



CHEMONICS INTERNATIONAL INC.

**Electronic Document Submission Title Page**

Contract No.: 278-C-00-02-00210-00

Contractor Name: Chemonics International, Inc.

USAID Cognizant Technical Office: Office of Economic Opportunities  
USAID Jordan

Date of Product/Report: June, 2004

Document Title: Fact Finding Study of Potential Demand  
for the e-Service Center, Assessment of  
SkillSet at Lib and Mleih Communities,  
and Gap Analysis

Final Report

Author's Name: Community Development Group

Activity Title and Number: Achievement of Market-Friendly Initiatives and  
Results Program (AMIR Program)

ICTI 450.2 e-Services Demand Market Research  
and Gap Analysis

Name and Version of Application  
Software Used to Create the File: MS Word 2002

Format of Graphic and/or Image File: N/A

Other Information: N/A

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Funded by U.S. Agency for International Development

*This report was prepared by Linda Faris-Kawar of Community Development Group, in collaboration with Chemonics International Inc., prime contractor to the U.S. Agency for International Development for the AMIR Program in Jordan.*

## **Data Page**

Name of Component: ICTI

Author: Linda Faris-Kawar of Community Development Group

Practice Area: N/A

Service Offering: N/A

List of Key Words Contained in Report:

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## EXECUTIVE SUMMARY

Based on the 26 fact finding interviews with representatives of the public and private sector in Jordan, demand for the e-Services Center exists and more so among the public sector, yet such a demand would be rather small at the out-set of its operations. The Center will be faced by many challenges which it should overcome at most within its first year of operation in order for it to succeed, brand its services, and become sustainable. These challenges are:

*Readiness of market:* The e-Services Center is faced with the challenge of creating the market for its services and of raising the awareness of BPO among the private and public sector organizations.

*Far Location of Center:* Lib is around 1 hour away by car from Amman. Organizations are reluctant to transfer their business and documents to a place further away from their control.

*Un-skilled Resource Pool:* The resource pool at Lib and nearby villages is rather small in size reaching up to 3,000 persons and requires tremendous capacity building and training on the various e-services mentioned above. Not having the right basic expertise to easily dip into adds to the difficulty of scaling up and to the cost of human resources, and consequently the cost of the services provided.

*Cost of Service:* In order for the Center to attract business from private and public sector organizations, it must offer its services at discounted rates at least at the beginning.

*Timeliness and Quality of product/service:* The quality of service/products produced by the Center is a detrimental factor in its success and sustainability. The main concern of public and private sectors organizations is the quality control and project management methodologies through which the Center will ensure the quality of service.

*Security of information:* Concern about security of information falls into two categories, safeguarding documents from damage and loss, and safeguarding the confidentiality of the information.

Little demand is expected from the private sector firms especially within the first year of the Center's operation. If any, it would be in the form of small projects to support the Center and its community development efforts. The continuance of this first demand and the attraction of more business depend greatly on the Center's quality of the work, timely delivery, and its competitive cost of service. Private firms will not use the services of the Center until it becomes established as a successful and reliable business, and their awareness of BPO's benefits and feasibility to their operations increases. Only then will demand from the private sector materialize but still not from all sources.

Potential demand from the public sector is definitely huge yet the Center has to build the capacity to handle it, and in some cases to bring it to surface thorough awareness rising. Given the low demand by the private sector, a better chance for the Center to build this capacity and e-service portfolio can only be realized if the government and specially the Ministry of ICT extend its support to it at least through the first year.

It is apparent that the Center has to develop capacity of its resource pool as well as its own portfolio of successes. The recommended approach is to speed up the learning process and to secure small projects from the public sector.

Expert consultants may be contracted to train the Center's staff and institute the systematic approach to work and project management. Government support should be sought after through registering Center as service provider with the various Ministries and the Government Tenders and Supplies Department, and enlisting the assistance of the Ministry of ICT as previously discussed.

Center can also capitalize on the fact that it is part of a national initiative, led by UNIFEM, and concerned with community development focusing on women in particular, to gain the support of UN organizations, and NGOs, and connect with international donor-funded development projects.

In future, Center can also join the international outsourcers offering their services on the Internet on websites that match global demand and service suppliers. Similarly, Center may join the roster of BPO intermediary companies.

From the perspective of the supply of human resources that are able to achieve the sustainability of the Center, the study investigated the skill set and experiences found within the Lib and Mleih communities through interviewing a total of 275 men and women. The study found that the resource pool available for the e-Services Center to tap into for workers is rather small in size, generally not used to work environments, weak in English language and IT skills, and requires extensive capacity building. More statistics and quantitative analysis is found under section two.

In addition, the e-services that may potentially be offered at the out set require expertise that should be common to all staff and others that are specific to certain job functions. Both types need to be transferred to the resource pool either through classroom training, practical training at one of the Jordanian organizations currently carrying out similar work (e.g. data entry) or on the job training under a specialist supervision. Of the common expertise are excellent PC skills, organizational skills, and team work, while typing, scanning expertise and image processing skills are of the specialized tasks that should be found among the staff of the Center. More details are mentioned in Section Two.

## **Section One**

### **Demand for e-Services**

#### **1.1 Introduction**

##### **1.1.1 Background**

The villages of Lib and Mleih are the cradle for the e-Village initiative. This initiative is envisioned to enhance the quality of life for villagers and to empower rural women and youth to influence and benefit from the ICT sector by enhancing their capabilities and professional skills and by providing them with jobs and an environment conducive to the formulation of new creative ideas. It will be an IT hub as well as a pilot project for Jordan, where IT initiatives learn to work together, new, innovative and gender-sensitive IT strategies are formed, and lessons are learnt to better plan and implement similar initiatives. In addition to benefiting a rural community, collaborating initiatives will also be able to share experiences, and strive to bridge the country's digital divide.

The e-Village project encompasses three major components that were formulated based on the needed interventions of the communities of the Lib and Mleih. These are:

##### Level A: Information and Awareness Component:

The objective of this component is to raise villagers' awareness on the different initiatives taking place in the village, on the use of technology and on gender-related issues.

##### Level B: Capacity Building Component:

The objective of this component is to build the capacity and professional skills of the village citizens and allow them to benefit from different IT services

##### Level C: Economic Empowerment Component:

The objective of this component is to enhance the economic opportunities within the village through creating new job opportunities and providing professional marketing and entrepreneurial services.

The **e-Services Center** is part of Level C above. It will be established to ensure that villagers (women in particular) have job opportunities ready and available for them after they are equipped with the necessary skills.

The e-Services Center will be hosted in two of Lib's Pilot Project's stone-built houses and will accommodate an average of 30 employees. More specifically, the e-Services Center's activities include:

1. Establishing contacts and ensuring ongoing projects in the e-Services Center.
2. Receiving interested villagers (directed through Level A and B), evaluating and selecting best candidates to employ at the e-Services center.
3. Providing interested women and men with the required IT equipment (computers, networking, Internet) and space (the center itself) to work in, as well as technical support services.
4. Linking interested women and men to organizations that require teleworking services.
5. Coordinating with the Information and Awareness Center (Level A) to carry out awareness campaigns on issues such as teleworking, and encouraging female villagers to participate in the e-Services center's activities.
6. Coordinating with the Empowerment Center (Level B) to conduct training workshops directly related to the projects provided through the e-Services Center.

In coordination with USAID, the AMIR Program is planning to renovate, furnish, and manage this Center for one year with the goal of nurturing a sustainable life beyond this period.

### 1.1.2 Community Demographics

Lib and Mleih communities are the resource pool of the e-Services Center. They are 4 kilometers apart with Lib being nearer to Madaba City, a 15 minutes away drive while Madaba is 45 minutes away from Amman.

Both villages are located in the rural area of the Governorate of Madaba. The estimated population of 11,000 persons is distributed over 10 communities in the Mleih Subdistrict, where the villages of Mleih and Lib are the largest. In specific Mleih village has around 5,171 persons within 977 households, and Lib has around 4,410 persons within 883 households. Both totaling around 9,580 persons within 1,860 households. Population being equally distributed by gender.

**Population by Administrative Divisions and Sex**

Administrative Division	Total Population	Males	Females	Number of household
Mleih Sub-district	11,010			
Mleih Village	5,171	2,576 (49.8%)	2,595 (50.1%)	977
Lib Village	4,410	2,224 (50.4%)	2,186 (49.6%)	882
Total for Lib and Mleih Villages	9,581	4,800	4,781	1,859

Source: Civil Service Bureau of Mleih Sub-district, July 2003

The following table sheds light on the estimated distribution of the population in Lib and Mleih according to the age group <sup>1</sup>

**Distribution of Lib and Mleih population by Age and Gender**

Age group	Total %	Total Number	Males %	Men No.	Females %	Women No.
0 – 4 years	11.8%	1131	11.7%	562	11.8%	564
5 – 9 years	13.7%	1313	14.2%	682	13.1%	626
10 – 14 years	12.6%	1207	12.3%	590	12.9%	617
15 – 19 years	13.5%	1293	14.3%	686	12.7%	607
20 – 24 years	12.2%	1169	12.7%	610	11.7%	559
25 – 29 years	8.6%	824	8%	384	9.2%	440
30 – 34 years	7.4%	709	6.3%	302	8.7%	416
35 – 39 years	4.8%	460	5.2%	250	4.4%	210
40 – 44 years	2.9%	278	2.7%	130	3.2%	153
45 – 49 years	3.4%	326	2.8%	134	4%	191
50 – 59 years	5.5%	527	4.5%	216	2.6%	124
> 59 years	4.5%	431	5.4%	259	3.7%	177

Source: Department of Statistics-Employment and Unemployment Survey Annual Report 2002

The population of Lib and Mleih is very young with nearly half (4,940 persons) below the age of 19 years and mostly being school students.

In addition, around 12% (1,169 persons) of the population is in their early twenties. Those are mostly college and university students; while around 21% are in their late twenties and thirties (2000 persons), 6% (600 persons) in their forties, and 5.5% in their fifties.

<sup>1</sup> Numbers are based on the Department of Statistics' estimated rural area's age distribution percentages for the Governorate of Madaba in 2002.

Considering that 19-34 years is the age ideal for employment in the e-Services Center then the resource pool will constitute around 3,000 persons.

### Education

According to the Department of Statistics, the younger generation of the communities of the rural areas of Madaba Governorate, including those of Lib and Mleih is educated; illiteracy rate is 0% for females of 15-19 years of age and 2% for males of the same age range. In fact, illiteracy is prevalent only among those who are older than 40 years, especially among the females where it reaches around 60%. The main reason for this is attributed to the unavailability of schools in the area at that time, as well as the then stricter social norms on female mobility.

**Distribution of rural population in the Governorate of Madaba  
by education level, age and gender**

	Illiterate	Read/W rite	Elementary	Prep- aratory	Basic	Voca- tional	Secon- dary	Interm Diploma	Bachelor and above
<b>Males</b>									
Total	8.7%	6%	11.3%	17.9%	25.3%	0.1%	19.7%	3.2%	7.9%
15 –19	2	0	5.1	19.9	58.7	0.5	13.8	0	0
20-24	1.2	1.7	5.2	2.9	42.8	0	35.8	2.3	8.1
25-39	1.9	3	12.3	28.3	9.7	0	22.7	6.3	16
40-54	9.3	13.1	25.2	23.4	0	0	15	5.6	8.4
55- 64	34.4	26.6	25	10.9	0	0	1.6	0	1.6
65+	73.8%	21.4%	2.4%	0%	0%	0%	2.4%	0%	0%
<b>Females</b>									
Total	20.2%	4.6%	8.5%	18.9%	17.4%	0%	19.3%	6.3%	4.8%
15-19	0	0.6	4.7	24.1	43.5	0	26.5	0.6	0
20-24	0.6	1.9	3.2	6.5	27.7	0	43.9	9.7	6.5
25-39	4.4	6.1	12.2	32.1	9.1	0	14.9	11.8	9.5
40-54	60.5	12.4	15.5	7	0	0	2.3	0.8	1.6
55- 64	96.2	0	1.9	1.9	0	0	0	0	0
65+	100%	0%	0%	0%	0%	0%	0%	0%	0%

Source: Department of Statistics- Employment and Unemployment Survey Annual Report 2002

Currently most of those who are less than 24 years of age have completed at least 9 years of schooling. Specifically, more than 94% of females (vs. 93% of males) who are between 15-19 years of age, 78% of females (vs. 81% of males) who are between 20-24 years of age, and 56% of females (vs. 61% of males) who are between 25-39 years old.

Also, nearly 11% of the females and 11% of the males in rural Madaba continue their secondary education into intermediate colleges and universities. What should be noted though is that more females than males choose to obtain Intermediate Diploma degrees rather than a university Bachelor Degree or above, and terminate their education at that level. Specifically, around 10% of females (vs. 2.3% of males) who are between 20-24 years of age, as well as 12% of females (vs. 6.3% of males) between 25-39 years have attained an Intermediate Diploma education, compared to 6.5% of females (vs. 8.0% of males) of 20-24 years old and 9.5 % of females (vs. 16% of males) 25-39 years old who have completed at least their Bachelor Degree education.

Lubb and Mleih have 16 public schools offering basic education, and 4 schools offering high school (secondary) education to nearly 800 female students and 1,211 male students. Some of the schools

have installed PC labs and offer their students basic computer education. The 4 high schools are under consideration to start them offering e-learning and be connected to Amman via fiber-optics broadband network to the e-learning center of the Ministry of Education.

On the other hand, there are no intermediate colleges or universities around their area or even in the Governorate. Male and female students have to travel and sometimes even live in other parts of Jordan in order to attain their higher education. All are additional cost burdens.

## **1.2 The Concept of the e-Services Center**

The Center is envisioned to link the women and men of Lib and Mleih villages to organizations in the public and private sectors wanting to outsource IT-based services and and/or teleworking services to be performed by the staff of the e-Services Center. The Center, equipped with the required IT equipment (computers, networking, Internet) and providing the space to work in, will act as the nucleus for a thriving self-sustainable e-Services Center. It will be hosted in two of Lib's Pilot Project's stone-built houses and will accommodate an average of 30 employees. During its first year of operation, the Center will receive financial support from the USAID funded AMIR Program with the goal of nurturing a sustainable future and offering a one-year long chance of building capacity, learning the required technical and managerial skills, and developing a proven history of successes. As a sustainable endeavor, the e-Services Center will offer villagers (women in particular) job opportunities after they equip with the necessary skills.

## **1.3 e-Services within the Context of BPO**

In general, outsourcing is the contracting out of a company's non-core, non revenue-producing activities to an external provider. A specialist firm is contracted to provide the necessary business service that might otherwise be done in-house, with the motives of reducing cost, reducing capital investment in infrastructure, increasing productivity and focusing on the core business functions, among others. There are two common types of outsourcing; The Information Technology (IT) traditional outsourcing and Business Process Outsourcing (BPO). IT outsourcing is the delegation of one or more IT-intensive business processes (such as program coding) to the external provider that, in turn, performs and manages the process and delivers the product. BPO includes farming out services such as those related to back office operations (e.g., Accounting, HR, etc. ); customer interaction services, transcription/translation, content development, capturing information into digital forms, and distributing this information to fulfill critical business functions.

Within above context, the services to be provided by the e-Services Center fall under the BPO realm rather than the IT outsourcing service.

## **1.4 International BPO Context**

Demand for BPO services is growing world-wide at a steady pace. The global size of the market, according to recent market studies by International Data Corporation (IDC) have shown that it was worth US\$ 773 billion during 2002 where buyers from US, Canada and Latin America continued to dominate the market, with a share of 62 percent during 2001 followed by Western Europe and the rest of the world and the Asia Pacific. In 2004 Europe, particularly France and Germany will follow the lead of US and British companies to expand their BPO programs and Japan will increasingly look to China for its BPO needs. In addition, and also according to IDC, worldwide BPO spending will expand at a compound annual growth rate of nine percent during the 2002-06 phases.

In terms of providing outsourced services, India became one of the world's biggest and most popular destinations for BPO. Moreover, and according to a study conducted by Nasscom and McKinsey, the BPO business in India is expected to reach \$20 to 24 billion by 2008 (up from \$1.45 billion in 2001). In fact, this market segment of India's economy achieved a 54 percent growth in revenues in 2003-04 as compared to the previous year, and has proved to be a major opportunity for job seekers, creating

employment for around 74,400 additional personnel in India during 2003-04 and expected to employ over 1.1 million Indians by the year 2008.<sup>2</sup>

The international BPO industry is also changing in terms of the objectives and motives of the service buyers as well as the quality and types of services being supplied. Outsourcing is no longer only a cost-cutting measure, it has become a management tool, freeing companies to build upon their core competencies by leaving the non-core functions to specialized providers. Outsourcing is gaining a strategic value particularly in the areas of improving quality and service, instilling best practices, and having an expert, who is staying abreast of relevant change and new issues, performing the needed service. So, as the modern enterprise seeks to focus ever more narrowly on its core activities, BPO increasingly is being considered as a business strategy that provides access to *'best in class'* processes and cost predictability. This growing trend for enterprises to review their internal operations to more fully understand what their true core competencies are, and to focus only on these core competencies, is the primary driver behind the global growth of the BPO market

As pertaining to the e-Village e-Services Center, this global growth will be of relevance once the Center is fully operational with a proven history of successes.

From another perspective, outsourcing processes to another provider is not taken lightly any more by any organization. Globally, firms question the decision to outsource an operation from different perspectives, and answers have to be internally given for questions such as:

- What goals are to be accomplished, at both an organizational level and department level?
- Will outsourcing the service be a good strategic decision?
- Is the cost of the function being considered for outsourcing understood and investigated properly? Will outsourcing really save money?
- Can the goals be achieved in the time required if the function is performed internally instead of outsourcing it?
- What obstacles will be raised by the corporate culture, and will change in doing work be accepted among the employees?
- How will the outsourcing process be managed, internally and at the outsourcer side?
- How will the firm's staff be involved pro-actively in the outsourcing operation and to which extent? Will they be involved in strategic planning of the operation?
- What questions should be answered to become comfortable that the outsourcer can do the job properly, accurately, and timely, and with the highest quality?
- What measures are being offered to ensure the security and confidentiality of the operation and information? What are the risks involved?

In brief, the outsourcer has to prove proficiency in providing the service. Elements such as capability of guaranteeing accuracy and quality of work, cost competitiveness, cost effective solutions, rapid turnaround service that meets the requirements of customers, state-of-the-art serviced and maintained technology and software tools, trained team members and educated workforce, and strong project management, planning and preparation methodologies. These are but a few concerns that the buyer of the service will be looking for the outsourcer to prove through process excellence and proven results and success stories, and credible references before signing the contract.

#### **1.4.1 International offerings**

The international BPO market is segmented along the lines of customer care and call centers, finance, HR, payment services, billing services, accounting, transaction document management, health insurance claims, transcription, telesales/telemarketing, content development and management, web sales/marketing, digitalizing of data and images (OCR, ICR, etc.), archiving and scanning of documents and photos, database improvement.

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<sup>2</sup> According to studies conducted by NASSCOM and leading business Intelligence Company, McKinsey & Co. Market research shows that in terms of job creation, the BPO industry is growing at over 50 percent.

By way of example, some detailed services offered by outsourcing firms, are found in Annex A.

### **1.5 Assessment of Jordanian BPO Market Demand**

BPO as being considered in the international context above is a new concept for the local Jordanian public and private organizations. Moreover, very few have considered outsourcing such activities and even fewer have actually done so. In particular e-services as those detailed in Annex A are still considered as main functions to be carried out in-house by the organization; the concept of freeing an organization from the mundane operations to build upon its core services through outsourcing them is not widespread in Jordan.

The fact-finding interviews<sup>3</sup> concluded potential demand for a few low-level skill services, mainly to do with scanning and archiving documents, data entry, and data improvement and information manipulation of databases. Following are the few lower-skill e-services that may potentially be demanded from the Center:

- Data entry for e-learning curriculum
- Scanning and archiving
- Data base improvement
- Data verification from source (e.g. verifying National Id number of patients on records)
- Developing a list of subscribers for magazines; developing business and professions directories (e.g. doctors/medical specializations directory, hotels, etc.) and assisting the e-government in creating contact list of the various government institutions
- Participation in Jordanian Education Initiative Life Long Learning project
  - Content development for the digital culture collection, digital heritage
  - Content development for Community Portal Project
- Packaging and mailing of subscription application packs

Yet, the benefits to be gained from digitalizing existing information did not seem to form a strong motive to start the process at both public and private organizations. Most are satisfied with the state of their information whether it was in databases that needed improvement or in paper form uneasily accessible and occupying prime space; any enhancement operation is not considered a priority and they do not see any value for money spent in transforming their information or digitalizing their space.<sup>4</sup> In fact organizations would think twice before committing the resources, time, and strategic thinking that are needed to start scanning, digitalizing or outsourcing any of its e-services.

In addition, demand of afore-mentioned e-services is conditional. Four main concerns must be satisfied before any organization, especially from the private sector, contracts the Center for any e-service. These are:

- 1- Quality and accuracy of the product
- 2- Security, safety of documents and confidentiality of the information
- 3- Proven history of successes
- 4- Cost of e-service

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<sup>3</sup> Twenty-Six in depth fact finding interviews were conducted with representatives of public and private sector establishments. Please refer to Annex B for Fact-Finding Interviews Summary and to end of section for a Summary Table of Interview Results

<sup>4</sup> Please refer to Annex C for e-services value proposition

### **1.5.1 Characteristics of Potential Demand in the Private Sector**<sup>5</sup>

In general, private Jordanian institutions and businesses prefer to control any e-service process by their own teams to safeguard the quality of the product or service, the timely delivery, and the security of their information. Also, cost of service is not as important to them as safeguarding quality of product and professionalism of the service. In specific, private sector firms voiced out concerns such as:

- Would outsourcing the operation really cut on costs and still preserve the quality needed?
- How will the outsourcing process be managed? Will there be an office in Amman to deal with? How will the documents be transported to the far location of Lib?
- What is the management structure? Would it be a privately owned center, or run by an NGO as a non-profit operation, or by a governmental organization?
- What is the extent of reliability and accountability of Center?
- Is the staff of the Center capable of doing the job properly, accurately, and timely, and with the highest quality? How will quality be monitored in order for product/service have the quality and accuracy needed?
- What type of software and Hardware to be used? Are they state-of-the-art? Is maintenance easily available?

Private sector interviewees also expressed their reserve in outsourcing operations that may require more advanced skills such as those needed for entering of health insurance claims, web content management, call centers, and tele-marketing mentioning that professionalism, extensive training, and experience are needed and they do not believe that the e-Service Center may have such requirements among its staff, neither are they willing to take a risk at it. They would rather perform the operation by their own dedicated and well-trained staff and under their quality assurance control and supervision. In the case of a potential call center service, most mentioned the need for a proven top quality service center and a team fluent in English before they would even consider the idea of outsourcing such a service.

In addition, confidentiality of information is a main issue, most specifically within hospitals and health insurance companies. For example, moving patient records to Lib cannot be done; therefore the Center has to offer a mobile team that is capable of providing scanning services on-site.

The other issue of concern is the management structure of the Center. Most private organizations would be more comfortable dealing with a Center run by a private sector company or at least as a profit-making operation, and most interviewees think that the Center will not be successful if run by a governmental body or by an NGO operating it as a not-for-profit project.

What would lure a private sector firm to outsource any of the above-discussed e-services to the Center are factors such as:

- a proven record of quality service,
- credible reference clients,
- proven methodology of work, and
- use of state-of-the art equipment that are considered as major capital expenditure by the firms

What should also be noted is that none of the interviewed firms can really visualize the non-core e-services that they can outsource nor appreciates the complexity and effort needed for a specific operation such as scanning and management of their document archives. Most do not even have a clear vision of how such operations would increase the firm's productivity and customer service.<sup>6</sup> Therefore, once those issues come into focus, firms may re-consider their outsourcing policy and

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<sup>5</sup> Refer to Annex B Summary of Fact-Finding Interviews

<sup>6</sup> Refer to Annex C for e-Services Value Proposition Sample

decide to employ the services of experts, such as the e-Services Center, to perform this operation using the expert's premises, equipment, staff, and methodological expertise, and save their firm the effort of learning how to do it, the capital expenditure in equipment, and the human resources involved.

In conclusion, little demand is expected from the private sector firms especially within the first year of operation. If any, it would be in the form of small projects to support the Center and its community development efforts. Based on the fact-finding interviews, the demand that is most likely to originate at the outset will be from:

- ICT firms involved in development of e-learning curriculum: Data entry of e-Learning curriculum constitutes the main e-service that can be commercially demanded within the Center's first year of operation by those IT companies especially if their clients, being the Ministry of Education and Ministry of ICT, are willing to support the e-village e-Services Center.
- Large firms wishing to contribute to the development of community and the support of the e-village project (e.g. ARAMEX and Jordan Telecom)
- Royal Jordanian wishing to scan its older airline tickets and freeing their storage space
- Hospitals wishing to verify their existing information from source.

Yet the continuance of this first demand and the attraction of more business depend greatly on the Center's quality of the work, timely delivery, and its competitive cost of service.

Above discussion implies that private firms will not use the services of the Center until it becomes established as a successful and reliable business, and their awareness of BPO's benefits and feasibility to their operations increases. Only then will demand from the private sector materialize but still not from all sources. In fact, future demand such as that for the e-service of digitalizing hospitals' and universities' warehousing space through scanning their records, will occur once the Center is fully established and can build a business case and work methodology that answers all of the concerns mentioned above and raise awareness of its e-services' value. While demand from insurance firms – medical and other, similar to that within the international arena, will lag behind until the insurance sector in total becomes e-ready and connected.

### **1.5.2 Characteristics of Potential Demand in the Public Sector <sup>7</sup>**

Outsourcing of afore-mentioned e-services is rarely a priority issue for the public organizations as well. This stems from two main reasons, the first is lack of funds, and the second is lack of awareness of the importance and ultimate value of having the information in a digitized form. In most cases the two reasons act in synergy and prevent the digitalizing operation to climb the ladder of priorities.

Also similar to the private sector is the fact that public organizations seem comfortable with the status of their paper-based records, most have enough human resources that deal with the paper files, and most lack the drive to have such paper-based information digitized and available through computer-based access. In addition, public organizations seem to be in short of knowledge of e-services' nature and creative thinking pertaining to what possible e-services may be needed to cover non-core operations and how they can become beneficial to the organization.

Besides the previously discussed lack of awareness, there are three main issues that affect the decision of the public sector organizations to outsource e-services such as those mentioned above. The first, and unlike the private sector firms, cost of any offered e-service has a big role in securing a contract with the organization concerned. In general, any service requested by a governmental institution must be publicly bid out and at least three different offers to perform the service must be solicited. Usually the lowest priced offer has the advantage. For services valued at amounts below JD 20,000, the concerned governmental institution is free to solicit the service from a specific source. The e-Services

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<sup>7</sup> Refer to Annex B Summary of Fact-Finding Interviews

Center may make use of this arrangement once it has proven its capability, and it may also offer subsidized prices or free of charge service at the beginning.

The second issue of concern is the guarantee for the security and safety of information and documents. In specific, public sector organizations' main concerns revolved around issues such as:

- How will the documents be guarded against loss and damage? How will their security be guaranteed? How will the documents be transported to Lib?
- How will the operation be managed?
- How will confidentiality of the information be ensured?
- Can the service be offered on-site?

In fact most public organizations will not allow having its documents transported out of its building. The Center has to develop a mechanism of work that will guarantee the security and safety of the documents, as well as a sound project methodology that will dissuade the organization from this resolution at least for the non-sensitive documents and archives.

The third issue is the unobvious added value of digitalizing certain archives at the public organizations. Ministries for example may not readily identify the value of digitalizing certain archived documents, especially since such documents may not be needed online by the organization. No value for money is detected and as such spending the effort to scan them is perceived useless. Yet such a value always exist, least of which is saving space, and therefore the Center has to become adept at specifying such added value and presenting tailored value propositions for performing its e-services for the concerned organization.

As expected, the two main e-services common among all public organizations is scanning, archiving and management of the huge volumes of documents and files residing in the archives of the ministries and other governmental institutions, and the data entry and database improvement to facilitate retrieval of information records, and ensure the correctness of data.

Examples of such potential need for scanning of documents are found at the:

- Ministry of Justice where all court rulings since 1950 have to be digitized,
- Ministry of Education and its Directorates spread around Jordan where employees and students records and transcripts should be digitally retrievable,
- Ministry of Health and its Clinics located all over Jordan where patients' medical records should be digitized and made accessible to health care providers,
- Ministry of Public Works and Housing where all tenders and contracts may be scanned,
- Department of the National Library where scanning of national documents and photos is necessary to safeguard them from physical damage and make them available online to the public where possible,
- Municipalities where paper-based building licenses currently occupying storage may be digitized and made accessible for Municipalities' staff and inspectors, and
- Public universities wishing to digitize their employees and records of its older students

In conclusion, potential demand from the public sector is definitely huge yet the Center has to build the capacity to handle it, and in some cases to bring it to surface thorough awareness raising. Above are but a few sources of scanning and digitalizing e-services at government and public organizations that the e-Services Center may tap into when it becomes capable of handling such bulk operations.

Given the low demand by the private sector, a better chance for the Center to build this capacity and e-service portfolio can only be realized if the government and specially the Ministry of ICT extend its support to it at least through the first year. Since the Center is part of the community development

oriented e-Village project and shares common goals with the MoICT of promoting ICT in the communities, such support from the Ministry is forthcoming as follows:

- 1- Ensuring support to the e-Services Center in obtaining contracts from ICT firms in performing the e-Learning curriculum entry service. Since the MoICT is the client for the ICT firms, it has the privilege of asking for the employment of the Center's services, given they are of low cost and of good quality, and making known to the ICT firms its tolerance if the project is delayed until the Center has achieved the adequate learning curve.
- 2- Employing the services of the Center in accomplishing its digital culture and digital heritage projects, which involve research, photography and entering of information to a database.
- 3- Providing support in building a case that will allow for the support of the Prime Ministry in the Center's endeavors to contract work with the government.
- 4- Providing, when needed, the funds to subsidize the Center's services offered cost through covering its operational and training costs for the first year at least.
- 5- Liaising on behalf of Center with other Ministries requiring e-services.

**Fact Finding Interview Results Summary Table**

	<b>Organization</b>	<b>Potential Required Services</b>	<b>Concerns</b>	<b>Comments</b>
<b>PRIVATE SECTOR ORGANIZATIONS</b>				
1	Amer ACNielsen/ Research	None Data Entry and validation - Other research firms	Cost Turn around delivery time Quality and accuracy of data Security of data	e-service center should compile data to issue frequently updated business directories
2	Fastlink/ Mobile operator	Data Entry	Quality of product Reliability and accountability of center	- Center to be run by private sector - Center to concentrate on government business
3	MobileCom/ Mobile operator	Scanning Data entry for e-learning curriculum	- Time of delivery - Up-to-date H/W and S/W – maintenance availability	- Center needs to be managed by NGO, and not by government entity. But it must work as private sector endeavor.
4	Foursan/ Venture Capitalist	Services should be simple requiring no specialized skills	- Cost may not be the detrimental factor for Private sector; equipment and space are more detrimental when pitching service	- Center to be run by private sector only - Problems to encounter management of center are location, skill pool of community, ensuring quality of product
5	Khalidi Hospital	- Scanning and archiving of patients records - Data base improvement - Data verification from source	- Cost of service - Security and confidentiality of information - Mechanism of work (movement of records to Lib)	Center to be involved in producing directory of doctors and specializations for Jordan
6	Lozmella Hospital	- Scanning and archiving of patients records	- Cost of service - Security and confidentiality of information - Mechanism of work to be done on site	Team must be able to scan and operate on site – mobile team
7	Royal Jordanian	Scanning of RJ tickets BPO-packaging and mailing of frequent flyer packs		- A business case to be put forward where saving space is the focus – Digitize your Space – versus the cost of the actual service - One success story is required – including quality of service
8	UNESCO	Data Entry of research		- Approaching UN agencies should be in terms of cooperation with

Fact Finding Study of Potential Demand for the e-Service Center

	Organization	Potential Required Services	Concerns	Comments
		Scanning of Arabic documents		UNIFEM being another UN agency concerned with Female education and ICT - A one time grant may also be given out to e-services center. Center should approach UN with a grant proposal for a project to be carried out by the center
9	Menhaj/ ICT and e-learning	Data Entry of e-learning curriculum	- Cost - Turn around delivery time - Quality and accuracy of data - Confidentiality of the information methodology by which it will be addressed and controlled	- Center to be managed as a private sector endeavor and to be monitored by non-profit organization - Willing to train staff on outsourced data entry
10	ITG / ICT and e-learning	- Data Entry of e-learning curriculum - A demand for Flash programmers – up to 25	- Cost - Turn around delivery time - Quality and accuracy of data	- Have work for the next two years
11	ARAMEX/ Logistics	- Creating a list of subscribers for the magazines of the Jordan Distributors Agency - Data cleaning and improvement of existing databases		ARAMEX will provide at least one project for the center to accomplish
12	Information Technology Association of Jordan (int@j)	None	Quality of product	- Should build capacity of staff and community before establishing center - Willing to train staff by offering free seats for offered courses
13	LEMA / Water Authority	None	Cost	- tried outsourcing call center and map digitizing and found out it is more efficient and cost effective if service is done in-house
14	SMS/Trestle/ BOSS IT	None	- Far location - Skill level of resource pool	- Private sector will only outsource work to center after couple of success stories

Fact Finding Study of Potential Demand for the e-Service Center

	Organization	Potential Required Services	Concerns	Comments
				<ul style="list-style-type: none"> <li>- should focus on government sector for work at least at the start</li> <li>- Center might net around JD 10000 if operational cost is low</li> <li>- Should be run by private sector and/or as a private sector project</li> </ul>
15	MedNET	None		<ul style="list-style-type: none"> <li>- Data entry of Medical insurance claims requires specialized skills and knowledge of medical terms and procedure of work</li> <li>- Data entering info has also to evaluate each case for approval</li> </ul>
16	Middle East Insurance	None All e-service operations are done in-house		<ul style="list-style-type: none"> <li>- The insurance sector is not ready for such services</li> <li>- No outsourcing will be done by the sector</li> </ul>
17	HSBC Bank	None All e-service operations are done in-house		<ul style="list-style-type: none"> <li>- They only outsource research services pertaining to customer satisfaction</li> </ul>
<b>PUBLIC SECTOR ORGANIZATION</b>				
18	Department of Statistics	None		<ul style="list-style-type: none"> <li>- Willing to train Center's staff for free</li> </ul>
19	Municipality of Greater Amman	None		<ul style="list-style-type: none"> <li>MOGA can offer assistance such as training, books for library</li> </ul>
20	Department of National Library	Scanning and Archiving	- Security and safety of documents	<ul style="list-style-type: none"> <li>- Center to be managed by an not-for-profit organization e.g. The King Abdullah II Center for Intellectual Property</li> <li>- Center may have a board of trustees for the center composed of members from the government organization (including the NL, Audit Bureau, etc.) in order for these members to lobby for government bids.</li> </ul>
21	Ministry of Education	Scanning and archiving of files for each MoE directorate on its own	UNIFEM should write up a letter asking for the ministry's support and approval to give the center work	<ul style="list-style-type: none"> <li>- The center should work hard on raising the awareness of the need for such e-services.</li> <li>- The DFID project undertaken for administrative reform by PWC must be approached to enlighten them of the e-services center</li> </ul>
22	Ministry of ICT	<ul style="list-style-type: none"> <li>- e-Government may require updating of contact list of government personnel but security is of an issue here.</li> <li>- Scanning of all contracts and submitted bids at the MoICT</li> </ul>	Security of information	<ul style="list-style-type: none"> <li>- A letter from center could be sent to concerned ministries explaining the e-service connection with development and MoICT, ask for support, and detail the services it can perform for the ministry,</li> <li>- Register itself on the vendors list of the ministries and the Government Tenders Department</li> <li>- A Minister is entitled to grant job to a certain company if contract is below JD20,000</li> <li>- Center must consider performing services for free at the beginning in</li> </ul>

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	<b>Organization</b>	<b>Potential Required Services</b>	<b>Concerns</b>	<b>Comments</b>
		<ul style="list-style-type: none"> <li>- e-service center may help the:</li> <li>- Jordanian Education Initiative Life Long Learning project</li> <li>- The digital culture collection, digital heritage</li> <li>- Community Portal upload of information</li> </ul>		order to capture attention and develop project references
23	Ministry of Industry and Trade	<p>None All e-service operations are done in-house</p>		<ul style="list-style-type: none"> <li>- Ministry would use its own team and/or employees</li> <li>- No outsourcing will be done unless the ministry can employ its financial support of JUSBP and AMIR for the purpose of archiving then the e-services center may be used</li> </ul>
24	Ministry of Justice	Scanning and Archiving	<ul style="list-style-type: none"> <li>- Cost</li> <li>- Turn around delivery time</li> <li>- Quality and accuracy of data</li> <li>- Security and confidentiality</li> </ul>	<ul style="list-style-type: none"> <li>- Archiving tender may be internationally offered</li> <li>- Ministry has USAID funds for computerization</li> </ul>
25	Al Al-Bayt University	<ul style="list-style-type: none"> <li>- no service will be outsourced currently</li> <li>- in near future curriculum entry</li> <li>- Far future scanning and archiving of records</li> </ul>		<ul style="list-style-type: none"> <li>- should be run as a private sector operation</li> </ul>
26	Jordan University	None – JU is fully digitized, already have their e-library		<ul style="list-style-type: none"> <li>- Have a whole team – 91 persons responsible for digitizing information</li> <li>- ready to offer training for Center staff</li> </ul>

## **1.6 Conclusions and Recommendations for Demand for E-Service**

Based on above discussion demand for the e-Services Center does exist and more so among the public sector, yet such a demand would be rather small at the out-set of the Center's operations. In fact the Center will be faced by many challenges which it should overcome at most within its first year of operation in order for it to succeed, brand its services, and become sustainable.

The following are the top most challenges that the Center has to tackle upon its establishment:

**Readiness of market:** The e-Services Center is faced with the challenge of creating the market for its services and of raising the awareness of BPO among the private and public sector organizations.

The market for e-services has to be built up from zero ground – advertised, well planned, well costed, and offered in an attractive way to the private and public sector. The Center has to develop a value proposition for its e-services and market it to the various customers to raise awareness of the importance of having the information in digital form, easily accessible, and easily backed up and protected from damage.<sup>8</sup>

In addition, Center may offer, free-of-charge, to assess the organization's information and digitalization needs and develop a benefit analysis study that specifies the needed digitalizing processes and the added value the organization will receive from having its information in digital format, as well as clarify the value for money spent in this process and identify and quantify the cost savings that may be made.

Above study will help an organization to figure out the type of e-services it needs, how they can be outsourced and the benefit to gain from doing so.

**Far Location of Center:** Lib is around 1 hour away by car from Amman. Organizations are reluctant to transfer their business and documents to a place further away from their control.

The e-Service Center located in Lib has to devise an excellent mechanism of work where documents to be archived are transported safely to the Center and back, and a good convincing business case for why would the customers in Amman be willing to use the services of the far away Center. Establishing a Head Office in Amman is one way of undermining this problem; the Head office will be the liaison with the clients while the Center will act as the back office.

From another perspective the Center has to develop nearby markets and provide its service to organizations within closer parameter distance, instead of only depending on those located in Amman. Such organizations may be nearby Ministry of Education (MoE) Directorates, Health Clinics, municipalities, etc. Such nearby organizations may also act as in-between organization for transport of documents from main archives of a certain Ministry (e.g. Ministry of Education) to the nearby MoE Directorate, which in turn will deal with the Center.

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<sup>8</sup> Refer to Annex C for e-Services Value Proposition Sample

***Un-skilled Resource Pool:*** The resource pool at Lib and nearby villages is rather small in size reaching up to 3,000 persons and requires tremendous capacity building and training on the various e-services mentioned above. Not having the right basic expertise to easily dip into adds to the difficulty of scaling up and to the cost of human resources, and consequently the cost of the services provided.

Building the capacity of the immediate community is a must. e-Village initiative must be adamant about this issue. The Center should also develop a mechanism whereby continuous training is offered to the community and relevant to the services it provides. Internship program may be adopted to ensure stand-by resources when needed. A core team should be intensively trained as trainers and supervisors.

Indian companies, being advanced in the provision of such services, may be called upon to provide on-site training and technology and know-how transfer. This will jump-start the operation of the Center, develop appropriate methodologies of work, and cut down on its learning curve time. In addition, special training needs may be identified (e.g. how to conduct a needs assessment study at customer sites).

What should be mentioned is that several organizations, such as the Department of Statistics, Municipality of Greater Amman and int@j offered to train the Center's staff.

***Cost of Service:*** In order for the Center to attract business from private and public sector organizations, it must offer its services at discounted rates at least at the beginning.

Tailored value propositions must highlight the cost savings for the organizations, the increase in productivity, and decrease in space usage among other issues, versus the cost of the e-service. Free-of-charge services may be offered such as afore-mentioned benefit analysis study, and for strategic clients, services may be offered for free at the beginning and until a portfolio is built.

Also, Center may concentrate its marketing efforts on public organizations that have already received funding to computerize its services especially from donors that are themselves funding the e-Village project and/or UN agencies with which UNIFEM can cooperate.

***Timeliness and Quality of product/service:*** The quality of service/products produced by the Center is a detrimental factor in its success and sustainability. The main concern of public and private sectors organizations is the quality control and project management methodologies through which the Center will ensure the quality of service.

The Center has to place strong emphasis on quality assurance and quality control processes. Each undertaken project should have a quality control plan, a team composed of well trained staff to perform the service and a quality assurance staff to ensure the quality and accuracy of the outcome. Strong well-trained project management and customer relationship management personnel are a must to deliver the requested quality service on time and per schedule. Timeliness and quality of product/service should never be compromised.

Regular and thorough customer satisfaction surveys to get early customer feedback are important guidelines as how to make things better.

As time progresses, Center should be able to systemize and institutionalize its practices into methodologies that should be made clear to the customers as well as their attained results. Also Center may add to its credibility by obtaining an ISO 9001:2000 and/or CMM certification.

***Security of information:*** Concern about security of information falls into two categories, safeguarding documents from damage and loss, and safeguarding the confidentiality of the information.

The Center has to be prepared to include in its service contract non-disclosure of information clauses, and should be uncompromising about keeping the confidentiality of the information that falls in the hands of its staff. In addition, it should install the hardware and software needed to safeguard the security of access to such information. In brief, Center should adopt all necessary measure and methodologies to assure its customers of the confidentiality of their information and should make those measures transparent to them.

With regards to securing the information and documents from damage and loss, the Center should have on its premises a safe place to guard the documents as well as adopt methodological practices for handling sensitive documents and train its staff and raise their awareness about such issues.

In addition, the Center should adopt strict procedures that ensure business continuity, such as continuous backup, off-site backup, disaster recovery procedures, etc.. as well as install the software and hardware needed for redundancy and back-up plans and anti-virus checking.

In the future, the e-Services Center may want to investigate the possibility of offering confidential, on-site scanning and digitalizing services for its clients. Mobile scanning units may be assembled to work together with the client's team. Or, Center's staff may act as consultants and manage and train the client's team to perform the operation themselves.

#### ***Other Recommendations***

It is apparent that the Center has to develop capacity of its resource pool as well as its own portfolio of successes. The recommended approach is to speed up the learning process and to secure small projects from the public sector.

Expert consultants may be contracted to train the Center's staff and institute the systematic approach to work and project management. Government support should be sought after through registering Center as service provider with the various Ministries and the Government Tenders and Supplies Department, and enlisting the assistance of the Ministry of ICT as previously discussed.

Center can also capitalize on the fact that it is part of a national initiative, led by UNIFEM, and concerned with community development focusing on women in particular, to gain the support of UN organizations, and NGOs, and connect with international donor-funded development projects.

In future, Center can also join the international outsourcers offering their services on the Internet on websites that match global demand and service suppliers. Similarly, Center may join the roster of BPO intermediary companies.

## Section Two Assessment of Skill Set at Lib and Mleih and Gap Analysis

### 2.1 Characteristics of the Resource Pool

Based on the Department of Statistics Employment and Unemployment Survey Annual Report 2002, nearly 38% of the population of Lib and Mleih are below the age of 15 years, and about 36% or nearly 4,700 persons are within the age of 15 and 44 years. This later age group has been targeted in the rapid assessment research<sup>9</sup> which was conducted to profile the skill set of Lib's and Mleih's human resource pool as it pertains to requirements for employment at the e-Services Center.

A total of 190 women and 85 males, from Lib and Mleih, were interviewed and answers to simple questions about their education level, previous work experience, and ICT knowledge were elicited.

The results of the research provided indicative insights to the knowledge and skills of the available resource pool in Lib and Mleih.

Around half (54%)<sup>10</sup> of the resource pool reported having college Diploma degree (19%) or a University level degree (35%). Out of those university and college graduates around 21% have majored in IT related fields.

Education	No.	%
Less than secondary	69	25.1
Secondary	57	20.7
College Diploma	52	18.9
University	97	35.3
Total	275	100

Around 45% of the resource pool reported computer literacy (e.g. know how to use the PC, attended ICDL courses, ICT training, etc..). Most of those are 20-30 years old.

In response to the demand for data entry and scanning services, which the e-Services Center will be providing, experience in typing and scanning processes among the resource pool were assessed. The results indicate that only 20% (or 54 persons out of the 275 respondents) of the targeted resource pool know Arabic language typing, and 18.5% (or 51 out of the 275 respondents) know English language typing, while the majority (80%) do not know how to type. Also, most (80%) of those who know how to type are 20-30 years old.

Knowledge in scanning is not wide spread. Only 8% (or 21 persons out of the 275 respondents) reported having used a scanner, and those were mostly between 20-30 years old as well.

Concerning the resource pool's professional or work experience, only 53% indicated having ever held a job or being currently employed, while an overwhelming 47% answered as never have been employed in their life nor being self-employed. Most (88%) of those who held or are holding a job are 20-30 years old and have worked or are working as teachers, or factory workers, have their own informal business or working in the military or agriculture industry, none reported having worked in jobs with similar nature to e-services.

Moreover, most of those who reported having experience in ICT are school teachers who attended the ICDL course. Those are comfortably settled in their government-based teaching jobs.

<sup>9</sup> A sample size of 275 persons between 15-45 years old were interviewed. This constitute around 6% of the population within that age range and gives a confidence interval of plus-or-minus 5.74 (error margin) with a 95% confidence level.

<sup>10</sup> 149 persons have University or Diploma degree. Out of those only 31 persons have majored in IT related fields.

Knowledge of the English Language is also weak, the majority (46%) do not know English at all, while around 15% reported as being very good to excellent in reading, writing, and speaking the language.

	Can Read English		Can Write English		Can Speak English	
	No.	%	No.	%	No.	%
Excellent	24	8.7	24	8.7	23	8.4
Very Good	34	12.4	29	10.5	27	9.8
Fair	64	23.3	65	23.6	67	24.4
Weak	27	9.8	30	10.9	31	11.3
<i>Don't Know</i>	126	45.8	127	46.2	127	46.2

Total = 275

To give an **indicative** picture of the available skills in Lib and Mleih, above percentages are translated

into the following numbers of persons with the available skills and education<sup>11</sup>:

- Around 4,700 persons are economically active and are between 15 – 44 years of age
- Around 1,600 persons are university graduates
- Around 800 persons are intermediate college graduates
- Around 500 college or university graduates have majored in IT related fields
- Around 2,000 persons have some knowledge of ICT and know how to use the PC
- Around 940 persons know how to type in Arabic
- Around 840 persons know how to type in English
- Around 370 persons have knowledge of scanning processes
- Around 2,200 persons are not working or have ever worked, while 2,400 persons have some type of work experience but not related to e-services.
- Around 700 persons know how to speak, read, and write in English Language

Please refer to ANNEX E for more statistical details.

## 2.2 Conclusions and Gap Analysis

The fact finding demand study for e-Services Centers identified data entry, document scanning and archiving, database improvement, and possibly simple call center services as potential e-services that the Center may offer. It also identified the customers' concerns, which if satisfied; the sustainability of the center will be achieved. Those concerns being the high quality of service, timeliness, security and confidentiality of information, and strong project management and sound methodology of work. Therefore, for the Center to be able to perform such services and ensure its sustainability, it should employ qualified staff equipped with the skills and expertise needed to deliver professional services that meet the expectations of the customers.

From the above review of the existing skill set at Lib and Mleih, it becomes evident that the resource pool available for the e-Services Center to tap into for workers is rather small in size, generally not used to work environments, weak in English language and IT skills, and requires extensive capacity building.

The e-services that may potentially be offered at the out set require expertise that should be common to all staff and others that are specific to certain job functions.

The common expertise requirements are, but not limited to the following:

- 1- Excellent skills in PC use and Windows operating system environment and tools

<sup>11</sup> Considering the targeted population of nearly 4,700 persons between 15-44 years of age

- 2- Very good experience in using software applications such as Excel spread sheets, word processing (e.g. Ms Word)
- 3- Very good experience in using email and Internet
- 4- Very good speaking, reading and writing in English Language
- 5- Organizational skills, communication skills, and professional practice
- 6- Soft skills: team work, communication skills, job ownership and professional practices at work, time management, and reporting of work progress.

The specific expertise requirements are, but not limited to the following:

- 7- Excellent typing skills in Arabic and English
- 8- Skill in using database software (e.g. exposure to ACCESS database entry forms)
- 9- Expertise in scanning of documents – processes and know-how
- 10- Very good knowledge in image processing
- 11- Expertise in document management software concepts and tools
- 12- Expertise in database design, and in database programming
- 13- Expertise in Project management, particularly document archiving and scanning projects
- 14- Expertise in quality assurance and control
- 15- Expertise in business and needs requirement analysis for customers.
- 16- Fluency in English language.
- 17- Expertise in customer handling and customer care procedures; as it pertains to services of a Call Center

It is clear that above expertise, common and specific, are in short supply. The resource pool as well as the employed staff has to be extensively trained, specifically in above-mentioned areas. This training may be offered in different ways:

- a) *Classroom and workshop method:* where the staff and resource pool may attend classes to gain the expertise mentioned above. UNIFEM, [int@j](mailto:int@j), the Municipality of Amman, MoICT and other community development programs in Jordan (e.g. JUSBP, AMIR) may extend their support in such training activities and subsidize the cost of specialized instructor-led courses.
- b) *Practical training:* where the employed staff may be placed at certain organizations such as Department of Statistics, Jordan Telecom Call Center, Ministry of Industry and Trade, and other private sector organizations that are involved in scanning of their documents, to have practical training in services such as data entry processes, quality assurance, database improvement, document preparation for archiving purposes, image processing, as well as using the scanning machines.
- c) *On-the-job training:* Specialists from the public and private sector organizations involved in similar e-services may be hired by the Center for a certain period of time in order to institutionalize the systems and methodology of work, transfer the technology and the know-how to the staff, and be instrumental in putting the e-Services Center on the right track from the start. Specialist from Indian or Eastern European firms may also be contracted for this purpose.

### **2.3 Required Equipment and Tools**

From another perspective, the e-Services Center has to be equipped with the state-of-the art hardware equipment such as:

- 1- Powerful computer servers and PC workstations
- 2- Storage Network Devices suitable to hold large volumes of datasets

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- 3- High-speed scanners designed for high-volume scanning of business forms and documents<sup>12</sup> ( of brands such as Photomatrix, HP, Panasonic, Rich, Kodak, and Fujitsu)
- 4- CD-ROM and DVD burners
- 5- Printers
- 6- Photocopiers

In addition to hardware equipment, the Center should have licenses for:

- 1- Photo and Image processing software applications
- 2- Optical Character Reader (OCR) software
- 3- Backup and business continuity software
- 4- Document management software

Those are mostly off-the-shelf packages and available from their distributors in Jordan.

Please refer to ANNEX F for more details.

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<sup>12</sup> Prices for mid-volume capacity scanners range between \$7,000 to \$13,500. Scanners capable of handling low volume of work has a price range below \$ 1,500, while those of high volume has a price range of above \$13,000 reaching and up to \$20,000. Refer to Annex B for sample of mid to high volume scanners specifications.

## **ANNEX A**

### **DETAILED SERVICES OFFERED**

#### **BY OUTSOURCING FIRMS**

- Accounts Payable
  - Scan and index invoices
- Financial Services
  - Digitize customer files and transactions
  - Convert paper loan files into digital loan files
- Healthcare for Providers
  - Hand key information for upload into Electronic Medical Record (EMR) database
  - Provide digital information to remote locations
- Healthcare for Insurers
  - Scan and index claims processing forms
- Credit Card Application Processing
- Data Entry and Data Capture Services :
  - Data Entry Services:
    - Including entering data manually or through computer assisted data capture, using OCR (Optical Character Recognition), ICR (Intelligent Character Recognition).
    - Client specified information extracted from the source document and then checked by through validation routines including table lookups, data/range checks and relationship validation
  - Images capturing into digital format (photos, etc..)
  - Document scanning, OCR, ICR : Scanning documents, files, books, magazines, journals, etc.. scanned and made web ready.
- Audio transcription
  - audio tapes can be transcribed
- Document Retrieval and SGML Conversion
  - Convert documents, manuals, articles, graphics, etc.. to XML or HTML for easy retrieval.
- Database Improvement
  - Corrections to database, entering missing data and making other improvements as required
  - Cataloguing and coding (library books, inventory items, research questionnaires..)
  - Creation of directories, mailing addresses, customer lists, library cards and indexes and catalogs
  - Verifying existing data through primary contacts by way of call center facility to ensure an accuracy level of the highest order.
  - Merging, Purging, De-Duplication of data records and elements
  - Checking of data entry, front end edits
- Content Development
  - Creation of white papers, research papers, business content , technology tutorials, images, and regular updating service.
- E-Learning content digitalizing and development
- Publishing
  - DTP, PDF, Ebook distribution, Technology solutions, Email support, PowerPoint
- Digital Media Preparation
  - CDRom, DVD and Video duplication services
- Data Handling and Manipulation:

## Fact Finding Study of Potential Demand for the e-Service Center

- Statistical analysis
- Data Conversion from legacy formats. Data in one format can be converted to another
- Software Testing and quality assurance
- Sales and Marketing Services:
  - Telemarketing services
  - Web-based email processing, Email handling, mailing lists

## **ANNEX B**

### **FACT- FINDING INTERVIEWS**

Following are minutes of meetings for:

- Seventeen (17) fact finding interviews conducted with representatives of private sector organizations; and
- 
- Eight (8) fact finding interviews conducted with representatives of public sector organizations

Date: May 31<sup>st</sup> , 2004

**Institution:** Municipality of Greater Amman - MOGA

**Contact Name:** Mr. Daoud Abdul Noor

**Position:** Information Technology Manager

- 1- Amman Municipality will not use the services of the center and will not outsource any kind of services, now or in the near future.
- 2- Establishing this center to offer and serve as information dissemination, awareness and capacity building center is a good idea and a nice project but not if it acts as an e-service center handling outsourced activities. In Mr. Abdul Noor opinion, e-service center will not work for the following reasons:
  - The location of the center.
  - The citizen's level of professionalism,
  - And the small number of beneficiaries.
- 3- Mr. Abdul Noor focused on the management structure of the e-village and the e-service center in specific. He commented that an NGO and not a Governmental institution must be responsible for running it. In specific, it might be managed by the knowledge center and/or NIC.
- 4- Mr. Abdul Noor expressed that the Amman Municipality would like to help in this project either by offering training or by donating books for the library. This can be done by sending an official letter addressing them and requesting their support and assistance.

Fact Finding Study of Potential Demand for the e-Service Center

Date: May 24, 2004

**Institution: ARAMEX**

**Contact Name: Mr. Mohammad Shahin**

**Position: Country Manager- Jordan**

Nature of business: Logistics

- 1- ARAMEX is very positive towards the e-services center. Mr. Shahin mentioned that ARAMEX will definitely contribute to the success of the center by providing at least one project for the center to accomplish.
- 2- ARAMEX might use the services of the center in:
  - creating a list of subscribers for the magazines of the Jordan Distributors Agency.
  - data cleaning and improvement of existing databases.

Date: June 1, 2004

**Institution: Department of Statistics**  
**Contact Name: Mr. Hussein Shakhatra**  
**Position: Director General**

Nature of business: Government

- 1- DOS will not outsource anything not even data entry. Prefers to have own team and control the quality of the product and the security of the sensitive information.
- 2- DOS has its own specialized IT, data entry and coding staff. They are already trained and very efficient. They have all the technical capabilities, and after all this is their job.
- 3- DOS is ready to help the e-services center through training of its staff for free.

Date: May 24<sup>th</sup>, 2004

**Institution: Fastlink**

**Contact Name: Mr. Samer Bazyan**

**Position: Business Development Manager**

Nature of business: Mobile Operator

- 1- Fastlink might outsource 1) Call Center 2) Data entry
- 2- Currently Fastlink is not outsourcing any such service. They have previously tried to outsource the call center but it did not work out. Therefore if Fastlink is to outsource a call center it will be for long-term services, professional, and with a lot of consideration to the quality of the service.
- 3- Cost of service is not the issue. All depend on the kind of service and quality of work
- 4- In procuring any service Fastlink must obtain 3 proposals and evaluate them technically first then financially. Fastlink selection is not based on the lowest price.
- 5- Issues of concern to Fastlink
  - The cost of services must be competitive but it is not a must to be the lowest price
  - Time of delivery, and turnaround time between ordering service and delivery is essential and very important. It is one of the factors that effect the evaluation of the proposals.
  - Security of information is a very sensitive issue. There must be a methodology and legal arrangement to prevent mis-use and maintain the information.
  - Both English and Arabic languages are required
  - Concern about the software and technology to be used for not to be out of order and to be up to date.
- 6- Mr. Bazyan showed concern pertaining to the accountability for the center and party responsible for service delivery. In particular, how would Fastlink be sure that any outsourced services to the center would be up to the standards, and when they are not who would be responsible. He thinks that the center must be managed as a private sector, to guaranty the quality of work, the time of delivery and the confidentiality.
- 7- Mr. Bazyan noted that government entities and universities will benefit more from the e-village than the private sector and that they have the major block of data that need to be scanned or data entered.

Date: May 23, 2004

**Institution: Foursan**

**Contact Name: Nasha'at Masri**

**Position: Managing Partner**

Nature of business: VC

Responsible for the Jordan Fund (government has a share in this fund)

- 1- e-services offered should be very simple, and require no special skills.
- 2- Equipment should handle large bulk but should have agent to be able to maintain it in Jordan
- 3- Call center equipment is cheap especially by end of year when VoIP is allowed. Yet Call centers require excellent English, extensive customer service training.
- 4- Limitations for a private sector establishment wanting to run the center :
  - Location of center is far away from population centers, therefore business will have a limited pool of resources to select from for employees and expertise. Staff will have to commute.
  - Location is not in the middle of business centers. Therefore the head office, and the marketing should be located in Amman. Specialized marketers per sector may be employed e.g. marketer specialized in hospitals and who knows their business, in government who knows how government works and what type of services are needed, etc..
  - Another issue is that labor in Jordan needs 24 supervision. Client might find Lib far away from supervising eyes and any exchange of reviews about the product!!
  - Where would the center expand to?
- 5- Mr. Nasri noted that the service cost differential is not something very important in Jordan. It is not as pronounced as that in the US. Jordanian labor is cheap, and any business may employ the persons to do the data entry – Therefore maybe the equipment needed for large data capturing bulk is the more prominent issue in the decision to outsource.
- 6- Foursan think e-services center is a great idea. As VC they would invest when center is ready to go from 30 staff to 300. Still they are willing to chip in a couple of hundred thousands if center is private sector led and they are being approached with a good business case.
- 7- Who is supposed to run it? How should it be run? Mr. Masri sees that it should be private sector managed as a profit center. This will ensure proper running of the center. Community development will come from the fact that it is successful. And community building will not be only concentrated in the villages but will outreach to everywhere around them.

A not-for-profit operation may run into mismanagement, will prohibit other ventures of e-services in the country since its bids will be lower, therefore this leads to less competition and less effort to become better.

In all cases it should not be a government owned center.

Date: June 8, 2004

**Institution: int@j**

**Contact Name: Mr. Bilal Abu-Zaid**

**Position: Acting CEO**

Nature of business: BA

- 1- Based on intaj knowledge of the market, Mr. Abu-Zaid mentioned that the market of business outsourcing whether in data entry or scanning services is still immature in Jordan. The concept of such method of doing work barely exists. Most believe that BPO is only a 'program coding' function.
- 2- Intaj's view is that quality of work is very important, and in order to achieve this, focus should be place on capacity building of staff and resource pool first.
- 3- It is preferable to test interest of private sector in running center. An EOI must be issued first.
- 4- Cooperation between government (MoP or MoICT) and private sector may be beneficial for the center.
- 5- Intaj could offer training seats for the staff of the center on most of its offered courses – for free.
- 6- Two international companies specialized in BPO matching of suppliers and users came to Jordan. None so far is operational in any respect. Such companies may have the center registered with them in the future as suppliers.

Date: May 30, 2004

**Institution: ITG**

**Contact Name: Mr. Walid Tahabsem**

**Position: GM**

Nature of business: e-Learning

1- Type of services that could be outsource:

- Data entry of curriculum
- in cooperation with MoE entry of transcripts through Edu-wave.
- A demand for Flash programmers – up to 25

Has finished the Tafaseer project

Does not think that call center might be a service to be offered by Center.

2- Demand from other e-learning: Most are still starters they might want to do things in house vs. outsourcing.

3- Guarantees demand for the next two years in curriculum entry

4- Wants service now- not ready to train or scan employees for recruitment. Passed through this dilemma with Military retirees and with Abdullah bin Zaid and the Knowledge station. ITG had to scan all people for recruitment.

5- Detrimental criteria for using the e-services

- Cost of service
- Time of delivery – turnaround time
- Quality of information entered.
- Language requirements is mostly Arabic

Date: May 19, 2004

**Institution: Al-Khalidi Medical Center**

**Contact Name: Mr. Walid Maaytah**

**Position: Director of Marketing and Quality Assurance**

- 1- The Khalidi hospital is already digitized. All current operations are entered into databases. They have their own intranet. Yet, system is not user friendly such that reports cannot be generated directly by user.
- 2- They have patient records dating 10 years back, they will be interested in digitizing them to save space.
- 3- Their data base has many duplicated records – therefore interested in de-duplicating service and data cleaning
- 4- Their retrieval of patient records depends on the person's name which is not efficient. Would like to use the National ID. This requires data verification from source to gather ID and data entry.
- 5- Interested in marketing services and marketing material design e.g. Brochures, etc.
- 6- Interested in quality assurance of entered data i.e. making sure what has been entered is correct against the physical original papers.
- 7- Medical Coding of information for easier reporting and statistics
- 8- Any offer for e-services from center should be cost beneficial to them. They recognize the importance of savings in space, equipment, and team when using the e-service center, yet the offer should have a cost that lures them into using the service.
- 9- If e-services is a not-for-profit organization they think it will be less expensive and will cost less.
- 10- They can use the service of anybody they want but they require an offer, they can also issue it as RFP.
- 11- The detrimental criteria for using the e-services are:
  - Cost of service
  - Security and confidentiality of information
  - Mechanism of work (movement of records to Lub)
- 12- Suggested that center will be involved in producing directory of doctors and specializations for Jordan

Date: June 2, 2004

**Institution: Lozmella Hospital**

**Contact Name: Dr. Khaled Kalaldehy**

- 1- Lozmella Hospital might consider scanning and archiving all their patient files. Those go back to 26 years and are taking up much space. Yet Dr. Khaled Kalaldehy said that Lozmella Hospital has not done any outsourcing for any of the e-services (scanning, data entry... etc) before and that will not require this kind of services in the time being.
- 2- The detrimental criteria for using the e-services is
  - a. the cost of service – the service needs to be cost effective,
  - b. the security of information. Security is one of the most important criteria because of the sensitivity of the information to be scanned
  - c. use of both languages Arabic and English
- 3- Dr. Khaled said that if this kind of service is to be outsourced, it must be done in the hospital, because of the sensitivity and secrecy of the patient information. This boils down to the fact that if they want to outsource they will pay for the manpower and the equipment use, but all the work must be done in the hospital.

Date: May 26, 2004

**Institution: Menhaj**

**Contact Name: Mr. Ghassan Laham**

**Position: GM**

Nature of business: ICT – e-learning/Educational software

- 1- Services that Menhaj is ready to outsource
  - a. Quality Assurance for software development especially those developed for the government
  - b. Data entry: entering data related to school curriculum
- 2- Call Center Services that might be offered by the center for the following (in Mr. Lahham opinion):
  - i. Business directory and Information
  - ii. Tourism information (where to go in Jordan)
  - iii. Information about government services
- 3- Menhaj sees no fixed frequency for the outsourcing, but estimates to have work requiring only 3 months of data entry. Mr. Lahham also mentioned that in this project, Menhaj is ready to give training (training of trainers) to center's staff in order for them to understand the system and what is needed as output.
- 4- What Menhaj is willing to pay in return of those services depends on the kind of service and quality of work. The cost of proposed service must be competitive but lowest price is not the main criteria for obtaining service by Menhaj.
- 5- Time is essential and very important. The turnaround time depend on the size of the services outsourced
- 6- Security and confidentiality of information are very sensitive issues when considering outsourcing of services. Mr. Laham has concerns about the security and the confidentiality of the information for the outsourced work and the methodology by which those issues will be addressed and controlled.
- 7- Both languages are required
- 8- Mr. Lahham also views challenges pertaining to the communication with the center and who would be responsible for it. He mentioned that the center needs people with very good communications skills to be able to promote it and communicate with the private companies.
- 9- As for who is going to manage the center, Mr. Lahham thinks that it must be managed as a private sector endeavor and to be monitored by non-profit organization.

Date: May 24, 2004

**Institution: Ministry of ICT**  
**Mr. Emile Qubeisy**  
**Ms. Layla Rawashdeh**  
**Ms. Shatha Hamad**  
**Ms. Razan Fasheh – Amir II**

June 1, 2004

**Institution: Ministry of ICT**  
**Mr. Roger Guichard**  
**Mr. Khaled Hudhud**

June 1, 2004

**Institution: Ministry of ICT**  
**Ms. Hanan Awad (procurement)**

Jun 7, 2004

**Institution: Ministry of ICT**  
**Ms. Layla Rawashdeh**

1- Type of services that could be outsourced:

- e-Government may require updating of contact list of government personnel but security is of an issue here.
- Scanning of all contracts and submitted bids at the MoICT
- e-service center may help the:
  - Jordanian Education Initiative Life Long Learning project
  - The digital culture collection, digital heritage
  - Community Portal upload of information
- Webmastering will not work. It should be done by a specialized company.

2- Center must consider performing services for free at the beginning in order to capture attention and develop project references

3- Government procurement regulations

A letter from center could be sent to concerned ministries explaining the e-service connection with development and MoICT, ask for support, and detail the services it can perform for the ministry, and register itself on the vendors list of the ministries and the Government Tenders Department.

A Minister is entitled to grant job to a certain company if contract is below JD20,000

4- The detrimental criteria for using the e-services

- Security of information

Date: June 14, 2004

**Institution: Ministry of ICT**

**Contact: Ms. Nadia Said**

**Position: Secretary General**

- 6- Ms. Said confirmed the Ministry's intentions to support the e-village project and the e-Services Center in particular. Such support will be in the form of help in obtaining contracts with other various ministries, such as the Ministry of Justice, and of providing such opportunities with the Ministry of ICT itself especially through its Jordan Education Initiative and e-Learning endeavors.
- 7- The most applicable project for the Center is that of entry of e-Learning curriculum. Since the MoICT is the client for the ICT firms, then it will be supportive of the Center if it works with the ICT firms in performing the e-service of entering the curriculum. It will be tolerant if the project is delayed until the Center has achieved the adequate learning curve, and will make this known to the ICT firms.
- 8- From another perspective, MoICT and AMIR funding the Center in its first year will allow it to operate at very low prices, even free of charge at times, in order to gain the experience needed. It will also allow the staff and resource pool to train in the required services, English Language etc.. and build its capacity.
- 9- The MoICT will use the services of the Center to accomplish its digital culture and digital heritage projects, which involve research, photography and entering of information to a database.
- 10- Ms. Said views a Call Center as a potential service to be provided. English language of course is needed so Center has to train its staff. A call center is a location-free service suited to Lib and Mleih.
- 11- Center must concentrate its efforts on e-services that may exist from nearby locations and in the government of Madaba.
- 12- Center must have a head office in Amman that acts as the front end of the Center.
- 13- The success of the Center depends on its management and methodology and mechanism of work.
- 14- It should be run by a private sector company and should be supported and its operations subsidized for the first year to allow for gaining experience and learning the process that will enable its sustainability in the future.
- 15- Center should consider bringing in expertise in scanning and document management from India to transfer the technology and the know-how.
- 16- Government procurement regulations  
A letter from center should be sent to the MoICT explaining its services, and building a case that will allow for the support of the prime ministry in its endeavors to contract work with the government. Ms. Said expressed the Ministry's willingness to help in formulating such a request and promised assistance in bringing the matter in front of the Prime Ministry.

Date: May 23, 2004

**Institution: Ministry of education / Development Coordination Unit**

**Contact Name:**

**Mr. Ian McLlelan (Advisor, Policy and Planning – ERFKE I -CIDA)**

**Ms. Khitam Oteiby (e-village coordinator with MoE)**

**Mr. John Fitzgibbon ( Advisor, Project Management – ERFKE I -CIDA)**

**Mr. Ken Mizuuchi (Project formulation advisor – JICA)**

Nature of business: Government

- 1- The ministry has a lot of archiving – scanning to do, for example:
  - Older Students' transcriptions – Tawjihi marks
  - Employees records
  - In-Out correspondence documents (Al-Diwan)
- 2- The ministry also needs:
  - to have the filing system set up and organized
  - to have training in emailing
  - content management of website
- 3- Since MoE directorates are going to be decentralized, then each will need help in archiving on its own.
- 4- UNIFEM should write up a letter explaining the e-services to the Minister and asking for the ministry's support and approval to give the center work. An agreement could be drawn with the Center and Ministry. Letter should be in English.
- 5- Arabic Language is a must
- 6- The DFID project undertaken for administrative reform by PWC must be approached to enlighten them of the e-services center. DFID is the party that will indicate which services will be outsourced in the governorate.
- 7- The e-services should take small steps in approaching the government. In fact it should work hard on raising the awareness of the need for such services.

Fact Finding Study of Potential Demand for the e-Service Center

Date: May 24, 2004

**Institution: Ministry of Industry and Trade**

**Contact Name: Mr. Amer Haddidi**

**Position: IDD Director)**

Nature of business: Government

- 1- The ministry decided to use its own team composed of students and freelancers to archive its information – doing this brought the cost down to JD100,000 from the offered quotation of JD 600,000
- 2- The IDD department will be using its employees (part time) to do any archiving – No outsourcing will be done unless the ministry can employ its financial support of JUSBP and AMIR for the purpose of archiving then the e-services center may be used

Fact Finding Study of Potential Demand for the e-Service Center

Date: May 20, 2004

**Institution: Ministry of Justice**

**Contact Person: Judge Jihad Oteiby**

**Position: Director of EDP department**

Nature of Business: Government

- 1- The ministry of Justice needs to archive all of its court decisions and proceedings since 1950, as well as the laws and by-laws. Information should be properly categorized and indexed for proper retrieval.
- 2- The ministry was approached with archiving proposals to be done in India.
- 3- Ministry has USAID funds for computerization
- 4- Having a Center able to properly archive information in Jordan is a plus.
- 5- The procurement of such archiving service may be done through an international bid. USAID funds may be available for the project.
- 6- What might be detrimental criteria for using the e-services center are:
  - Cost of service
  - Quality of product
  - Time of delivery
  - Security of information
- 7- Arabic language is a must

Date: June 2, 2004

**Institution: MobileCom**

**Contact Name: Mr. Amer Sunna**

**Position: Chief Information Officer**

Nature of business: Communication

- 1- MobileCom might outsource scanning services for all their client contracts, but it is not a top priority and will not be attempting it in the time being.
- 2- Amount of money MobileCom is willing to pay in return of those services depends on the kind of service and quality of work.
- 3- MobileCom has a procurement process. MobileCom must obtain 3 proposals and evaluate them technically first then financially. MobileCom selection is not based on the lowest price.
- 4- The detrimental criteria for using the e-services
  - Cost of service: must be competitive but it is not a must to be the lowest price
  - Time of delivery: is essential and very important. It is one of the factors that effect the evaluation of the proposals.
  - MobileCom would also be concerned about the used software and technology – they should not be out of order and have to be up to date.
- 5- Mr. Amer Sunna thinks the center is a very nice idea, but the location might be a barrier. He mentioned that MobileCom will not mind even to pay extra for this kind of service as a contribution from MobileCom to support the idea.
- 6- Mr. Sunna mentioned that MobileCom donated 0.5 Million JD to the e-Learning initiative to develop school curriculum and this might be another service to be outsourced. He mentioned that MobileCom as a Jordanian company and partially owned by the Government is ready to support this type of initiative.
- 7- Mr. Sunna had couple of concerns regarding confidentiality and accountability of the services of the center, he thinks that the e-village need to be managed by NGO and not government entity and it must work as private sector.

Date: May 16, 2004

**Institution: Department of the National Library**

**Contact Name : Mr. Ma'amoun Talhouni**

**Position: Director General**

- 1- Type of services that could be outsourced will pertain to anything that concerns document archiving and indexing, CD-ROM production, etc..
- 2- All governmental procurement has to be public bid unless services are offered free of charge.
- 3- e-service center may operate under a grant and approaches the NL with the offer to digitize its documents.
- 4- If e-services is a not-for-profit organization it may have a better chance at competing for the bid since they will be of lower price.
- 5- Another option is to have a board of trustees for the center composed of members from the government organization (including the NL, Audit Bureau, etc.) in order for these members to lobby for government bids.
- 6- The King Abdullah II Center for Intellectual Property is an NGO that is newly founded with Prince Ali as chairman. The idea could be for this center to manage the e-services under a grant from AMIR.
- 7- Documents may not leave the library for security purposes and for fear of loss. Therefore it would be expected that the whole e-service team with equipment (laptops and scanners) to provide the service on the library premises.

**A mobile Team so as to speak.**

Date: May 17, 2004

**Institution: University of Jordan**

**Contact Name: Dr. Ibrahim Rawabdeh**

**Contact Name: Dr. Adnan Awad – Head of University Library**

**Position: Director of strategic and consulting Center**

Nature of business: Education

1- JU is already digitized - no services are needed

The library is scanned in

All old student records are scanned in

Everything is computerized – anything new the IT center will do it.

Do not think that there will be services required from the center.

2- The Library has become an e-library. They employ 91 persons to digitize and index

everything. They have order a JD50,000 scanning equipment. Have subscribed to 5,500 e-

magazine at a cost of 1.2 million JDs.

3- Are willing to cooperate with center and offer training services. But will not use the center's services.

Date: May 20, 2004

**Institution: Royal Jordanian**  
**Contact Name: Jamal Saudi**  
**Position: Director of ICT services**

Nature of business: Airline

- 1- RJ is already outsourcing their web content management to e-Dimension.
- 2- RJ's potential requirements would be
  - Data scanning of older tickets – those are nicely packed into flights and easy for proper sorting and scanning.
  - Packing the Frequent Flyer packages – This is a BPO more than e-service at least at start – and mass mailing it. 50-100 new applications per day are received.
- 3- Any outsourced service to be provided under contract – continuous.
- 4- A business case to be put forward where saving space is the focus – Digitize your Space – versus the cost of the actual service
- 5- One success story is required – including quality of service

Fact Finding Study of Potential Demand for the e-Service Center

Date: May 30, 2004

**Institution: UNESCO**

**Contact Name: Robert Parua**

**Position: Education Program Specialist**

Nature of business: UN

- 1- Not many things to be outsourced by UNESCO. Most archiving is done in Paris. The only possibility of the Arabic-language archiving.
- 2- Research is done by other UN agencies and those might require data entry
- 3- Approaching UN agencies should be in terms of cooperation with UNIFEM being another UN agency concerned with Female education and ICT.
- 4- A one time grant may also be given out to e-services center. Center should approach UN with a grant proposal for a project to be carried out by the center

Date: June 9, 2004

**Institution: LEMA**

**Contact Name: Mr. Jamal Hijazi**

**Position: IT Manager**

**Nature of Business: Water**

- 1- LEMA will not outsource any kind of services. Mr. Hijazi said that LEMA in the past five years invested heavily in their IT to upgrade the level of service provided by them, they also had to outsource some professional services to other companies not on the level of scanning or data entry.
- 2- He mentioned that even for the level of data entry and scanning it is not applicable for them to outsource, because the data entry person needs to have knowledge about the business which can not be transferred with training.
- 3- As for the old files archives, he said that those files are of no value to them since most data is already entered to the system, so he does not see any value added to LEMA to scan them and archive them electronically.
- 4- Mr. Hijazi noted that LEMA had bad experience in outsourcing services. They outsourced a call center for almost 8 months but they found out that it is more applicable and cost efficient for them to handle such a call center. This was also applicable to other services such as map digitizing; they found out that they need quality assurance team that will cost them more than if they digitized the map themselves.
- 5- In all cases, cost of service is very important to LEMA

Date: June 8, 2004

**Institution: MedNet**

**Contact Name: Mr. Mohammed Samour**

**Position: IT Manager**

**Nature of business: Health insurance**

- 1- Mr. Samour said that considering their type of work they can not outsource services not even the data entry part for the following reasons:
  - Security and confidentiality of the information
  - The data entry person needs to check and verify the data on a case by case basis
  - The data entry person needs to have in depth knowledgeable of the work and the procedures and not only trained to enter them.
  - The level of proficiency of the people working in the center
- 2- In his opinion e-services will not add any benefit to the company and will not reduce their operational cost – in his opinion the e-services center will not offer any added value.
- 3- Data entry of Medical insurance claims requires specialized skills and knowledge of medical terms and procedure of work. Data entering info has also to evaluate each case for approval.
- 4- Mr. Samour said that internally their company has a lot of automation ideas and projects but the problem is with the sector and the client that they deal with. Most of their clients still do not use computers or are not even interested to automate the procedure for their work.
- 5- Mr. Samour believes that in the health insurance sector and type of business, none is ready to outsource or are in the level to do so. In his opinion, those who will benefit from this type of project are the big companies with wide customer base and a lot of data entry work.

Date: June 6, 2004

**Institution: SMS- Trestle and BOSS IT sister company for outsourcing**  
**Contact Name: Mr. Maher Mouasher**  
**Position: GM**

**Nature of business: ICT, BPO matching,**

- 1- Mr. Mouasher said that the e-Village idea is very good idea when pertaining to level A (Information and Awareness Component) and level B (Capacity Building Component). As for level C (Economic Empowerment Component) he does not think that it will be a successful project especially if targeting the private sector as source of work. It might work with the public sector for the basic level of services like scanning and data entry where time is not a critical factor.
- 2- Mr. Mouasher thinks that the main reasons for the private sector not employing the services of the center is 1) the low skill level and proficiency of the people in that area 2) the far location of the place. Mr. Mouasher, speaking from experience in operating an outsourcing center, mentioned that the private companies in Jordan are very reluctant to outsource any of their work to companies, even to those with highly skilled and caliber staff and with all the grantees given to them. As for the public sector those issues are of a lesser concern.
- 3- Mr. Mouasher thinks that the center can have a 10 to 15 thousands a year in net revenue from a couple of scanning and data entry projects, of course depending on the running cost of the center.
- 4- Another issue is that after a couple of successful projects the private sector might start outsourcing to this center.
- 5- The management of the center is an important issue for the success of the project, Mr. Mouasher believes it needs to be managed by the private sector or at least operated as a private sector project. He said that SMS is ready to assist in training and knowledge transfer against certain fees.

Date: June 10, 2004

**Institution: Al Al-Bayt University**  
**Contact Name: Mr. Mohammad Al-Maani**  
**Position: IT Center Director**

**Nature of business:** Education

- 1- Al Al-Bayt University is one of the 8 universities hooked to the broadband network. They have funds from the World Bank to execute ICT related projects. Their first priority is the security system followed by distance learning.
- 2- The University has 4,000 students and 1000 employees whose files may be scanned and archived, yet this is not a priority especially since the most important information is already into the MIS system of the university. Such a service might be a priority in two years time.
- 3- What can be a service that the university would be interested in is the entry of distance learning curriculum.
- 4- Center to run as a private sector operation.

Fact Finding Study of Potential Demand for the e-Service Center

Date: 13<sup>th</sup> of June 2004

**Institution: HSBC**

**Contact Name: Ms. Nada Yasmeneh**

**Sector: Bank**

- 1- The bank will not outsource any kind of e-services. They are not interested in the idea or in any kind of outsourcing any kind of services related to the e-service, scanning, data entry or call center.
- 2- Ms. Yasmeneh said that all the data entry done in the bank need to be done in house and by professional people. Scanning is also not needed.
- 3- The type of service that they contract people to do is a CRM type of service, like surveys about the bank services, how the employees provide the service, is the service fast enough or not... etc

Date: 13<sup>th</sup> of June 2004

**Institution: Middle East Insurance Co**

**Contact Name: Mr. Husam Smir**

**Position: Manager of the Information System Department**

**Sector: Insurance**

- 1- Will not outsource any kind of services
- 2- Mr. Smir mentioned that the Center is a nice idea and a good project, but as for the Middle East Co. they develop every thing in house. They have not done any outsourcing of services before and are not thinking of any.
- 3- As for scanning of the old files, Mr. Smir sees no added value for scanning the files and archiving them because they need to have them on paper for legal consideration any way.
- 4- Mr. Smir mentioned that the e-services issue is still new for the insurance companies, and that companies having computer systems in the insurance field are still minimal, and it will take some time for them to start using complicated systems. He believes that none of the insurance companies will be using the e-village center regarding the outsourcing activities.

## ANNEX C

### EXAMPLES OF VALUE PROPOSITION

1) We understand that a company's business information needs go beyond data and document conversion – they affect entire business processes. We help our customers solve critical business problems by developing cost effective solutions for scanning and indexing large concentrations of paper. This process makes information available electronically, when our customers need it, in a secure environment, allowing for faster, more accurate decisions to be made.

Impact on Productivity: We know that the need to access critical documents at a moments notice is the primary reason for keeping them on-site. However at a certain point, the volume of documents needed on-sight creates inefficiencies that actually impede productivity and require significant annual expense.

2) Converting your books, magazines, journals, manuals, manuscripts and other documents to SGML, HTML or XML for easy document management, retrieval and archiving. After all, your information may be one of your most valuable assets.

Convert your data to SGML, XML or HTML to make it:

- Interesting and come alive
- Available to a larger audience on the Internet
- An integrated whole from many sources
- A standard format that is accepted globally
- Easy to archive and retrieve
- Add value to your company

3) Scanning in general provides immediate gains. It is for improving workflow, creating permanent or redundant archives, or moving those old files into the twenty-first century, allowing easy access and reference, scanning increases efficiency. Furthermore:

- Scanning saves storage space and reduces warehousing costs. Once stored as digital images the paper can be destroyed and the storage space freed.
- Heightened awareness about business continuity planning and disaster recovery calls for not only backups of all data but also paper - scanning solves this by providing redundant electronic offsite stored archives, simplifying disaster recovery planning.
- Publishing of scanned archives to CD-ROM DVD-ROM or tape. Archives accessible from office networks or remotely via the internet or intranet connections.
- Scanned documents can be password protected and access restricted, keeping sensitive data protected.
- Scanning reduces paper distribution costs.
- Scanning reduces the labor of manual indexing, archiving and filing.
- Improves collaboration. Unlike paper, electronic archives are easily emailed and shared. Many employees will distribute electronic document which they would not copy and fax if they were in paper form.
- Eliminates work intensive physical searches
- The instant benefits to adding searching capabilities greatly increase workers productivity rather than having to page through paper document after. Even with basic image archiving without OCR and indexing the documents, image searches are far faster and most efficient
- Scanned documents avoid the pitfalls associated working with paper masters such as misfiling, losing or damaging originals.

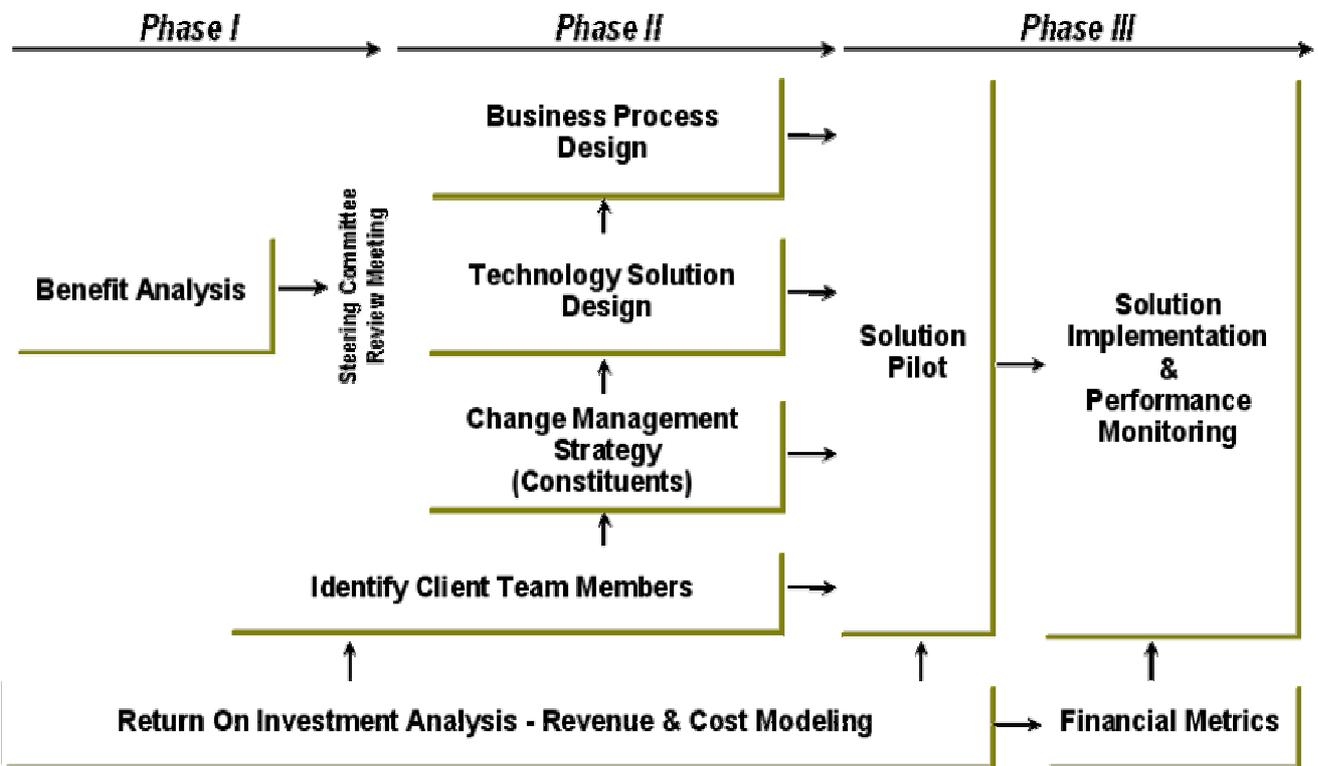
4) The key to a successful project is starting with the end deliverable in mind, then employing proven technology solutions and conversion methods (of which scanning can be just one step in the entire process). Successful document management requires a clear understanding of an organization's Document Strategy, its People, Process, and Technology Requirements, and the optimal Implementation Approach.

We work with your organization to conduct a Document Management Project Plan that identifies the answers to the following questions:

- When will your organization begin the project?
- Has a Business Case been conducted for this project?
- Has a Document Strategy been defined for the organization?
- Has a Project Sponsor, Change Agent and Project Team been identified?
- What document intensive process will be the focus of the project? (Accounts Receivable, Accounts Payable, Loan Applications, Title Insurance Records, Medical Records, Client Files, Project Deliverables, etc.)
- What is the number of pages to convert digitally? (We will estimate this based on the number of file cabinet drawers and the number of boxes to be digitally converted, and by sampling the contents of the files.)

Proven Project Methodology

Does your company have a project implementation methodology? (Our proven Project Methodology enables rapid deployment of our Digital Document Management solutions.)



In addition to the approach above, we define the project timeline, approval process and the reporting requirements that ensure successful communication and project management.

Risk Mitigation Approach

We have designed our approach to minimize the risk inherent in projects of this nature. Our goal is to serve your organizations needs as efficiently and effectively as possible to maximize the benefits of such a project. To accomplish this we focus on the following:

- Fixed Fee Pricing (to contain price and enable budgeting)
- Flexible Solutions (to maximize value and system integration)
- Standards Based Technology (to minimize proprietary technology switching costs)
- Project Quality (to control and assure high quality deliverables)
- End User Acceptance (to enable people and process change)

## ANNEX D

### CASE STUDIES

#### A) Case Study - Ministry of Justice, Brazil

Although unique in its scenic beauty and rich culture, Brazilian organizations face similar problems and hurdles as those in other parts of the world when dealing with issues relating to the management of documents and knowledge. In some cases, the Brazilian situation may even be more difficult due to slower technology adoption, lower organizational budgets and a poorer economic environment.

Like most government agencies, the Ministry of Justice in Rio de Janeiro - Brazil (Tribunal de Justiça do Estado do Rio de Janeiro) generates and stores millions of documents each year.

The Archive Department of the Ministry of Justice, estimates an excess of 8 million documents (with an average of 50-75 pages / document) are currently stored in a building outside the Ministry's headquarters.

The building used to store the legal documents was formerly a Palace occupied by the ruler of Portugal in the days of Napoleon. This building is suffering serious structural damage and does not provide the proper conditions to house documents, particularly sensitive legal information.

#### Before ByteQuest

The system used by the Ministry was manual in nature. All documents were created, filed and stored in filing cabinets, shelves and boxes. Being a government department, many of the documents are open to the public and therefore must be accessible to respond to requests. Therefore, documents generated by the Ministry require long-term storage for both retrieval and historical (precedence setting) purposes. The Ministry of Justice receives, on average, 1500 requests for information per day. Prior to the implementation of the ByteQuest solution, the average time required to respond to such requests was 45 days, with 65% of the responses being "document not found".

The Ministry of Justice's document storage location, the Palace, did not provide a physically or structurally secure storage location for the Ministry's documents. Unauthorized access to the documents was a serious concern, as was the structural integrity of the building.

The age of the building and the excessive weight placed on the structure because of the massive amounts of paper being stored, caused serious structural problems and presented a potentially dangerous fire hazard. Therefore, the Ministry of Justice was ordered by the Fire Code Regulators to remove the documents from their current location.

The volume of archived documents increases at an alarming rate of 40-60 million pages per year. In addition to the structural problems faced by the Ministry, the storage location has also exposed the documents to years of deterioration resulting in a reduced life span and reduced legibility. As well as their exposure to natural elements, humidity and vermin, the documents were susceptible to fire, floods and other hazards. The enormous amount of documents in existence and the increasing amount of documents being generated daily, continues to add to the existing archival nightmare, thereby compounding the problems faced by the Ministry. Not only does the Ministry currently house 8 million documents in their Archive but also add an additional 800,000 documents (between 40,000,000 and 60,000,000 pages) to them each year.

#### The ByteQuest Solution

The solution required by the Ministry first involved preparing a plan that addressed and solved each of the issues/problems faced by the Archiving department. The solution included a process to scan, index, and store information on CD-Rs and a strategy to organize, restore and manage old documents, manage new documents, improve information retrieval, and increase request response time. In addition, strict time limitations were imposed. A target of 10,000,000 pages and a six-month deadline were set as an initial milestone to complete this enormous undertaking.

The successful solution offered by ByteQuest's Brazilian Partner, DATAVIX Informática Ltda, consisted of ByteQuest Technologies' Document and Image Manager, ByteQuest. ByteQuest's feature rich functionality has provided advanced imaging and retrieval capabilities to the Ministry that have increased efficiency, reduced costs and increased customer service levels. The implementation of this leading technology has revolutionized the archival process of the Ministry of Justice. Equally important in this solution were the superior project management skills required to coordinate, manage and control the conversion process to ensure efficiency and quality levels were met at each step. According to the Ministry of Justice's Director General, Ms. Leila de Abreu Doreste Baptista, "ByteQuest and DATAVIX have successfully identified the needs of the Ministry and fulfilled the requirements with exceptional professionalism and efficiency."

The document preparation is a laborious and time-consuming process. The first step of the strategic plan was critical in the success of this project, the conversion of the paper documents into image. Due to the physical state of the documents, extensive planning and management of the conversion process was required. The conversion consists of seven steps, namely: Document Preparation, Document Scanning, Image Quality Control, Document De-preparation, Document Indexing, Index Quality Control and Document Filing. Each document required extensive preparation prior to scanning. Due to many factors, such as the poor physical condition of the documents, varying paper sizes, staples, etc., the document preparation stage is both a labor and time intensive process. However, its successful completion is required before scanning can begin. The physical requirements of the pages being scanned and the required throughput needed to meet the schedule were the factors used to adopt high-speed Photomatrix scanners used by DATAVIX to scan the archived documents.

The combined power and efficiency of ByteQuest and high-speed Photomatrix scanning systems are key in meeting the daily throughput requirements of the project. Once scanning is completed, the quality of the scanned image is examined. Once verified, documents need to be reassembled into their previous state (i.e. pages grouped and stapled). The images are then indexed according to predetermined criteria and quality checks are performed to ensure accuracy. Finally, the documents are filed on optical storage media and stored in CD Towers. Each step of the conversion was detailed and scheduled to ensure the process resulted in high quality scanned documents while adhering to the strict time line imposed. DATAVIX accomplished this through ByteQuest support, superior project management skills and discipline. The project team of 40 (two shifts/day of 20 people per shift) were well trained and supervised to ensure the efficient completion and continued success of the project.

## Results

The superior functionality, scalability and openness of the ByteQuest product and extraordinary conversion services provided by DATAVIX, allowed the Ministry to meet their target of 10,000,000 scanned pages within the six-month time frame. "ByteQuest continues to provide superior support services to ensure the seamless operation of the image conversion process and the subsequent search and retrieval process," explains the Director of DATAVIX, Jäder Costa Soares. To date, more than 50,000,000 pages have been scanned and approximately 1,000,000 documents have been indexed and are ready for search and retrieval. The process continues averaging approximately 1,300,000 scanned pages per month.

The ByteQuest solution has reduced the time required to respond to public and internal inquiries, resulting in a superior level of customer service and reduced manual labor requirements. Prior to the implementation of the ByteQuest solution, requests for information required 45 days to obtain a

response. The response time for public inquires has been reduced to less than half a day with the ByteQuest System.

Experiencing the benefits and increased productivity of the ByteQuest solution, the Ministry has expanded its initial project requirements. To meet internal requests for information, 150 additional ByteQuest client licenses have been added. These licenses provide Judges immediate access to the document images directly from their user stations thereby reducing the demand on operators to fill their requests, increasing the response rate and increasing overall satisfaction and efficiency. After successful implementation of the solution in the Archive Department, the Ministry of Justice expanded the services to other departments including Administration (HR) and the Historical Museum of Justice. These projects are currently being analyzed to determine their requirements. Future

Experiencing the benefits of the ByteQuest System for archived documents, the Ministry of Justice is now in the process of expanding the system to include the management of active document, which require frequent access and retrieval by users. In addition, to increase customer service and public accessibility to the Ministry's documents, the Ministry of Justice will soon implement a subscriber service over the Internet that will allow subscribers to access the documents through their browser.

To meet these needs, ByteQuest offers InterQuest, a new ByteQuest Internet/Intranet Document and Image Manager that provides an out-of-the-box solution for organizations that require access to folders containing various types of documents using their Microsoft Intranets. Ms. Leila de Abreu Doreste Baptista explains, "The ByteQuest solution has far exceeded our expectations. The implementation of the solution has increased our service response time, customer / public service level, decreased storage costs and increased our overall efficiency. I see the potential and benefits of this solution and plan to implement it in various other departments throughout the Ministry."

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B) High-volume, High-accuracy, SGML Document Capture: A Case Study

[http://www.dtc.rankxerox.co.uk/Srw\\_pape.html](http://www.dtc.rankxerox.co.uk/Srw_pape.html)

Abstract

This case study describes points that need to be considered when setting up a high quality (99.9%), high volume (over 1 million pages per annum), and long term (5-10 years) document capture operation.

Rank Xerox Business Services captures documents for the EPO - European Patent Office. Around 25,000 pages are captured each week, 52 weeks a year. From paper to SGML encoded text with embedded images, all steps and relating issues will be discussed.

Introduction

RXBS have implemented an in-house high-volume data capture operation enabling 100% accurate capture of patent documents as SGML-encoded text plus embedded images. We describe our experiences with setting up and running this operation over the last 5 years.

Rank Xerox Business Services Xerox Business Services is the world-wide leader in document outsourcing, providing services to more than 4,000 client companies in 36 countries. XBS is the fastest growing business division of The Document Company, Xerox.

Having pioneered document outsourcing 40 years ago, XBS today offers an expanded portfolio of advanced, digital and network-based solutions, as well as strategic consulting services. Through its world-wide network of Document Technology Centers XBS offers custom applications; strategic print-on-demand; Internet Document Services; high-volume, high accuracy document capture and conversion services; high-volume printing and duplication; short-run, customized digital offset color printing and publishing; digital file enhancement; electronic storage, short-run books, CD-ROM creation and replication and high-volume disk duplication.

The Challenge

In July 1990 RXBS won a contract with the EPO to capture and publish European patents. (RXBS share the contract with the French company Jouve) The contract involves the processing of the two main classes of patent documents, patent applications and granted patents, which are broadly similar in terms of the processing required.

The original patent applications as submitted by the applicant consist of an abstract, a description and a set of claims. Granted patents are the original applications as amended by the examiner (in the form of hand-written amendments which must be accurately captured). It has a description plus a set of claims translated into English, German and French. Although there are various rules laid down by the EPO governing the presentation of patent applications, the applicant is still free to use a very wide range of type faces, font sizes, paper quality, etc. Patent documents may be submitted to the EPO in English, German or French. The actual language distribution is roughly 60% English, 30% German and 10% French. In terms of subject matter, patent applications can be split into three broad technical fields of similar size; chemistry/metallurgy, physics/electricity, and mechanical.

The average size of a document is around 27 pages, and our share of each weekly publication batch would amount to about 25,000 pages per week, or 1 million pages per year.

The work involved in processing an individual patent document can be divided into the digital capture of both the text and images of the document, and the subsequent printing and distribution of the captured electronic data. We will concern ourselves here with the capture element of the process.

The EPO have been using generalized mark-up for capturing the structure of patent documents since 1985, so SGML was specified as the means of encoding the text parts of each document. The images, such as drawings and unencodable tables and formulae, must be captured as CCITT Group IV

bitmaps, and SGML tags must be inserted into the text to indicate the logical position of the image in relation to the text.

The SGML mark-up required by the EPO is fairly complex, particularly considering that in early 1990 when we won the contract SGML was still in its infancy, and there were few quality SGML tools available.

Challenging aspects include the following:

#### Table encoding

A patent document has on average 4 tables to be captured as SGML, each table containing on average 204 characters. Features to be encoded include identifiers, titles, column headers and sub-headers, table footnotes, cells spanning vertically and horizontally, various cell alignments, and arbitrary horizontal and vertical ruling.

#### Simple and complex mathematical formulae

These include summations, limits, products, integrals, radicals and arrays; in other words the usual gamut of mathematical constructs.

#### Lists

A number of list types must be recognized and correctly encoded, the list type depending on the form of the individual list items.

#### Floating accents

A number of 'accents' such as a large circle surrounding a character and a small circle over a character are defined; these can be combined with any character to form a floating accent construct.

#### Character Fractions

These are used for two strings of characters which appear one above the other within one line of the document. They can occur with or without a separating horizontal bar.

#### Images

Any parts of the document which cannot be faithfully captured as text marked up with the available SGML tags must be captured as a bitmap. As well as drawings in the usual sense, this approach embraces the small proportion of tables which do not fit into the EPO's table encoding scheme, complex mathematical formulae, and chemical formulae involving symbols such as benzene rings.

A call-out SGML tag must also be encoded within the text at the position the image would logically occur during the text. This often cannot be deduced automatically, for example where you have a column of text with associated images to the right of the text.

A special case of image is occurrences of characters not included in the extended character set defined by the EPO (so-called 'undefined' or 'FF' characters). About 1.5% of patent documents have undefined characters; those that do, contain on average 3 different undefined characters. Such characters must be captured as bitmaps when they first appear, and added to a font specific to that document for re-use throughout the document.

#### Character sets

The EPO use a proprietary character set consisting of around 500 characters which commonly occur in patent literature. This character set includes the upper and lower case Greek alphabet and a full set of mathematical and logical operators, plus an assortment of less common characters (see Figure 1 below for some examples). It is necessary for us to accurately capture each of these characters whenever they

occur in a patent document, and to subsequently print them in a variety of styles and point sizes. (Selection of characters from the EPO character set).

### Importance of Processes

#### Production schedules

The EPO has a legal obligation to publish patent documents within a certain time-frame. Since publication and preparation for distribution are undertaken by RXBS we inherit their obligation. The EPO notify us of the publication dates of each document, normally about 6 weeks beforehand; these deadlines must be met at whatever cost. Weekly volumes can fluctuate by as much as 50% which results in serious workflow challenges. In order to meet the challenges set, processes must be designed which incorporate all work steps i.e. from receipt to dispatch.

#### Customized vs. 'Off-the-shelf' software

One major decision to make when setting up a high volume capture operation is whether to invest in software development resource or outsource the task and therefore buy 'off-the-shelf'. It became apparent during early investigations that in order to maximize productivity and to achieve high quality, processes must be customized. It is advisable to invest in a set of tools and also support heads. To work with tools which only meet 85% of the requirements results in subsequent higher production cost and production issues. If you decide to outsource your capture operation, ensure that the contractor fully controls and owns the processes used. This avoids discrepancies between expectation and delivery.

### Design Decisions

The first stage in implementing a solution required is making some basic design decisions.

#### Platform

We decided on Sun workstations as the primary platform, due to their good performance to cost ratio, the high-resolution monitors and networking capabilities supplied as standard, and Sun's commitment to open systems.

#### Disk storage

A server would be needed at the centre of the operation to store all completed patent documents, but we wanted to make the system resilient to the failure of any single component, including the server. We therefore specified that each data capture workstation would have a local disk on which all completed documents would be stored until the server was ready to receive them. The server has a big disk to store completed documents until their publication date arrives.

#### Document transfer

Operators can select any workstation on which to work. When they specify the document number they wish to work on, the workstation will poll all the other workstations plus the server to determine the location of the most up-to-date version of the document. This will then be transferred to the local disk. The operator need only wait until the data pertaining to the first page has been transferred before starting work (typically a delay of less than a second); the remainder of the document will be transferred behind the scenes as the first page is being worked on.

#### Workgroups

Initially we had the workstations arranged in groups of six, where a group of operators would process any given document from start to finish, with each operator performing any task necessary. Further trials revealed however that both productivity and operator satisfaction were increased by dedicating operators to one specific task, such as scanning or proof-checking. The operators can now choose their specialization according to their talents and preference.

#### Bitmap resolution

We decided to use 300 dpi scanners, hence this is the resolution of bitmaps used throughout the system. We experimented with higher resolutions, but found the increase in ICR accuracy to be minimal, and since the customer only required 300 dpi images to be returned, we could not justify the increased disk space required to process higher resolutions.

#### Process Steps

We decided to divide the processing for a document into a sequence of separate steps. Each step must be completed for all pages of a document before the system will allow the operator to commence the next step. We will discuss the process steps in the order that an operator performs them.

#### Physical document preparation

Experience shows that companies often underestimate the importance of document preparation. Preparation includes the counting of pages, removal of binding and staples, attaching of worksheets and the general checking of the pages for anything unusual e.g. poor quality pages, hand-written amendments, complex maths or tables.

#### Scanning

It is important to choose the right type of scanner. The decision made should be dependent on document size, document quality, resolution and volume. It is advisable to invest in a backup scanner in case of breakdowns. A word of warning: Do not take throughput specified by manufacturers as the daily achievable target. Processes must be in place to ensure that as little time as possible is wasted by e.g. stacking of auto-feeders, writing of data to disk. Allow approximately 65% of the throughput only (this assumes good processes). We use two types of scanner; a bulk scanner for high throughput and high quality scanners for rescanning of problem pages. Rescanning may be required to achieve higher quality for images.

At this process stage as well as physically scanning in the pages of the document, pages will be segmented into text and image areas. For image areas the type of image must also be specified by the operator (maths, table, chemical etc.).

#### Character Recognition (ICR Intelligent Character Recognition)

Not surprisingly, the key element in accurately converting paper documents to electronic data at a competitive cost is the ICR and the subsequent identification and correction of any conversion errors. We chose to use a beta test version of the Xerox Imaging System ScanWorx API. General opinion held this to be the leading ICR at the time, and our own investigations bore this out. It also embodied all the functionality we required, such as omnifont recognition, training capability, positional information on a word-by-word basis and feedback on recognition assurance levels for individual characters.

For the capture of patent documentation the ICR is run with no interactive verification by the operator. No training data is made available to the ICR prior to starting each document, since each document is in general singular in terms of fonts used and page quality. Training data is however accumulated for use with subsequent pages as the document is processed by the ICR.

It is advisable to train the ICR if documents contain the same font. As well as the in-built dictionary, we supply to the ICR a custom dictionary which is being continually updated. During the spell-checking stage, the operator can elect to add an unrecognized word to the dictionary. When each document is sent to the server on completion, the dictionary is merged with a pool of all such collected words. At two-weekly intervals a senior data capture operator will 'harvest' this crop of words, and will select from those collected those words which occurred in three or more patent documents. In this way we have accrued a dictionary of words which commonly occur in patent literature.

The output from the ICR contains the recognized text along with supplementary information such as the position of each word. We have elected to convert the proprietary format as output by the ICR into a simplified form of SGML that we call 'internal mark-up language', or IML. IML is used to represent

the text of the document throughout the rest of the system, until it is finally converted to SGML as required by the EPO.

#### Proof-checking

As mentioned before the EPO, requires high quality output. The choice of tools for the correction of ICR outputs is of vital importance. It is this process step which does require most resources. In the case of RXBS 70% of staff are employed in the area of correcting the ICR's text. If the requirement of the EPO was 98% correct text, only a small part of the currently employed staff would be required. But although it can multiply the cost, to specify high quality ensures that the value is added to the usage of the data in future. It is not advisable to save on quality.

For checking and correcting the output of the ICR in order to obtain 100% conversion accuracy, it was necessary to devise a system whereby every character could be checked. Patents are legal documents and therefore spelling mistakes introduced by the inventor can not be amended. This limits the option of correction tools. In this case RXBS can not use auto-correction tools as mistakes could be introduced.

We decided to implement a manual line-by-line proof-checking system. For this process the operator is presented with a line of the bitmap and the related line of ICR output beneath it. It is important for the operators to learn to check and correct on the basis of the visual appearance of the two lines as opposed to trying to 'read' the text, as it is all too easy to see what you expect to see.

'FF' characters can at this stage be identified to the system, which has the effect of adding them to a virtual keyboard which can be used to encode subsequent occurrences of the same character.

There are in fact six virtual keyboards; the other five contain the non-ASCII characters from the EPO's extended character set, grouped according to usage (Greek, mathematical, chemical etc.). Any of these keyboards can be displayed on the screen while the operator is working to allow rapid access.

Most of the proof-checking functions can be accessed via menus or by keyboard short-cuts depending on the individual operators experience and preference.

#### Spell-checking

The spell-checker is a variation on the proof-checking application. Instead of working through each page line-by-line however, the operator is taken straight to the first spelling mistake on the page. They can then elect to accept the word (and optionally add it to the document dictionary), leave the word for later attention, or correct the word. The interface provides icons to move backwards or forwards to the next unresolved spelling mistake.

Two dictionaries are used to validate each document; a global dictionary and a document-specific dictionary. The global dictionary on all workstations is updated periodically with the words added to the document-specific dictionaries.

As well as high-lighting words not found in the dictionary, the operator can opt to see all terms or characters which can significantly alter the meaning of a patent, e.g. a number referencing a drawing. At the end of each page, the operator can enter a 'view' mode, where the full screen is given over to the text of the page displayed at 150 dpi. About half the page can be viewed at one time, the display being freely scrollable.

We have found that for certain types of document (consisting almost exclusively of normal text, free of formulae or numeric data, and in the data capture operator's first language) the proof-checking stage can be by-passed, the spell-checker plus view-mode being sufficient to achieve perfect quality.

#### Encoding

This is where the structure of the document is encoded, by inserting SGML tags into the text to identify the start and end of constructs such as headings, paragraphs, lists, tables and footnotes. We considered but rejected the possibility of automatically encoding the structure of the document based on the position and content of the text. Only fairly straight-forward cases such as paragraphs can be reliably encoded automatically and the encoding of each page would still need to be checked by an operator. Since the simple cases are quickly encoded anyway by a skilled operator, we felt that little or no time would be saved by this approach.

The third-party SGML editors available at the time allowed very little customization of their user interfaces, and would not have permitted us to take advantage of the constraints and interrelationships which are inherent in the structure of patent documents but not made explicit in the DTD. Examples include: (list)

Footnotes and their associated references are connected via their 'ID' attribute Images can be repositioned by the operator between any two lines of text, and a call-out tag must be inserted there to tie in the correct bitmap

The numbering of ordered list items must be consecutive within a list. In addition, it would have been cumbersome and time-consuming for an operator to use these tools to encode such structures as character fractions and floating accents. We therefore chose to design and implement our own tool to insert SGML mark-up as efficiently as possible, and with minimal possibility of operator error.

As in the proof-checker, the operator can in most cases choose to use menus or keyboard short-cuts. In addition the left mouse button has a special function, in that what it does depends on the context of the line beneath the cursor. For example, at the top level of the document (not within any structure) it will encode a paragraph, whereas within a list it will encode a list item, and within a table it will encode a table end.

The encoder application enforces the rules embodied in the DTD specified by the EPO, plus additional guidelines defined by the EPO. If the current document becomes invalid because of the encoding applied by the operator, a warning will be displayed, and the operator cannot exit the application until it is corrected. Images are displayed in the position they occurred on the original page. In addition a small marker is placed within the text to indicate where the system considers the image to logically occur. This marker can be moved to another position within the text by the operator.

Encoding the structure of tables within patent documents using the SGML tags defined by the EPO was a sizeable problem in its own right. At that time we were not aware of any third-party products on the market capable of marking up tables in the way that we required, so we designed and wrote our own software to do this. We implemented table encoding as a sub-system of the main SGML encoding application. The operator is presented with the text content of the table, as captured by the ICR and proof-checked by data capture operators, with each word positioned as it was on the original page.

By designing a DTD specific encoding tool an operator can encode in excess of 1,400 pages per day (this includes complex tables). Again it must be emphasized how valuable it is to customize the tools for production.

#### SGML check

The final stage of the capture process is a QA check. The document is converted to SGML, and is then reformatted and displayed on the screen beside the original bitmap. It is easy to spot missing paragraph tags and other encoding errors, since the difference in the document structure will be immediately apparent.

#### Quality Assurance

##### Accuracy

The most challenging aspect of the contract is the fact that the EPO require 100% data capture accuracy. Under the terms of the contract incorrectly captured characters can lead to financial penalties and the document being rejected by the EPO, for example one Greek or other special character incorrectly encoded in a document is sufficient cause for rejection. RXBS has implemented stringent quality control processes throughout the capture process. All pages are checked at least twice. Sampling to ISO standard is also carried out. Operator pay is partially linked to performance (productivity and quality). The performance of every operator is closely monitored and any errors found will trigger a course of counseling or retraining. Processes are constantly revised to further improve the performance.

As previously mentioned most cost during capture lies in quality assurance. A low quality output would not bear much value. It is important to 'get it right the first time' and customized processes will help to achieve this aim.

#### Staffing for Performance

Finding the right caliber of data capture operator is important. Operators must be able to concentrate for long times to achieve the high level of accuracy required. Different skills are required for different process steps. RXBS have developed highly effective recruitment and training methods. Recruitment tests are the first part of the recruitment procedure. These tests have been specially designed for the tasks. Test results can be closely linked to operator performance after training. Operators are also interviewed to ensure that their commitment and attitude fits the team they will work in.

Training is split into two main parts. The first part is training in a group of four for one week. This training is carried out in a classroom environment. Once successfully through this training operators are assigned to a team. The team leader takes on responsibility for the training of the individual. Over a 12 week period the performance of the operator will be closely monitored. The operators work will be reworked until the quality of the work can be assured. After the 12 week period the operator will be taken on to the team if their performance matches the expectations set. A vital part of the training is also the quality training each Rank Xerox employee receives. It emphasizes to the individual the importance of their task.

Each operator is responsible for the part of the process they carry out. They are aware that any errors passed on, can affect the customer and definitely will affect them.

Maintaining a 'library' atmosphere where in theory at least only functional talking is permitted is an important aid to sustaining an acceptable accuracy level, especially where operators are involved in proof-checking. Interestingly enough, experience has shown that allowing the use of personal stereos actually increases operator productivity.

A process is in place whereby data capture operators may submit suggestions for improvements to the software, these suggestions are then prioritized by a committee based on approximate software development times and expected cost savings, and the leading suggestions are implemented as soon as possible. As well as improving the quality of the software, the operators achieve satisfaction from knowing that their opinions are valued.

#### Recruitment criteria

It is not possible to recruit solely staff with SGML knowledge. In 1990 SGML was still in its infancy and it was not possible to expect any prior knowledge of the field from the operators. Therefore the production software which was designed hides the SGML tags from the operator and replaces them by codes which are meaningful to the operator i.e. P for paragraph. Style and references are optically emphasized e.g. underlining with 'm's for mathematical formulae. The capture operators do not have to know the rules of the DTD used e.g. they are not aware if end tags are required.

This approach ensures that high productivity can be achieved as well as relatively low employment cost. The main criteria are the ability to concentrate, basic computer knowledge, typing skills and ability to understand complex rules and tasks.

#### Conclusion

We have designed and implemented a distributed system for accurately capturing and marking-up patent documents, and it has met our quality objectives whilst permitting high operator productivity.

The correction of the text itself occupies most of the operator time, as opposed to the SGML encoding, but it must be borne in mind that the subject matter is in general highly complex, containing many unusual characters, formulae and technical terms.

Line-by-line proof-checking where each line of converted text is visually compared to the original bitmap seems to be a very effective way of achieving 100% accuracy at high productivity levels, although for simple documents the use of a spell-checker plus a side-by-side visual check of original document versus converted text suffices.

We have found it worthwhile to write a custom tool to facilitate efficient and error-free SGML mark-up. Having a separate table mark-up mode based on the layout of the original page has proved effective.

Splitting the capture process into separate tasks and allocating each operator to only one task has improved both productivity and employee satisfaction. In-house Capture versus Outsourcing In the case of the EPO an outsourcing solution has been chosen. The EPO has trusted two contractors with the capture and conversion of its product.

This approach brings many benefits:

- Ability to concentrate on core business
- Access to latest technologies
- Fully scalable operation
- No recruitment and capital cost
- High quality
- Usage of contractor specialist experience in the field.

The benefits far outweigh any perceived disadvantages of lost control and security.

Outsourcing should be considered when:

- High volumes are to be captured
- Short turnaround times are required
- Off-the shelf products can not be used
- High capital investment would be necessary.

It is important to ensure that any contractor chosen has full control over the processes used. An enquiry process must be in place for the contractor and customer to ensure specifications are met. It is vital to the success of the project that a service level agreement is written which specifies inputs and outputs. This ensures that all expectations of customers and contractors are met.

Biography: Susanne Richter-Wills

Susanne Richter-Wills is the European Business Development Manager for the Document Imaging Services offered by Rank Xerox Business Services. Over the last 6 years she has been involved in setting up several high volume, high accuracy document capture operations.

Her responsibility today is to ensure that new Xerox research results are translated into a customer solution.

## ANNEX E

### Detail Statistical Results of the Skill Assessment Survey

A sample of 275 males and females of age 15-44 years old residing in Lib and Mleih were interviewed to elicit information about their skill sets and education.

The following are the detailed statistical analysis tables:

<b>Gender</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	190	69.1	69.1	69.1
	Male	85	30.9	30.9	100.0
	Total	275	100.0	100.0	

<b>Age</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15-19 Years	21	7.6	7.7	7.7
	20-30 Years	178	64.7	65.4	73.2
	31-40 Years	66	24.0	24.3	97.4
	More than 40 years	7	2.5	2.6	100.0
	Total	272	98.9	100.0	
Missing	System	3	1.1		
<b>Total</b>		275	100.0		

<b>Village</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Lib	143	52.0	52.0	52.0
	Mleih	132	48.0	48.0	100.0
	Total	275	100.0	100.0	

Education					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than secondary	69	25.1	25.1	25.1
	Secondary	57	20.7	20.7	45.8
	College Diploma	52	18.9	18.9	64.7
	University	97	35.3	35.3	100.0
	Total	275	100.0	100.0	

ICT Specialization					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	31	20.8	20.8	20.8
	No	118	79.2	79.2	100.0
	Total	149	100.0	100.0	

Computer Experience					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	125	45.5	45.5	45.5
	No	150	54.5	54.5	100.0
	Total	275	100.0	100.0	

Gender * Computer Experience Crosstabulation					
			Computer Experience		Total
			Yes	No	
Gender	Female	Count	74	30	104
		% within Gender	71.2%	28.8%	100.0%
	Male	Count	27	18	45
		% within Gender	60.0%	40.0%	100.0%
Total		Count	101	48	149
		% within Gender	67.8%	32.2%	100.0%

<b>Age * Computer Experience Crosstabulation</b>					
			Computer Experience		Total
			Yes	No	
Age	20-30 Years	Count	85	37	122
		% within Computer Experience	84.2%	82.2%	83.6%
	31-40 Years	Count	16	7	23
		% within Computer Experience	15.8%	15.6%	15.8%
	More than 40 years	Count		1	1
		% within Computer Experience		2.2%	.7%
Total	Count	101	45	146	
	% within Computer Experience	100.0%	100.0%	100.0%	

<b>Arabic Typing</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	54	19.6	100.0	100.0
Missing	System	221	80.4		
Total		275	100.0		

<b>English Typing</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	51	18.5	100.0	100.0
Missing	System	224	81.5		
Total		275	100.0		

<b>Don't Know how to Type</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Don't Know	219	79.6	100.0	100.0
Missing	System	56	20.4		
Total		275	100.0		

Fact Finding Study of Potential Demand for the e-Service Center

<b>Previously used scanner</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	21	7.6	7.7	7.7
	No	252	91.6	92.3	100.0
	Total	273	99.3	100.0	
Missing	System	2	.7		
Total		275	100.0		

<b>Age * Previously used scanner Crosstabulation</b>					
			Previously used scanner		Total
			Yes	No	
Age	15-19 Years	Count		4	4
		% within Previously used scanner		10.8%	7.3%
	20-30 Years	Count	15	29	44
		% within Previously used scanner	83.3%	78.4%	80.0%
	31-40 Years	Count	3	4	7
		% within Previously used scanner	16.7%	10.8%	12.7%
Total		Count	18	37	55
		% within Previously used scanner	100.0%	100.0%	100.0%

<b>Have worked or Working now</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	147	53.5	53.5	53.5
	Never worked	128	46.5	46.5	100.0
	Total	275	100.0	100.0	

<b>Field of work</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Military	7	2.5	6.7	6.7
	Municipality Employee	5	1.8	4.8	11.5
	Agriculture	12	4.4	11.5	23.1
	Clothes Sales Person	1	.4	1.0	24.0

Fact Finding Study of Potential Demand for the e-Service Center

<b>Field of work</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Mechanic	1	.4	1.0	25.0
	Construction Labor	2	.7	1.9	26.9
	Driver (Taxi, Bus..)	3	1.1	2.9	29.8
	Teacher Secondary Level	10	3.6	9.6	39.4
	Teacher Primary Level	11	4.0	10.6	50.0
	Government Employee	3	1.1	2.9	52.9
	Doctor	1	.4	1.0	53.8
	Sales Person Using Bus	1	.4	1.0	54.8
	Poultry Sales Person	1	.4	1.0	55.8
	Business Owner	2	.7	1.9	57.7
	NGO Employee	1	.4	1.0	58.7
	Informal Business - Weaving	10	3.6	9.6	68.3
	Mid-Wife	1	.4	1.0	69.2
	Accountant	3	1.1	2.9	72.1
	Flower Arrangement	1	.4	1.0	73.1
	Coiffeur	1	.4	1.0	74.0
	Nursery Teacher	1	.4	1.0	75.0
	Nurse	1	.4	1.0	76.0
	Clothing Industry Employee	8	2.9	7.7	83.7
	Informal Business - Food Processing	6	2.2	5.8	89.4
	Dairy Industry Employee	5	1.8	4.8	94.2
	ICT Trainer	3	1.1	2.9	97.1
	Teacher for Physically Handicapped	1	.4	1.0	98.1
	Seamstress	2	.7	1.9	100.0
	Total	104	37.8	100.0	
Missing	System	171	62.2		
Total		275	100.0		

Fact Finding Study of Potential Demand for the e-Service Center

<b>Age * Have worked or Working now Crosstabulation</b>					
			Have worked or Working now		Total
			Yes	Never worked	
Age	15-19 Years	Count		4	4
		% within Have worked or Working now		17.4%	7.3%
	20-30 Years	Count	28	16	44
		% within Have worked or Working now	87.5%	69.6%	80.0%
	31-40 Years	Count	4	3	7
		% within Have worked or Working now	12.5%	13.0%	12.7%
Total	Count	32	23	55	
	% within Have worked or Working now	100.0%	100.0%	100.0%	

<b>Can Read English</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	24	8.7	8.7	8.7
	Very Good	34	12.4	12.4	21.1
	Fair	64	23.3	23.3	44.4
	Weak	27	9.8	9.8	54.2
	Don't Know	126	45.8	45.8	100.0
	Total	275	100.0	100.0	

<b>Can Write English</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	24	8.7	8.7	8.7
	Very Good	29	10.5	10.5	19.3
	Fair	65	23.6	23.6	42.9
	Weak	30	10.9	10.9	53.8
	Don't Know	127	46.2	46.2	100.0
	Total	275	100.0	100.0	

Can speak English					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	23	8.4	8.4	8.4
	Very Good	27	9.8	9.8	18.2
	Fair	67	24.4	24.4	42.5
	Weak	31	11.3	11.3	53.8
	Don't Know	127	46.2	46.2	100.0
	Total	275	100.0	100.0	

Field of work * Computer Experience Crosstabulation					
			Computer Experience		Total
			Yes	No	
Field of work	Military	Count	2	5	7
		% within Computer Experience	4.4%	8.5%	6.7%
	Municipality Employee	Count	3	2	5
		% within Computer Experience	6.7%	3.4%	4.8%
	Agriculture	Count	1	11	12
		% within Computer Experience	2.2%	18.6%	11.5%
	Sales Person	Count	1		1
		% within Computer Experience	2.2%		1.0%
	Mechanic	Count		1	1
		% within Computer Experience		1.7%	1.0%
	Construction Labor	Count		2	2
		% within Computer Experience		3.4%	1.9%
	Driver (Taxi, Bus..)	Count		3	3
		% within Computer Experience		5.1%	2.9%
	Teacher Secondary Level	Count	10		10
		% within Computer Experience	22.2%		9.6%

<b>Field of work * Computer Experience Crosstabulation</b>				
		Computer Experience		Total
		Yes	No	
Teacher Primary Level	Count	11		11
	% within Computer Experience	24.4%		10.6%
Government Employee	Count	2	1	3
	% within Computer Experience	4.4%	1.7%	2.9%
Doctor	Count	1		1
	% within Computer Experience	2.2%		1.0%
Sales Person	Count		1	1
	% within Computer Experience		1.7%	1.0%
Sales Person	Count		1	1
	% within Computer Experience		1.7%	1.0%
Business Owner	Count	1	1	2
	% within Computer Experience	2.2%	1.7%	1.9%
NGO Employee	Count	1		1
	% within Computer Experience	2.2%		1.0%
Informal Business - Weaving	Count		10	10
	% within Computer Experience		16.9%	9.6%
Mid-Wife	Count		1	1
	% within Computer Experience		1.7%	1.0%
Accountant	Count	2	1	3
	% within Computer Experience	4.4%	1.7%	2.9%
Flower Arrangement	Count		1	1
	% within Computer Experience		1.7%	1.0%
Coiffeur	Count		1	1
	% within Computer Experience		1.7%	1.0%

<b>Field of work * Computer Experience Crosstabulation</b>				
		Computer Experience		Total
		Yes	No	
Nursery Teacher	Count	1		1
	% within Computer Experience	2.2%		1.0%
Nurse	Count		1	1
	% within Computer Experience		1.7%	1.0%
Clothing Industry Employee	Count	1	7	8
	% within Computer Experience	2.2%	11.9%	7.7%
Informal Business - Food Processing	Count		6	6
	% within Computer Experience		10.2%	5.8%
Dairy Industry Employee	Count	3	2	5
	% within Computer Experience	6.7%	3.4%	4.8%
ICT Trainer	Count	3		3
	% within Computer Experience	6.7%		2.9%
Teacher for Physically Handicapped	Count	1		1
	% within Computer Experience	2.2%		1.0%
Seamstress	Count	1	1	2
	% within Computer Experience	2.2%	1.7%	1.9%
Total	Count	45	59	104
	% within Computer Experience	100.0%	100.0%	100.0%

## ANNEX F

### Scanners Specifications and Prices

#### A) HP Scanners Examples

#### HP Scanjet 8290 digital flatbed scanner (C9933A)

### Specifications

Scanner type	Flatbed scanner
Scan resolution, enhanced	12 - 999,999 enhanced dpi
Scan resolution, hardware	4800 x 4800 dpi
Bit depth	48-bit
Scan speed	In as little as 28 sec, 4 x 6-inch photo to Microsoft Word; in as little as 47 sec, OCR; in as little as 32 sec, 4 x 6-inch photo to e-mail
Automatic document feeder	Standard, 50 sheets, 25 ppm
Maximum scan size	8.5 x 14 in
Connectivity, std.	Hi-Speed USB, SCSI connectivity
Compatible operating systems	Microsoft® Windows® 98, 2000, Me, XP Home and Professional Edition, NT 4.0; Mac OS 9.1 or higher, OS X 10.1.2 or higher
System requirements, minimum	Please note that in-box software may require higher minimum system requirements. HP Photo and Imaging software minimum system: Pentium® II, Celeron, or compatible for Microsoft® Windows® 98, Me, 2000 XP, 64 MB RAM, 175 MB hard disk space, plus 50 MB for full-color scanning, CD-ROM drive, USB port, Internet Explorer 5.0 or later; For Precisionscan Pro minimum system: Pentium II Celeron or compatible for Microsoft Windows NT 4.0, 32 MB RAM, 50 MB hard disk space for full-color scanning, CD-ROM drive, 800 x 600 SVGA monitor
Software included	HP Photo and Imaging software with HP Share-to-Web software and HP Memories Disc Creator, HP Scanjet Copy Utility, Adobe® Acrobat® Reader for Microsoft® Windows®, NewSoft Presto! BizCard Reader (Macintosh version in English only), ReadIris Pro OCR software (ReadIris Pro including Arabic for ABB and ABU, ReadIris Pro including Hebrew for 730), Adobe PhotoShop® Elements (In English only for Macintosh for AB0, AB1, AB2 and AB4), ScanSoft PaperPort Deluxe (NA and EMEA only), NewSoft Presto! PageManager (LA and AP only), ScanSoft OmniForm, Kofax VRS, Pixel (R) Translations ISIS drivers, NSI OneStep, Adobe Acrobat Reader
Dimensions (w x d x h)	22.6 x 15.7 x 7.7 in
Weight, U.S.	19 lb
Warranty, std.	One-year Exchange Repair

### HP Scanner Prices at a glance

Model	Model differences	Price
<a href="#"><u>HP Scanjet 8200 digital flatbed scanner (C9931A)</u></a>	Up to 4800 dpi optical resolution and 48-bit color, HP Instant-on technology, dual CCD, optional automatic document feeder	\$499.99*
<a href="#"><u>HP Scanjet 8250 digital flatbed scanner (C9932A)</u></a>	Up to 4800 dpi optical resolution and 48-bit color, HP Instant-on technology, dual CCD, 15 pages per minute automatic document feeder, TWAIN drivers included	\$899.99*
<a href="#"><u>HP Scanjet 8290 digital flatbed scanner (C9933A)</u></a>	25 pages per minute automatic document feeder, SCSI module and kit included	\$1499.99*

### B) Fujitsu Scanners Examples

For heavy load scanner the price ranges from US\$ 12,000 – \$ 20,000

The **fi-4990C** image scanner (Ultra Wide SCSI interface / Third Party Slot Interface) offers high-speed, duplex color scanning, and other excellent features achieved by Fujitsu expertise. And these products will be widely used in your business scene.

Product Information	
<p><b>fi-4990C</b></p> 	<p><b>Feature</b></p> <ul style="list-style-type: none"> <li>➤ High-speed A3 Duplex Color Scanner</li> <li>➤ Color Scanning Speed : 85ppm / 170ipm Binaly Scanning Speed : 90ppm / 180ipm</li> <li>➤ Drop Out Color features standard</li> <li>➤ 1000 sheets of large capacity hopper</li> <li>➤ High quality image by the image-processing function</li> <li>➤ Double Feeding Detection</li> <li>➤ Ultra Wide SCSI Interface</li> <li>➤ Endorser (Inprinter) Option</li> </ul>
<p>Win XP Win 95 Win 98 Win 2000 NT 4.0 Win Me</p>	

### Technical Specifications

Parameter		Specification
Scanner Type		ADF (Automatic Document Feeder), Manual Feed
Image Sensor Type		CCD (Charge-Coupled Device)
Light Source		White fluorescent lamp
Optical Resolution		400dpi
Output Resolution	Color	100, 150, 200, 300, 400 dpi
	Grayscale	100, 150, 200, 240, 300, 400 dpi
	Binary	100, 150, 200, 240, 300, 400 dpi
AD Converter		1024 levels (10 bit)
Gray Scale Level	Color	24 bit / pixel
	Grayscale	8 bit / pixel
	Binary	1 bit / pixel
Scanning speed (A4 portrait)	Color (150dpi)	Simplex : 85 ppm Duplex : 170 ipm
	Binary (200dpi)	Simplex : 90 ppm Duplex : 180 ipm
Document Size	Minimum	A7 or Width : 3inch, Length : 3inch
	Maximum	A3 or Width : 11inch, Length : 17inch
Document Weight (Thickness)		52 to 127g/m2 (13.9 lb to 34 lb)
Capacity		Maximum 1000 sheets (64g/m2, 17 lb)
Interface		Ultra Wide-SCSI Option Board Slot (Third Party Slot)
Connecter shape		Shield type 68 pin (pin type)
Halftone patterns		Dither / Error diffusion
Voltage or Voltage Range		AC 100 to 240 VAC +10% /-10%
Power		250VA or less
Operation environment	Temperature	15 to 35 Degrees Centigrade (59 to 95 Degrees Fahrenheit)
	Relative humidity	20 to 80% (Non-condensing)
Dimensions	Width	588mm
	Depth	689mm
	Height	540mm
Weight		65kg (143 lb)
Others	Double feed detection	Yes
	Long paper scanning	Yes
	Paper counter	Yes

- The **fi-5750C** image scanner with dual interface capability (Ultra SCSI and USB 2.0) expands the market for production scanning. These features will insure Fujitsu's customers productivity well into the future.

Product Information	
<p><b>fi-5750C</b></p> 	<p><b>Feature</b></p> <ul style="list-style-type: none"> <li>➤ High speed scanning at high resolution                     <ul style="list-style-type: none"> <li>- 30ppm A4 / LT Landscape at 600 dpi</li> <li>- 55ppm / 110ipm A4 Portrait at 300dpi</li> </ul> </li> <li>➤ Superior paper Handling                     <ul style="list-style-type: none"> <li>- Ultrasonic Multi Feed Detection</li> <li>- De-skew &amp; Auto-cropping (TWAIN &amp; ISIS driver)</li> <li>- Straight paper path and easy maintenance</li> </ul> </li> <li>➤ Excellent Image quality                     <ul style="list-style-type: none"> <li>- Optical resolution 600dpi</li> <li>- Selectable background (B&amp;W)</li> <li>- Image Processing Software (Option)</li> </ul> </li> <li>➤ Ergonomic ADF                     <ul style="list-style-type: none"> <li>- ADF position selectable: 2 (two) positions (Center, Left)</li> <li>- ADF direction: 2 (two) direction is selectable for left-handed / right-handed person, when ADF is Center.</li> </ul> </li> </ul>
<p>Win XP Win 95 Win 98 Win 2000 NT 4.0 Win Me</p>	
<p><a href="#">Technical Specifications</a></p>	<p><a href="#">Accessories, Option, Consumables, Cleaning Tool</a></p>

## Technical Specifications

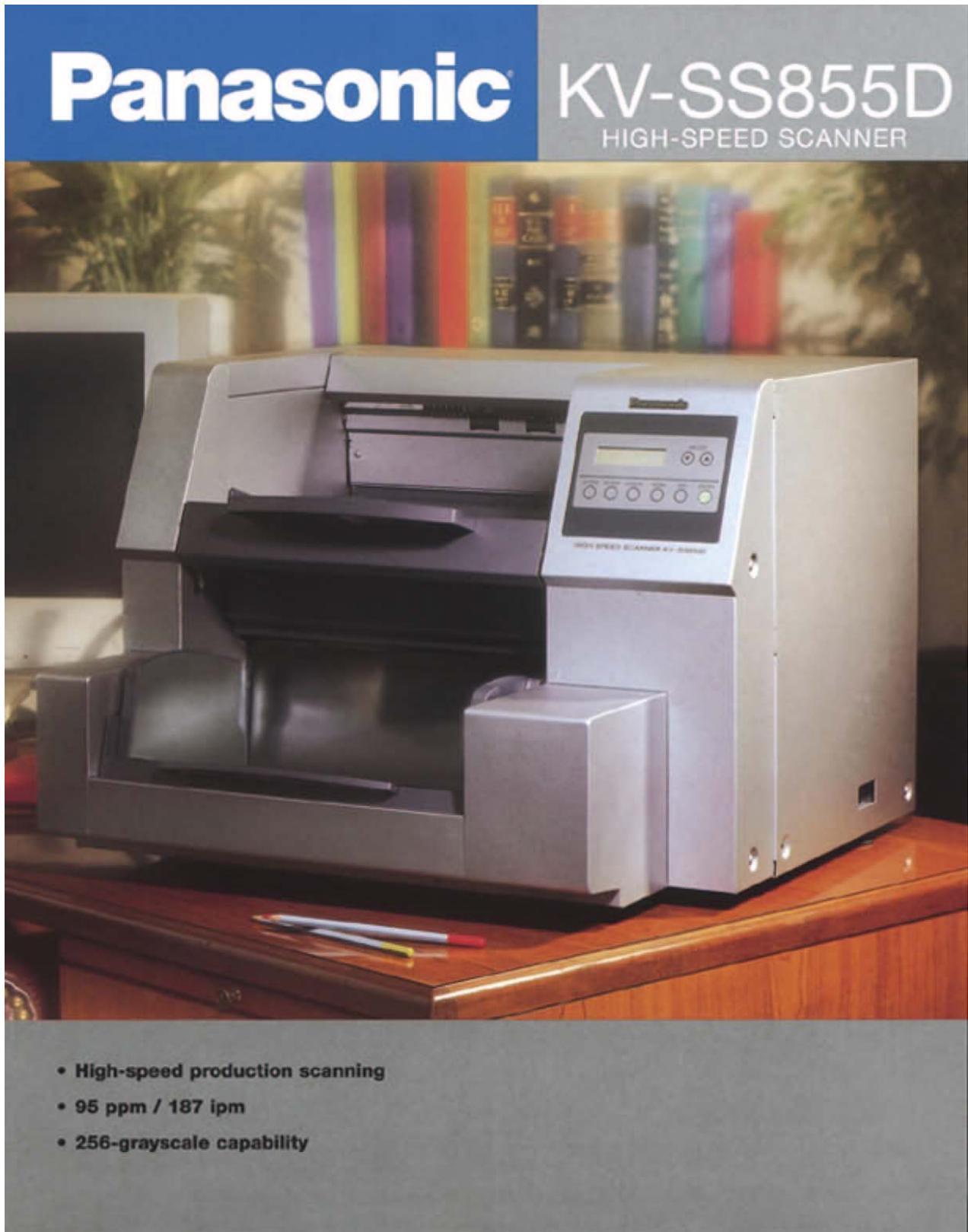
Parameter		Specification	
<b>Scanner Type</b>		ADF (Automatic Document Feeder) and FB (Flatbed)	
<b>Image Sensor Type</b>		CCD (Charge-Coupled Device)	
<b>Light Source</b>		White cold cathode discharge lamp	
<b>Optical Resolution</b>		600dpi	
<b>Output Resolution</b>	<b>Color</b>	50 to 600 dpi (Addressable by 1 dpi)	
	<b>Grayscale</b>	50 to 600 dpi (Addressable by 1 dpi)	
	<b>Binary</b>	50 to 600 dpi (Addressable by 1 dpi)	
<b>AD Converter</b>		1024 levels (10 bit)	
<b>Gray Scale Level</b>	<b>Color</b>	24 bit / pixel	
	<b>Grayscale</b>	8 bit / pixel	
	<b>Binary</b>	1 bit / pixel	
<b>Scanning speed</b>	<b>A4 portrait (ADF)</b>	<b>Color (300dpi)</b>	Simplex : 55 ppm Duplex : 110 ipm
		<b>Binary (300dpi)</b>	Simplex : 55 ppm Duplex : 110 ipm
	<b>A4 landscape (ADF)</b>	<b>Color (600dpi)</b>	Simplex : 30 ppm Duplex : 60 ipm
		<b>Binary (600dpi)</b>	Simplex : 30 ppm Duplex : 60 ipm
	<b>A4 portrait (Flatbed)</b>	<b>Binary (200dpi)</b>	0.9sec
	<b>A4 landscape (Flatbed)</b>	<b>Binary (600dpi)</b>	2.0sec
<b>Document Size</b>	<b>Minimum</b>	A8 (portrait, 127g/m <sup>2</sup> (34 lb))	
	<b>Maximum</b>	A3 or Width : 11inch, Length : 17inch (ADF, Flatbed)	
<b>Document Weight (Tickness)</b>		41 to 203g/m <sup>2</sup> (11 to 54 lb), In case of A4 size : 52 to 203g/m <sup>2</sup> only	
<b>Capacity</b>		Chute: Maximum 200 sheets (80g/m <sup>2</sup> , 20 lb), paper can be added Stacker: Maximum 300 sheets (80g/m <sup>2</sup> , 20 lb), paper can be added	
<b>Interface</b>		Ultra SCSI (Half-pitch 50pin) USB2.0 (Also works with USB 1.1)	
<b>Connecter shape</b>		Shield type 50 pin (pin type)	
<b>Halftone patterns</b>		Dither / Error diffusion	
<b>Voltage or Voltage Range</b>		AC 100 to 240 VAC +10% /-10%	
<b>Power</b>		216W or less	
<b>Operation environment</b>	<b>Temperature</b>	5 to 35 Degrees Centigrade (42 to 95 Degrees Fahrenheit)	
	<b>Relative humidity</b>	20 to 80% (Non-condensing)	
<b>Dimensions</b>	<b>Width</b>	690mm	
	<b>Depth</b>	500mm	
	<b>Height</b>	342mm	

Fact Finding Study of Potential Demand for the e-Service Center

<b>Weight</b>		35kg (77 lb)
<b>Others</b>	<b>Multi feed detection</b>	Yes (Standard : Ultra Sonic detection)
	<b>Long paper scanning</b>	Yes (863mm)
	<b>Paper counter</b>	Yes

**C) Panasonic Scanners Examples**

The price ranges from US\$ 10,000 - \$ 13,500 for mid-range scanners up to \$ 18,000 for high volume scanners.



**Panasonic** KV-SS855D  
HIGH-SPEED SCANNER

The image shows a Panasonic KV-SS855D high-speed scanner, a large, light-colored machine with a control panel on the right side. It is positioned on a wooden desk. In the background, there is a bookshelf filled with books and a potted plant. The scanner has a paper tray on the left and a control panel with a small display and several buttons on the right. The text 'HIGH SPEED SCANNER KV-SS855D' is visible on the control panel.

- High-speed production scanning
- 95 ppm / 187 ipm
- 256-grayscale capability

# Panasonic KV-SS855D High Speed Scanners



## THE PERFECT SOLUTION FOR HANDLING LARGE VOLUMES.

The KV-SS855D is the latest addition to Panasonic's family of world-class production scanner products. It provides you with high-end production scanning with the quality and speed you would expect from a much more expensive scanner. The KV-SS855D employs new roller material that offers quieter paper intake and improved paper handling. Scanning at an incredible rated speed of 85 ppm, a 1000 page automatic document feeder, and capable of handling paper from onionskin to cardstock – in mixed batches – will save you time and money. If your original documents are an irregular size or less than perfect, the KV-SS855D can handle it – business cards, invoices, checks, even wrinkled documents. The KV-SS855D is the perfect solution for virtually any large volume scanning situation.

### KV-SS855D Specifications

<b>Scanning Face</b>	Duplex Scanning (front and back sides)
<b>Scanning Method</b>	Front: CCD, Back: CCD
<b>Scanning Speed</b>	85 pages/minute at 200 dpi (simplex) 160 ipm at 200 dpi (duplex) Landscape: 95 ppm at 200 dpi (simplex) 187 ipm at 200 dpi (duplex)
<b>Scanning Resolution</b>	100 dpi to 400 dpi
<b>Auto Document Feeder</b>	1,000 pages
<b>Image Enhancement Technology</b>	Brightness / Contrast, Grayscale, White Level Follow, Subwindows, Halftone Processing, Image Emphasis, Monochrome Reversing, Auto Threshold, Auto Separation, Patch Code, Bar Code, Long Paper, Double Feed Detection
<b>Image Compression</b>	Group 3, Group 4 and JBIG
<b>Total Gradation</b>	Binary Mode, 64-step gradation (dither mode) Binary Mode, 64-step gradation (error diffusion mode)
<b>Paper Size</b>	1.9" x 3.3" to ledger 11.7" x 17"
<b>Paper Thickness</b>	2.0 to 7.9 mils., single feed; 2.4 to 5.9 mils., continuous feed
<b>Paper Weight</b>	11 to 42 lbs., single feed; 13 to 42 lbs., continuous feed
<b>Dimensions</b>	22.4" W x 21.5" D x 16.3" H
<b>Weight</b>	110 lbs.
<b>Power Requirement</b>	120 VAC 60 Hz
<b>Power Consumption</b>	1.3A maximum scanning, 5A (standby)
<b>Operating Environment</b>	59° F to 86° F, 10% to 80% RH
<b>Storage Environment</b>	32° F to 55° F, 10% to 80% RH
<b>Option and Accessories</b> <i>(All options and accessories are end-user installable)</i>	KV-SS03 Cleaning Kit, KV-SS05 Imprinter (Post Scan, 72 characters), KV-SS06 Ink Cartridge, KV-SS040 Red Lamp, KV-SS041 Roller Exchange Kit

### Features

- **Panasonic Image Enhancement Technology**
  - White Level
  - Grayscale
  - Brightness / Contrast
  - Length Control
  - Bar code and Patch code
- **KOFAX – Adrenaline Certified**
- **Expanded memory capability**
- **ISIS® Certified Drivers and TWAIN Compliant**
- **High-speed production scanning**
- **1000 page ADF**
- **Up to 400 dpi optical resolution**
- **Post scan imprinter option**
- **Length Control**



**Panasonic Document Imaging Company**  
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(201) 381-6280

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Document Imaging Company  
[www.panasonic.com/scanners](http://www.panasonic.com/scanners)

For your nearest Dealer/Distributor please call 1-800-742-0006  
Technical Support: 1-800-PANADYS (800-725-2797)

Printed in USA on recycled paper containing at least 10% post consumer waste, using soy-based ink.

SCAN KV-SS855D-S1 12/99