59</td>
<td>70</td>
</tr>
<tr>
<td>WORDPROCESSOR</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>COPIERS</td>
<td>32</td>
<td>17</td>
<td>41</td>
</tr>
<tr>
<td>FACSIMILE</td>
<td>44</td>
<td>24</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>184</td>
<td>100</td>
<td>111</td>
</tr>
</tbody>
</table>

Table 6
DEPARTMENTS APPLYING OFFICE AUTOMATION

<table>
<thead>
<tr>
<th>DEPARTMENTS</th>
<th>Banks</th>
<th>Non Banks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>E.D.P</td>
<td>13</td>
<td>31</td>
<td>7</td>
</tr>
<tr>
<td>PLANNING</td>
<td>5</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>MARKETING</td>
<td>3</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>FINANCE</td>
<td>8</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>ACCOUNTING</td>
<td>13</td>
<td>31</td>
<td>9</td>
</tr>
<tr>
<td>TOTAL</td>
<td>42</td>
<td>100</td>
<td>21</td>
</tr>
</tbody>
</table>
Introduction of Office Automation

The appropriate way of introducing OA to employees is one of the important factors that will ensure success in implementation and avoid human problems. However, in the Lebanese firms, the method of introduction is not given the importance it deserves (Table (7) and (8)). Only two firms reported some concern about their employees' opinions during the decision for automation. In one bank, the middle managers participated in the discussion, while in the conglomerate, a brief and informal survey was conducted to study employee reaction.

The Employment Effect

The employment effect of office automation or, more accurately, of office mechanization in most of the sample firms is mainly a displacement in the labor force. However, this does not necessarily mean that we have a whole shift in
Table 7
INTRODUCTION OF OFFICE AUTOMATION

<table>
<thead>
<tr>
<th>METHODS USED</th>
<th>Banks</th>
<th>Non Banks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.  %</td>
<td>No.  %</td>
<td>No.  %</td>
</tr>
<tr>
<td>IMPOSED BY EXEC.</td>
<td>4   20%</td>
<td>-</td>
<td>4   11%</td>
</tr>
<tr>
<td>LECTURE</td>
<td>7   33%</td>
<td>4   23%</td>
<td>11  29%</td>
</tr>
<tr>
<td>EXPLAINED BY EXEC.</td>
<td>7   33%</td>
<td>9   54%</td>
<td>16  42%</td>
</tr>
<tr>
<td>PROMISE OF IMPROV.</td>
<td>3   14%</td>
<td>4   23%</td>
<td>7   18%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>21  100%</td>
<td>17  100%</td>
<td>38  100%</td>
</tr>
</tbody>
</table>

Table 8
REQUIREMENT FOR THE NEW SYSTEM

<table>
<thead>
<tr>
<th>APPLICATIONS</th>
<th>Banks</th>
<th>Non Banks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.  %</td>
<td>No.  %</td>
<td>No.  %</td>
</tr>
<tr>
<td>HEAVY TRANING</td>
<td>3   13%</td>
<td>2   12%</td>
<td>5   12%</td>
</tr>
<tr>
<td>SOME TRANING</td>
<td>7   30%</td>
<td>8   45%</td>
<td>15  38%</td>
</tr>
<tr>
<td>NEW SKILLED PERS.</td>
<td>4   17%</td>
<td>2   12%</td>
<td>6   15%</td>
</tr>
<tr>
<td>OUTSIDE CONSULT.</td>
<td>9   40%</td>
<td>5   31%</td>
<td>14  35%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>23  100%</td>
<td>17  100%</td>
<td>40  100%</td>
</tr>
</tbody>
</table>
labor from one industry to another. In fact, the effect is much more modest; the shift reported by the sampled firms were just interdepartmental (Table 9). This was the most observed effect.

According to the respondents (Table 10), the reduced paperwork per employee and the changes in work procedures brought about by the introduction of automation resulted in overstaffing in some departments which, in turn, necessitated the transfer of some employees to other departments. This effect was largely observed in the firms which have installed their systems at a relatively early date. The firms with more recent systems did not report the occurrence of any change.

If we try to study the three employment results described by Harmin, we can say that automation in Lebanese firms is having a supply effect, i.e., an increase in the quality of the labor force, even if in a small proportion. The training and lecture provided with the introduction of OA, no matter how few, are increasing the quality of the labor force. Another major cause for this increase in the fact that employees are witnessing rapid technological changes taking place all around them. For example, eight firms in the sample.

Table 9

EFFECT OF OFFICE AUTOMATION ON EMPLOYMENT

<table>
<thead>
<tr>
<th>EFFECT</th>
<th>Banks</th>
<th>Non Banks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Hiring New Employment</td>
<td>4</td>
<td>25</td>
<td>3</td>
</tr>
<tr>
<td>Reduction of Employment</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Shifting of Employees</td>
<td>9</td>
<td>57</td>
<td>6</td>
</tr>
<tr>
<td>No Changes</td>
<td>3</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>100</td>
<td>11</td>
</tr>
</tbody>
</table>

Table 10

CHANGES IN JOBS AS A RESULT OF OFFICE AUTOMATION

<table>
<thead>
<tr>
<th>TYPE OF CHANGE</th>
<th>Banks</th>
<th>Non Banks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>More Assignments</td>
<td>7</td>
<td>59</td>
<td>3</td>
</tr>
<tr>
<td>Paper Work Reduce</td>
<td>5</td>
<td>41</td>
<td>1</td>
</tr>
<tr>
<td>New Jobs</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nothing Change</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>100</td>
<td>4</td>
</tr>
</tbody>
</table>
are using OA technologies for test editing and production (Table 11), and clerical staff are using these technologies.

This means that there is a great improvement in the quality of the average secretary or typist. She is becoming more efficient and productive. This supply effect should be also influencing the "Future labor force", that is, the new university and school graduates who are more technology oriented. For example, computer schools and computerized programs are becoming more and more popular.

The second impact of OA described by Harmin in the disemployment effect, that is, a decreased in the demand of labor. From the responses obtained we observe that no one firm in the sample reported a decrease in the numbers of employees. This could have two reasons, first the tradition or fear of not laying off unproductive employees, and second the fact that we are still at the first stages of OA and thus more rather than less employees are needed to cope with new work procedures.

Table 11
TASKS THAT ARE USED IN OFFICE AUTOMATION

<table>
<thead>
<tr>
<th>TASKS</th>
<th>Banks</th>
<th>Non Banks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>TEXT EDITING</td>
<td>4</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>MESSAGE FILING</td>
<td>2</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>DATA FILING</td>
<td>9</td>
<td>45</td>
<td>5</td>
</tr>
<tr>
<td>CALENDERING</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STOCK CONTROL</td>
<td>5</td>
<td>25</td>
<td>9</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20</td>
<td>100</td>
<td>20</td>
</tr>
</tbody>
</table>
With respect to the third impact of the employment effect, the new expanding opportunities for information related jobs, we can say that it was observed on a very limited scale since some firms did hire more employees. However, this effect, described by Harmin as more employment for the whole economy, is not very likely to be observed in Lebanese firms at the time when the Lebanese economy continues its declining trend, making any kind of expansion very risky. This likelihood is increased due to the fact that Lebanon does not have any industries producing OA related technologies.

Job Satisfaction and Description Effects

In two cases, the respondents who reported higher job satisfaction as a consequence of OA; they were only one bank and the trading company. With the exception of one bank which complained of resistance (Table 12) and one firm manager reporting employees indifference, all the firms sampled reported that their employees became well adapted to the system after its implementation. This adaptation was attributed to the fact that OA created a better quality of work with a decrease in time. However, the writer believes these results are not enough to create higher job satisfaction. A more positive attitude comes with a certain environment of work, or some incentives.
Table 12

EMPLOYEE REACTIONS TO OFFICE AUTOMATION

<table>
<thead>
<tr>
<th>REACTIONS</th>
<th>Banks</th>
<th>Non Banks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>RESISTANCE</td>
<td>8</td>
<td>66%</td>
<td>2</td>
</tr>
<tr>
<td>ACCEPTANCE</td>
<td>3</td>
<td>25%</td>
<td>3</td>
</tr>
<tr>
<td>ENTHUSIASMS</td>
<td>1</td>
<td>9%</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>12</td>
<td>100%</td>
<td>7</td>
</tr>
</tbody>
</table>
This may be illustrated by the cases of the two firms reporting higher job satisfaction. The trading company was the only firm whose employees did not face problems at the time of the introduction of OA, but another factor that helped create a sense of satisfaction was the small number of employees involved. This seems to produce a cooperative environment that facilitates the success of any change. The second exceptional case was the only bank in the sample to offer promotion to its employees based on success in their work (Table 13). Another important observation in both these exceptions is the fact that management did delegate work to lower level employees after implementation of OA.

As for the second effect, that of job description we may deduce that the jobs were not subject to meaningful changes. No increase in responsibility was registered since very few were the managers who reported any delegation in decision-making. Added to this is the fact no sophisticated new skills were required since OA is still at its first stage. Employees had only to learn the basic rules about working with a terminal. For example, secretaries learned to work on word processors instead of working on a typewriter. All the rules complicated tasks were the responsibility of the EDP department staff.
### Table 13

**INCENTIVES USED WITH OFFICE AUTOMATION**

<table>
<thead>
<tr>
<th>INCENTIVES</th>
<th>Banks</th>
<th>Non Banks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>PROMOTION</td>
<td>3</td>
<td>33%</td>
<td>2</td>
</tr>
<tr>
<td>BETTER WAGES</td>
<td>4</td>
<td>44%</td>
<td>2</td>
</tr>
<tr>
<td>NOTHING</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>JOB EVALUATION</td>
<td>2</td>
<td>23%</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>9</td>
<td>100%</td>
<td>7</td>
</tr>
</tbody>
</table>
Management Role in Employee's Reaction

A major deficiency in the manner of introducing OA is the inadequacy of the explanations and training provided. The results showed that, in most of the firms, employees were just asked to work on the technologies because it was a high-level decision. These respondents reporting the use of lecture complained that they were not extensive enough. Still, even these brief lectures and the simple fact that the reasons behind the decision for automation were explained were enough to raise enthusiasm among employees.

If we relate the answers to the question on the method of employees' introduction to OA technologies with the answers to the question on managers' opinions concerning the cause for employees' resistance, we find that although most respondents seem to be aware that employees ignorance of the new technologies is the chief reason behind their resistance, they make the technologies, thereby overcoming this resistance.

These results may lead us to lay part of the blame on management for any employee resistance. The answers to the question concerning employees' attitudes after introducing OA seem to confirm this opinion since most of the firms reported that employees became well adopted to the systems after a certain time, i.e., after they become familiar with the technologies.
Furthermore, the answers to the part concerning consequences at the managerial level stressed the traditional attitude of the Lebanese manager (Table 14). Although the majority of managers admitted a better flow and control of information, most of them reported non-delegation of work. This fact will probably reflect itself in the employee's attitudes, for the introduction of OA will not bring new challenges to the lower level employees, and it will fail to raise any feeling of enthusiasm among them. The absence of employee's participation in decision-making is also not allowing for any organizational effect that OA might have in bringing about a meaningful change in the job responsibility or in the level of decision-making.

Another observation was made concerning the changes in the communication between managers and their subordinates (Table 15). The majority of the respondents said that communication was reduced because of the clarity of reports produced. This may help in giving the employees more freedom and making them feel more responsible. However, in most firms this decrease in communications was not accompanied by an increase in delegation. This leads to the negative effect of an employee feeling a loss of self-importance because automation does not increase his responsibilities while at the same time, decrease his contact with his superiors, both previously being important avenues for an employee to show his good work, thereby increasing his chances for promotion.
Table 14

CONSEQUENCES AT THE MANGERIAL LEVEL

<table>
<thead>
<tr>
<th></th>
<th>Banks</th>
<th>Non Banks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>MORE CONTROL</td>
<td>7</td>
<td>70</td>
<td>6</td>
</tr>
<tr>
<td>MORE WORK</td>
<td>3</td>
<td>30</td>
<td>-</td>
</tr>
<tr>
<td>NOTHING</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>100</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 15

COMMUNICATIONS BETWEEN MANAGERS AND THEIR SUBORDINATES

<table>
<thead>
<tr>
<th></th>
<th>Banks</th>
<th>Non Banks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>REDUCED</td>
<td>7</td>
<td>64</td>
<td>4</td>
</tr>
<tr>
<td>INCREASED</td>
<td>4</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>NOTHING</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>HAS OTHER FORMS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>11</td>
<td>100</td>
<td>10</td>
</tr>
</tbody>
</table>
General Effects of OA on Work

The implementation of OA had some positive and some negative effects on the firms. Most of the firms reported an improved performance, productivity, efficiency and effectiveness. Almost all of them realized better work in a shorter period of time. Six firms in the sample said that their paper work was reduced and employees were assigned other jobs, that is, their employees were performing an increased number of activities. Another positive effect was the fact that a good number of firms succeeded in overcoming confusion, thus realizing better organization at work. Some of the firms even succeeded in creating better motivation among their employees.

The positive effect of OA was very important in the communications between employees and managers. Attributable to the use of the technologies was the production of clearer reports and a better control of the flow of information which, in turn, allowed managers and employees to avoid time-wasting meetings.

It was encouraging to realize also that none of the firms complained of unjustified investment. In all firms, in spite of the problems faced, management did not consider the investment in OA technologies as a loss and they felt the results obtained were worth the amount of monetary investment (Table 16).
Table 16

BENEFITS FROM OFFICE AUTOMATION

<table>
<thead>
<tr>
<th>BENEFITS</th>
<th>Banks</th>
<th></th>
<th>Non Banks</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>INPROVED PERFORMANCE</td>
<td>7</td>
<td>26</td>
<td>2</td>
<td>12</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td>INCREASED PRODUCTIVITY</td>
<td>6</td>
<td>22</td>
<td>2</td>
<td>12</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>INPROVED EFFICINITY</td>
<td>5</td>
<td>18</td>
<td>4</td>
<td>26</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td>INPROVED EFFECTINESS</td>
<td>4</td>
<td>15</td>
<td>4</td>
<td>26</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>BETTER ORGANIZATION</td>
<td>4</td>
<td>15</td>
<td>2</td>
<td>12</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>PERSONNEL MOTIVATION</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>12</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>TOTAL</td>
<td>27</td>
<td>100</td>
<td>16</td>
<td>100</td>
<td>43</td>
<td>100</td>
</tr>
</tbody>
</table>
An important limitation of the OA technologies was the problem of implementing and developing relevant software. This problem is the result of the different procedures of work, probably the fact that the users themselves, in most of the cases, cannot define clearly and accurately their needs. This problem, and the other problems faced by the users (some complained of disorganization at work and of some confusion) are caused obviously by the lack of careful planning before the introduction of OA technologies. This problem was very obvious in the case of firms whose choice of technological brands was based according to what in their international branches or headquarters, and then had to face different problems because the hardware or software chosen did not fulfill the needs of the Lebanese firms.

Relationship between Nature of Business and Automation

The banking sector in Lebanon is the largest division of the service sector, and it has been experiencing a growth trend. Most of the banking firms have a maximum of three branches, but some have up to twenty-seven branches with two or three located even in one area. Moreover, banking operations require a good deal of paperwork. These factors make office automation a necessity in banks that aims at growth, or even controlled where growth has been lately obstructed by the harsh economic conditions.
The Lebanese bank manager appear to be generally aware of this fact since the answer showed that banks, regardless of their size and the number of their employees, are investing in OA equipment much more than firms involved in other types of business.

The amount invested is not the only factor that differentiates OA in banks and OA in other firms, but also the effects of OA on employees and performance of work is another major point. Banking work, except that of the manager's, is predominantly structured. Employees will establish, with time, a routine and they will not be willing to make the effort required to learn how to work on the new technologies. Moreover, bank employees enjoy an "open environment", most of them being in continuous contact with customers. The use of technologies may deprive them of these social contacts to a considerable extent.

These factors may explain the difference between the percentage of banks (66%) and the percentage of firms (28%) reporting employees resistance. OA also affects delegation of work in banks less than in other sectors, which increases managerial work in banks. This may be due to the highly centralized organizations of work in
banks. From these negative effects we may deduce that the introduction of OA in banks is a delicate undertaking that requires more planning than for other types of business. Because of the more rigid environment and procedures of work, incentives such as promotion or a rise in wages must be offered in order to obtain a cooperative employee attitude. With respect to the other sectors, perhaps best exemplified by the insurance company, the choice of specific OA technology was mostly influenced by the kind of technologies adopted by competitors.

Incentives and Success of Office Automation

The optimal method for obtaining a cooperative attitude from the employees, whether at the time of introduction, implementation or subsequent operations, is the use of some kind of incentive such as better wages or opportunities for job promotion. It is to be noted that out of the nine firms that did not report employee resistance, only
three did not offer any kind of incentives. Moreover, two out of these three are particular cases. One of them is the conglomerate whose employees are predominatly university graduates with an average age in the late twenties. The second case is the trading company with the smallest number of employees in the sample.

That incentives are effective even after implementation was shown to be true. The only two respondents that registered enthusiasm after implementation were the conglomerate and a bank that provided its employees with continuous incentives by including employee performance with the new technologies in their job evaluation. The other firms, with the one exception, reported good adaptation by their employees to the technologies. This attitude was the result of the employees witnessing, with time, an improvement in the quality of work and of employee's increasing sense of security since no firing or major disruption in work occurred.

The only exception that reported employee resistance after implementation was a Lebanese bank which is installing a new system and has already three main frames, one mini, one micro, word processor stations and communicating word
processors. It could be expected that its employees had become accustomed to the use of new technologies, but their resistance was due to the fact that they had had to face interdepartmental shifts and disorganization. These problems had led them to react to the point of refusing to work a cooperate, and using union bargaining. It may be deduced from the results obtained that the presented incentives created acceptance and enthusiasm before and after implementation is proven.

A successful implementation will create, with time, a good adaptation, while the lack of incentives and a disorganized implementation will result in a continual resistance.

**Relationship between Size and Automation**

No relationship between size and automation could be detected in the results observed. The amount of investment in OA equipment or the type of the equipment are not related at all, either to the size of the capital or the number of branches, departments or employees. For example, a bank with 15 million L.L. capital, one branch, eight departments, and 42 employees is investing 1,500,000 L.L. in OA equipment, while another large bank with 100 million L.L. in capital, 25 branches, 10 departments and 500 employees is
investing only one million L.L.. At the same time, a medium-sized bank with a capital of 50 million is investing more than the other two banks. It has equipment worth 2,500,000 LL. This same trend was observed in the business firms (Tables 1).

The only relation observed was between the number of employees of an organization and their attitude. The firms and banks with a small number of employees experienced less resistance to OA than those with a larger number of employees since a smaller number of employees create a more released and cooperative environment of work. The decision making procedures will involve more or less all levels of employees.
CONCLUSIONS AND RECOMMENDATIONS

This chapter provides a summary of the results of the study, and lists briefly some recommendations that may assist in avoiding potential problems in introducing OA technologies into Lebanese firms. The main conclusions of the study are as follows:

1. Using the experience of a new bank that began its operations by introducing OA technologies it was deduced that OA is successful mostly in cases similar to this particular bank, several operations of the firm are organized with a technology base, and their employees are recruited, taking into consideration that they would be using these technologies.

2. Of all the types of business represented in the study, banks are investing the most in OA equipment because they are actually the only "healthy" sector in the Lebanese Economy.
3. Lebanese users are still in the infancy stages of the Nolan's evolution curve. They are undertaking mechanization of their tasks, but not automation of their offices.

4. Education, age, and number of employees are very important factors affecting employee attitude toward automation. The more educated and younger the employee, the more responsive to automation they are likely to be. Also, the fewer the number of employees, the easier will be the introduction of automation.

5. Incentives, whether in the form of a promotion or wage increase, are the most effective way to install and develop enthusiastic attitude of employees.

6. Extra skilled personnel is required, although in limited numbers. No mention was made of firing employees, and little hiring was carried out as a result of the introduction of technologies.

7. The particular environment in banks affects employee attitudes against automation, since more employee resistance was reported in banks than in the other firms surveyed, because of the rigid nature of bank's operations.
Turning to recommendations, some factors may assist in bringing about employee acceptance and enthusiasm towards office automation. They are as follows:

1. The managers of firms should commit sufficient resources to the success of the system change. Included in these resources are the time and funds necessary to provide sufficient training for the employees affected by the change so that they will be familiarized with the new technologies. They should also allow the employees time to adapt to the new system and procedures, and not expect instant acceptance.

2. Managers should be prepared to encourage and welcome feedback ideas, and suggestions of the employees affected by the change. Employees are a good source of input for they are familiar with the old system, and may be able to provide valuable input for the system change.
3. Employees should be compensated for staying additional hours at work or attending training sessions during the implementation period.

4. Continuous evaluation and compensation for good performance will create enthusiasm. It is very important that the possibility of compensation be made clear to the employees from the outset.

5. The company could acquire new skilled personnel for supervising the technical work, retraining its existing employees for other kinds of jobs so they are not made to feel useless. Investing in old employees, and avoiding layoffs would encourage loyalty, job commitment and yield higher productivity.
APPENDIX "A"
<table>
<thead>
<tr>
<th>TECHNOLOGIES</th>
<th>SUPPLIERS</th>
<th>DESK TOP CALCULATORS</th>
<th>CASH REGISTERS</th>
<th>PHOTOCPIERS</th>
<th>WORD PROCESSORS</th>
<th>COMPUTER SYSTEMS</th>
<th>TELEX MACHINES</th>
<th>TELEFAX</th>
<th>COPIERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olivetti</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sharp (Equiptbureau)</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Philips (PACC)</td>
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<td></td>
<td></td>
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<td></td>
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<tr>
<td>I B M (EL-HACEB)</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<td>x</td>
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<tr>
<td>NCR</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
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<tr>
<td>Burroughs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Wang (Computel)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>Linatel</td>
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<td></td>
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<td></td>
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<tr>
<td>Neatel</td>
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<td></td>
<td></td>
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<tr>
<td>CIT-Alcatel</td>
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<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Casio</td>
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<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Minolta</td>
<td></td>
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<td></td>
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<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Ricoli</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>
This table has been produced by one of the suppliers since it was not possible to do a full market research and go to each company.

1. Under the name of Olivetti, in Lebanon, are operating different companies like Data General and MD.

* In the Lebanese market, the suppliers provide "Computer system". Computel Wang install different models of their DIS family (Office Information System). The word "System" here may be misleading. What they offer merely a computer unit with many terminals located in different offices. This system mainly facilitates communications and is called an online system because it connects offices. However, given the state of the telephone network, reliable communications between different areas of the country are difficult. The supplier say that these systems are the best they can offer under the prevailing circumstances.
P.S. The frequencies of the answers are listed in the questionnaire and are divided according to two types of respondents: Banks and non-Banks, except for question No. 13.
PART I
BACKGROUND OF THE ORGANIZATION

Please specify the type of your organization (bank, insurance company,...)

Size of your organization:
- Capital
- Number of branches
- Number of departments
- Number of employees

DEFINITION

What does the word Office Automation (O.A.) mean to you? (please explain briefly)

TECHNOLOGIES AVAILABLE

What technologies are available in your company, please check or specify the appropriate answer:

1. Computer systems
   - Hardware equipment
     - Mainframe
     - Mini-computers
     - Micro-computers
     - Terminals

2. Software applications
   - Tailor made packages or programs
   - Standard packages

Number
Percentage
b-Communications
- number of telephone lines
- number of telephone sets
- telephone sets with memory and processors
- private telephone networks: microwave
  - line
- data communication network for computers:
  - private network
  - public network

c-Office equipment
- Typewriters
- Word processors
- Copiers
- Dictating machines
- Facsimile
- Microfilms

d-O.A. technical systems:
- Teleconferencing (audio)
- Communicating word processors
- Word processors stations
- Data networks: batch processing
  - on line
  - time sharing
  - distributed processing
- Electronic mail
- Computer office systems
- Data base management system
- Electronic filing system

<table>
<thead>
<tr>
<th>BANKS</th>
<th>NON BANKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
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<tr>
<td>10</td>
<td>7</td>
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<td>3</td>
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<td></td>
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<tr>
<td>9</td>
<td>6</td>
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<tr>
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<td>4</td>
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<tr>
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**DRIVING FORCES**

What are the driving forces behind your O.A.?

a-Global:
- Productivity 9 5
- Efficiency 10 7
- Effectiveness 6 7
- Competitiveness 5 3
- Others please specify

b-Organizational:
- Management control and responsibility 9 6
- Work distribution 6 4
- Personal motivation 3 2
- Necessity - 1
- Other international branches are doing it 1 -
- Other, please specify
c-Economic
- Labor costs
- Time savings
- Volume of work
- Others, please specify

Who was behind the decision to acquire O.A. technologies:
- Chief executive
- EDP department
- Administrative department
- Personnel department
- Planning department
- Systems and methods group
- Others, please specify

SELECTION CRITERIA

What criteria did you use in selecting your O.A. equipment
- Price
- Processing and storage capacity
- Availability of support services
- Existence of tailor made/standard packages
- Suppliers reputation
- Competitors using same brand
- Buying a particular brand for the company's prestige
- Chosen by general management and used in all branches

BENEFITS AND COSTS

What is the approximate amount you have invested in your office equipment?

What are the benefits provided by O.A.:
- Improved performance
- Increased productivity
- Improved efficiency
- Improved effectiveness
- Maximization of your economic benefits
- Better organization
- Personnel motivation
- High return on your investment
What problems did you face as a result of introducing O.A.:
- Unjustified huge investment
- Losses due to large investments
- Technical infrastructure problems
- Difficulties in developing and implementing relevant software applications
- Personnel resistance
- Confusion
- Organizational disturbance

APPLICATIONS

In what decisions and for what functions are the technologies used:

<table>
<thead>
<tr>
<th>a - Accounting</th>
<th>Banks</th>
<th>Non Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>b - Finance</td>
<td>7</td>
<td>1</td>
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<tr>
<td>c - Marketing</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>d - Production</td>
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<td>5</td>
</tr>
<tr>
<td>e - R &amp; D</td>
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<td>f - Recruiting</td>
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<td>g - Data analysis</td>
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<td>h - Others please specify</td>
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</table>

For what specific tasks are the technologies used:

<table>
<thead>
<tr>
<th>a - Text editing and production</th>
<th>Banks</th>
<th>Non Banks</th>
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</thead>
<tbody>
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<td>4</td>
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<tr>
<td>b - Message filing</td>
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<tr>
<td>c - Data filing</td>
<td>9</td>
<td>5</td>
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<td>d - Calendaring (management calendaring)</td>
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<td>e - Stock control, invoicing</td>
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<td>f - Others please specify</td>
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</table>

SCOPE

Who is responsible for O.A.:

<table>
<thead>
<tr>
<th>PLANNING</th>
<th>MANAGEMENT</th>
<th>IMPLEMENTATION</th>
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<tbody>
<tr>
<td>- EDP department</td>
<td>6</td>
<td>8</td>
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<td>- Administrative dpt.</td>
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<td>- End users</td>
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<td>- Outside services</td>
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<td>- Planning dpt.</td>
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<td>- Others please specify</td>
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</table>
What are the level of the users:
- Secretarial and clerical level  |  BANKS  |  NON BANKS
- Low level managers           |  8     |     7
- Middle level managers       |  7     |     4
- High level managers         |  8     |     5
- Others please specify

In which departments are O.A. technologies used mostly:
- EDP dpt.                     |  BANKS  |  NON BANKS
- Planning dpt.                |  13     |     7
- Marketing dpt.               |  5      |     3
- Finance dpt.                 |  3      |     1
- Accounting dpt.              |  8      |     1
- Others please specify

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INTRODUCTION TO THE SYSTEM

Was any kind of study conducted among the employees to assess their opinion before the installation of the O.A. technologies, if yes please specify

How were the employees introduced to the technologies in use:

- Lectures on computers and O.A. technologies and their advantages
  - The executives explained why they saw fit to install the new technologies
  - They were asked to learn to work on these technologies because management saw benefits in the applications
  - Management promised that the technologies would improve career path and opportunities for promotion
  - Others, please specify

The application of the new system requires:

- Heavy training of employees and managers
- Some training of employees and managers
- New, skilled personnel
- Outside consulting help
- Suppliers' loaned technical personnel
- Other, please specify
EMPLOYEES ATTITUDE

What was the reaction of the personnel involved when the technologies were introduced:
- Resistance
- Accepting it as a higher decision order
- Enthusiasm because it will enhance career development and increase participation in decision making
- Others, please specify

If employees resisted what form did their resistance take:
- Sabotage like damaging the equipment
- Refusal to work
- Union bargaining
- Refusal to cooperate
- Hiding or distorting information
- Apparent cooperation but intentionally delaying and presenting poor work

If employees resisted do you think it was due to:
- Ignorance of the new technologies
- Employees always resist to change
- No one asked them their opinion
- They felt that their jobs were threatened
- They felt that their importance and prestige were threatened
- Others, please specify

The personnel attitude now is:
- Still resistant
- Enthusiastic
- Well adapted to the system
- Indifferent
- Others, please specify

The management gave incentives to learn to work on the new technologies such as:
- Promotion
- Better wages
- To keep the position they are in
- Nothing
- Job evaluation
- Others please specify

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THE CONSEQUENCES

What happened to the number of personnel in the departments that are using the new technologies:

- More employees were hired to cope with the growing volume of work
  - Banks
  - Non Banks
  -
  -

- The number of employees were reduced because of increased productivity
  -
  -

- The number of employees already existing became too much so some of them were shifted to other departments
  - 9
  - 6

- No change occurred
  - 3
  - 2

- Others please specify

What were the changes in the jobs after O.A.:

- Employees were assigned a greater number of assignments in the same field
  - 7
  - 3

- Paper work per employee was reduced and employees were assigned other jobs
  - 5
  - 1

- New jobs were created
  -
  -

- Nothing changed
  -
  -

- Other changes please specify

After the installation of the new technologies employees were required to work for:

- More time
  - 1
  - 3

- The same time
  - 2
  - 1

- Less time
  -
  -

- Other please specify

How did O.A. affect the work and attitudes:

- Shorter time
  - 5
  - 2

- Better work
  - 6
  - 3

- More commitment
  - 2
  - 2

- Higher job satisfaction
  - 2
  - 2

- Less work alienation
  -
  -

- Better career development
  -
  - 2

- Other please specify

-
THE CONSEQUENCES AT THE MANAGERIAL LEVEL

Do managers feel that O.A. gave them:

- More control since all reports are more clear and the flow of information is better regulated 7 6
- More work to do since they have to read all kinds of reports 3
- Nothing changed
- Other, please specify

Do managers feel that since their subordinates are free of paper work they can delegate some of the more important work to them:

- No 8 5
- Yes 6 7

The communications between managers and their subordinates were:

- Reduced because of the clarity of work 7 4
- Increased because of the delegation of work 4 3
- Nothing changed
- Communications took other forms, please specify

THANK YOU FOR YOUR HELP
BIBLIOGRAPHY


