

Arab Authority Experience in Adopting an Integrated Information Technology Strategy

Abdalla Hag Mohamed Hamid ¹

Summary

In a period of just over five years, AAAID moved from a traditional, mostly manual system to a state of the art Information Technology (IT) environment based on the latest technology both at the infrastructure and the application systems levels. There are many factors that contributed to the Authority's IT success thus far, the most important of which is the strong support and guidance of top management. This was complemented by a well planned and thought out implementation approach coupled with a dedicated team and a very receptive and cooperative user community. All these factors together contributed to the overcoming of the difficulties and challenges faced along the way as is always the case in major change initiatives.

AAAID is now well positioned to implement the next phase of its IT strategy which will allow it to reach its key strategic objective of implementing true e-Administration in all aspects of its business. The Authority is determined to spread its IT experience and expertise to the agricultural business sector in the Arab world starting with its affiliated companies.

This brief article is intended to paint an overall picture of AAAID's experience in adopting and implementing an integrated IT strategy.

Keywords: IT Strategy; IT Infrastructure; Business Solutions; IT Services.

Introduction

It is now widely recognized that the adoption of Information Technology (IT) by business organizations leads to measurable and tangible benefits. Gains in productivity and operational efficiency have been documented in many research papers. In a recent paper published in the MIT Centre for digital Business, it was concluded that information technology can be a significant source of productivity increase when accompanied by complementary investments in new work systems, organizational re-design and business process re-engineering.

The Arab Authority for Agricultural Investment and Development (AAAID) has acknowledged the benefits and advantages to be achieved through the adoption of Information Technology. Since the late 1990's, AAAID has recognized the need to identify and adopt the appropriate technological solutions both in the field and for managing its internal operations, in order to achieve its stated objectives. The need to adopt information technology solutions within AAAID and its affiliated companies was envisioned by AAAID leadership and a new organizational unit was established in 1999 to realize this vision. This unit was later transformed into the existing IT Department in 2001.

AAAID's position on the Information Technology Maturity Model, which is described in the next section, was assessed by an independent consultant in 2003 and found to be at the Process Integrator level. Since then the IT function has lead and enabled change initiatives that contributed to the transformation of certain aspects of AAAID business. Thus moving AAAID's IT position up the maturity curve towards the business transformation enabler status.

The IT department has started to provide services to AAAID companies and the Authority is currently consider-

ing spinning off the function into a separate company to provide IT services to AAAID, its companies and the wider agricultural sector in the Arab world. This will move AAAID's IT to the top of the maturity curve as a true business partner.

The objective of this article is to highlight AAAID's experience in building a modern Information Technology (IT) environment and implementing state of the art IT solutions over the past few years, as part of the Authority's strategy to adopt new technology in all aspects of its operations. Each section of this article could be the subject of a separate paper; however, it is kept deliberately brief to paint an overall picture of the Authority's experience. Specific technical details about each of the IT initiatives undertaken by AAAID can be provided in future articles depending on the priorities set by the editorial board of the journal.

The Information Technology Maturity Model

Information technology has evolved from a mere data processing service in the 1950's and 60's into a business transformation enabler in the 90's and now becomes a major business driver where the IT strategy is leading the business strategy in many industries, especially non-conventional and emerging business models such as telecommunication and Internet based services. In the more conventional businesses, IT has become a distinct competitive advantage and a change leader that enables such businesses to anticipate and respond faster to changes in market conditions, cut operational costs and increase productivity and competitiveness. Figure (1) below illustrates the different stages of the IT Maturity model.

IT in AAAID Strategy

In 2002, AAAID developed a 10 year business strategy to enable the Authority to keep up with the economic, technological and environmental developments in the Arab re-

¹ Arab Authority for Agricultural Investment and Development (AAAID), Khartoum, Sudan, P.O. Box 2102, Fax: (+249) 183-772600, E-mail: ahamid@aaaid.org

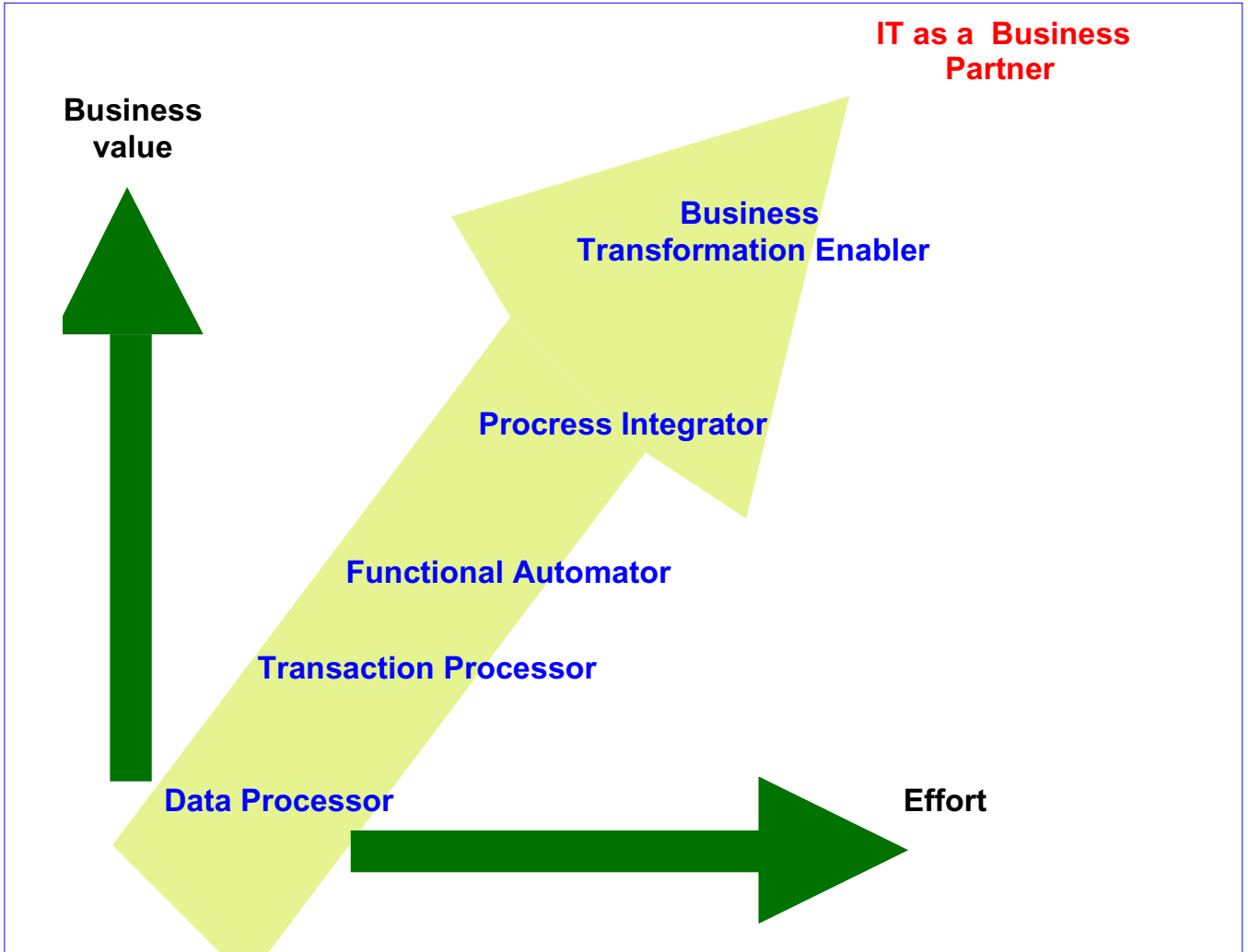


Figure 1. The Information Technology Maturity Model.

gion and worldwide. It was stated that the current strategy period shall witness the adoption of an integrated strategy for information technology. The broad features of the IT strategy was stated as follows:

- Implementation of a suitable Enterprise Resource Planning (ERP) system, to meet the current and future needs of AAAID.
- Completion of the IT infrastructure which includes networks and telecommunication; operating systems; hardware maintenance facilities and Internet connectivity.
- Adopting a new organizational structure for the IT Department and providing it with a qualified staff.

AAAID Information Technology Strategy

The information technology strategy for AAAID was drawn out following an assessment of the Authority's current and future business needs as well as the current state of technology at AAAID at that time. The strategy was focused on filling the gap between what was required and what was available at that time. The IT strategy consists of three key elements that must be addressed in a coordinated and balanced way for the Authority to realize the intended

benefits of the strategy. These elements are:

The People element; which involves the education and preparation of the human capital within AAAID to accept and participate in the change that would be brought about by implementing the strategy;

The Process element; which refers to need for understanding, documenting and streamlining the existing business processes to eliminate inefficient and redundant processes before the automation takes place.

The Technology element; which refers to the selection and implementation of the appropriate technologies and the continuous improvement thereof to achieve the stated objectives of the strategy.

To address the above elements from a practical perspective, the strategy was further broken down into three components or axes as follows:

- IT Infrastructure: includes networks, equipment and operating systems;
- IT Business Solutions: includes software and other solutions to be deployed in accordance with business requirements;
- IT Service Delivery: refers to the manner in which IT services are delivered and continuously enhanced.

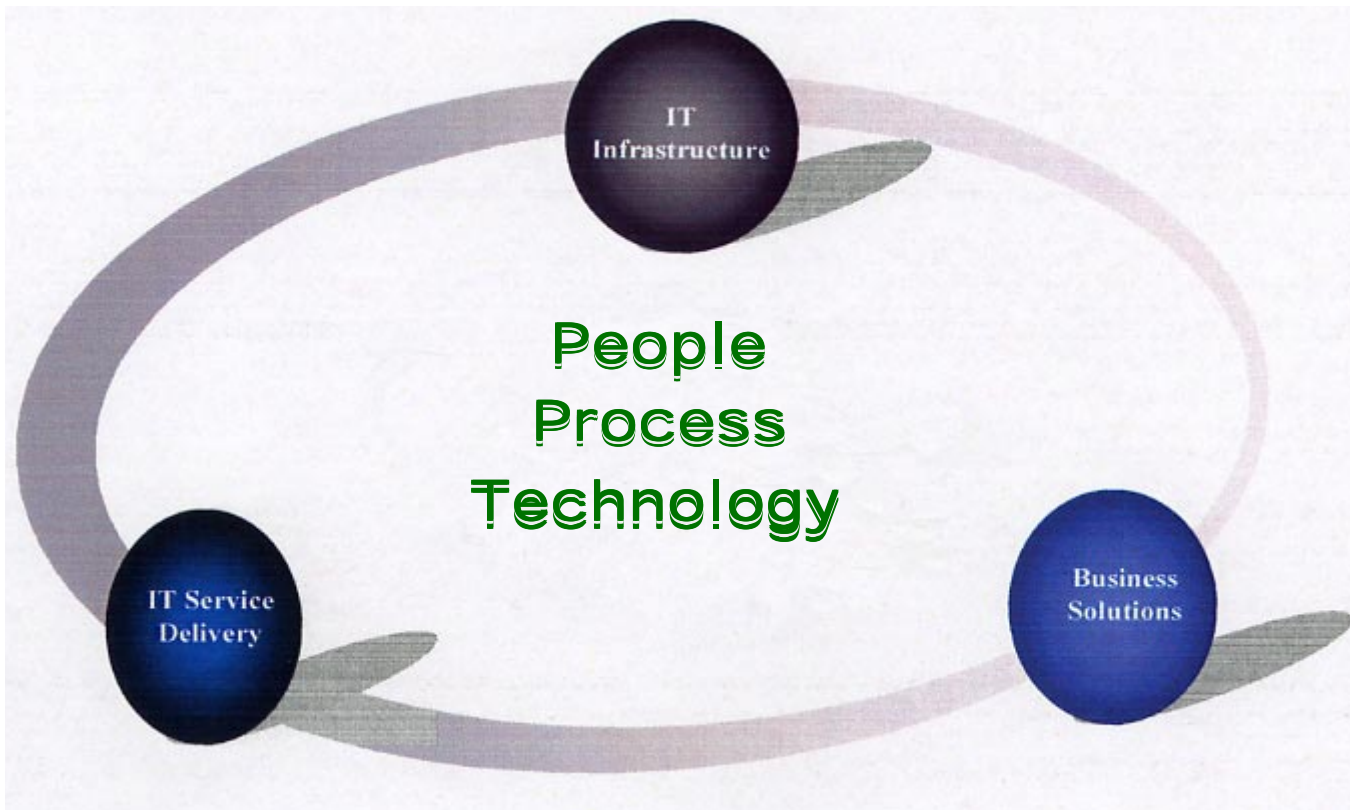


Figure 2. AAAID Information Technology Strategy.

The IT strategic objectives were stated as follows:

- Support and AAAID's business strategy by implementing the suitable IT systems and processes required to achieve the Authority's strategic investment and developmental objectives.
- Maximize the productivity and efficiency of AAAID business units by streamlining and automating the business processes and reducing the current level of paper based transactions within the Authority.
- Build a robust IT infrastructure to support AAAID's current and future computing needs.
- Provide timely and accurate information to support management decision making process throughout AAAID.
- Minimize information system costs and improve efficiency through the use of standardized hardware and software wherever possible.
- Continuously educate the business users, through training and tools, and improve the capability to utilize technology and obtain information without excessive dependence on IT.
- Facilitate and improve electronic exchange of information and sharing of knowledge between AAAID and its affiliated companies.
- Provide IT and related business services to AAAID affiliated companies as well as other organizations operating in the agriculture and food sector in the Arab world, to enhance the sector's productivity and competitiveness (Figure 2).

IT Strategy Implementation

As mentioned earlier, at the start of the IT strategy period, AAAID had a simple IT environment which was characterized by a number of limitations as summarized below:

- Unstructured and undocumented physical network at head office.
- Peer -to- peer network architecture mainly used for file sharing and printing.
- Very limited Internet connection and no internal e-mail system.
- No web presence.
- In-house applications based on aging technology that is difficult to maintain and enhance.

The implementation of the IT strategy was organized along the three main axes based on the logical priorities required to achieve a rapid progress and demonstrate the benefits to be had from the Authority's investment in IT. This approach was crucial given the state of the IT environment at the beginning of the strategy period, where management was committed to invest in IT but was also eager to see the fruits of such investment as soon as possible. Initiatives implemented under each of the three axes are as follows:

IT Infrastructure

The IT infrastructure is the foundation upon which successful IT environment is built. Building a robust IT environment was paramount to achieving the rest of the IT strategic objectives mentioned above, accordingly, the first priority was given the infrastructure axis of the strategy.

Several major IT infrastructure projects were undertaken and successfully implemented to achieve the current status of infrastructure within AAAID, as described below:

- Network Re-cabling Project
- Network conversion to Client/Server Architecture
- Desktop Replacement project
- Virtual Private Network (VPN) Implementation
- Backup and Disaster Recovery Solution

The result is a modern, robust and secure infrastructure built on the latest available technology that supports the current computing needs and capable of being expanded to supports any future IT initiatives.

Although no formal benchmarking was carried out to determine how AAAID ranks amongst similar organizations in terms of IT infrastructure, data collected informally indicates that the Authority has caught up with its regional peers and surpassed many of them in a very short period of time. One of the many blessings AAAID had in the area of information technology, in addition to strong support from top management, was the fact that the Authority did not have a huge legacy environment to migrate from; instead, it made a fresh start with a Greenfield installation. Thus avoiding all the challenges and risks associated with integrating new technology into existing legacy environments.

IT Business Solutions

With the IT infrastructure and service delivery projects underway, the IT department started a parallel process of system selection and implementation to serve the critical needs of the business.

The ERP Project:

Having run a comprehensive training program for all of the authority's staff, and completed the network cabling project, AAAID started it's a project to select and implement a suitable Enterprise Resource Planning (ERP) system to achieve the following objectives:

1. Enhance business performance and reduce transaction cycle times.
2. Standardize and integrate AAAID's business processes.
3. Reduce dependency on paper based transaction and enhance the ability to retrieve detailed historic information quickly and easily, and thus improve analysis and planning.
4. Provide timely information about the performance of AAAID to enhance the decision making process.
5. Enhance and automate internal controls and, therefore, save valuable management time.

After an initial study of AAAID business requirements, it was concluded that the ERP initiative should be organized into two phases to automate the support functions in the first phase and deal with the core business functions in the second phase. This was due to unique nature of AAAID's core business activities especially in the areas project lifecycle management and follow-up of existing companies. This uniqueness made it difficult to fit such activities in one of the known ERP systems, instead

it was decided that a best of breed solution will be more suitable but it has to be fully integrated with the ERP system.

The first phase of the ERP covered the main support functions within AAAID which includes Finance, Human Resources, Purchasing and Inventory. It also covered Financing and Lending activities.

The implementation was completed and full conversion to the new system was achieved by the end of 2005 when the first live set of financial statements was produced from the new financial system.

Other Business Solutions:

In addition to the ERP system, AAAID implemented a number of other solutions to cater for specific business needs and to move the Authority closer to the e-administration status, the main ones are:

- E-mail system.
- Video conferencing.
- Remote access to AAAID networked services.
- Internal audit system.
- IT help desk and inventory tracking system .
- AAAID website.

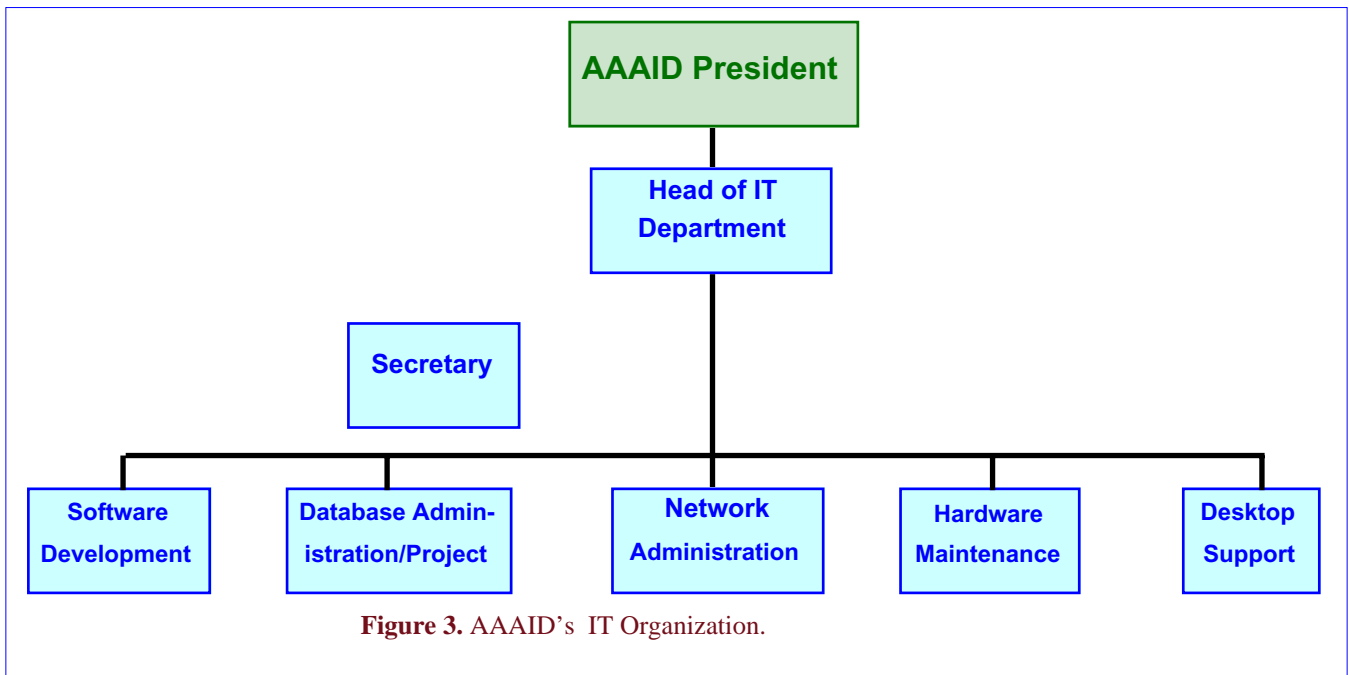
IT Service Delivery:

Delivering information technology services to AAAID employees in a smooth and evolutionary manner is one of the main pillars of the IT strategy. In the early days of strategy implementation, significant emphasis was given to preparing the recipients of the IT services (the employees) to understand and utilize these services and, be able to envision and demand other services or better ways of delivery that are relevant to his/her job. The main initiatives undertaken in this area are:

- Initial User Training: conducted in 2002 and covered essential computer skills.
- Continuous User Education: delivered through seminars and awareness sessions on various topics related to implemented IT solutions. A permanent and well equipped training laboratory was established for this purpose.
- IT Department Organization: achieved by specifying clear roles and responsibilities for the different functions within the IT department and recruiting more experienced staff.
- IT Staff Development: through regular training and participation in conferences, seminars and other related IT events.
- Documentation of IT Policies and Procedures: including the IT security policy, helpdesk policy and procedures and technical disaster recovery plan (Figure 3).

Challenges Faced and Lessons Learned

A transformation effort of this size is never without challenges and always provides valuable lessons that contribute to the sustainability of success and avoiding pitfalls in the future. Although there is still some distance to be traveled in terms of AAAID's adoption of information technology, what was achieved so far repre-



sented a significant shift in working practices within the Authority. There were major challenges associated with the learning curve and the comfort level of employees with regards to the new technologies being implemented, the state of the telecommunication infrastructure in the host country the availability of the required skills and services in the local Sudanese market. Many of these challenges are present to a lesser degree and will continue to be in the foreseeable future.

The main lessons learned so far include:

- The need to maintain the interest and enthusiasm of the users through continuous communication of IT initiatives, plans and events.
- The absolute necessity of senior management support and involvement in major projects.
- The need for better planning of project resources. User resources that need to be dedicated to a certain IT project should be allowed to observe the project's priorities and arrangements should be made to shift their regular day to day tasks to others.

Critical Success Factors

The progress achieved in the first phase of IT strategy implementation is attributed to certain success factors that need to be maintained throughout the upcoming phases in order to achieve the stated IT strategic objectives. The key success factors are:

- The strong support and guidance of top management represented in H.E. the President of AAAID.
- Dedication and commitment of the IT and user teams on the various projects.
- Cooperation of the business departments within AAAID.
- Structured and proven implementation approach which addresses the people, process and technology elements simultaneously.

- Acquiring and applying the right mix of skills internally and from external consulting firms.

Future Plans

Internal Systems:

There is still a number of internal IT initiatives to be implemented in AAAID, the main one being ERP Phase II which will focus front office automation through workflow, content management and service automation within the core business departments. Other planned initiatives include: Business Continuity Planning; IT Governance; IT Security Review and Benchmarking.

Service Provision:

The biggest future initiative by far is the planned spin-off of the IT function into a separate IT services company to provide IT and related business services to the agriculture and food business sector in the Arab region.

AAAID has prepared a business plan to setup the proposed company with the following main objectives:

- Contribute to the achievement of AAAID's business objectives by helping the Arab agricultural sector to implement new IT solutions that will increase its efficiency and productivity.
- Close the technology gap between the Arab agricultural sector and its worldwide competitors.
- Provide a new source of income for AAAID that can be re-invested in agricultural projects to further enhance AAAID's ability to achieve its objectives.

It is worth noting that the concept of the proposed company has already been proven, as AAAID has started to provide IT and related business services to some of its affiliated companies.

Conclusion

Information Technology adoption within AAAID is a strategic initiative that was envisioned and is fully support-

ed by its top management. IT is viewed by AAAID Leadership as one of the main tools that it will use in the upcoming period to achieve its stated business objectives.

Although AAAID can be considered relatively new to the field of information technology, the Authority has made major strides towards its goal of fully automating its business activities (e-Administration). With this goal already in the Authority's sight, AAAID is promoting and advocating the adoption of information technology by other private and public organizations operating in the agricultural business sector in the Arab world. This will be achieved through the establishment of a specialized IT service company to transfer AAAID's experience and expertise to this sector. Thus contributing to the enhancement of its efficiency and productivity and moving closer to the overall goal of minimizing the food gap in the Arab world.

Acknowledgement: I would like to take this opportunity to express my sincere thanks and appreciation to His Excellency Mr. Abdul Kareem Mohammad Al-Amri, the President of AAAID, for his inspiring leadership and his continuous guidance and support without which AAAID would not have achieved its current advanced status of IT

adoption. I also would like to thank Dr. Naufal Rasheed, Assistant to the President for Technical Affairs, for his encouragement, close supervision and invaluable input while writing this article. Special thanks to the IT team for their dedication and hard work, and to the IT users within AAAID, for their cooperation and active participation in all IT programs and projects.

References

- Computing Productivity-Firm Level Evidence, Erik Brynjolfsson, Lorin M. Hitt - MIT Centre for e-Business.
- Arab Authority for Agricultural Investment and Development. 2002. The Way Forward, Atos KPMG Consulting Report.
- Arab Authority for Agricultural Investment and Development. 2002. AAAID Strategy 2002-2012.
- Arab Authority for Agricultural Investment and Development. 2001. AAAID IT Strategy Outline, Abdalla Hamid.
- Abdalla, A. Hamid; Mohamed, B.; Moyasser, T. M.; Abdalla, E. A and Mahdi, Eldude. 2006. Study to Establish an IT Services Company.

تجربة الهيئة العربية في تبني استراتيجيات متكاملة لتقنية المعلومات

عبد الله حاج محمد حامد¹

الخلاصة

خلال فترة وجيزة لا تزيد كثيراً عن الخمس سنوات، تمكّنت الهيئة العربية للاستثمار والإنماء الزراعي من التحول من نظام العمل اليدوي إلى بيئة معلوماتية حديثة تم تأسيسها على أحدث التقنيات المتوفرة على مستوى البنية التحتية والأنظمة التطبيقية على حد سواء.

وترجع النجاحات التي حققتها الهيئة العربية في مجال تطبيق تقنية المعلومات إلى عدة عوامل من أهمها الدعم والتوجيه الذي وجدته مبادرات تقنية المعلومات من الإدارة العليا للهيئة. أضف إلى ذلك التخطيط والتنفيذ السليم من قبل فريق تقنية المعلومات والتعاون المستمر من قبل مستخدمي الأنظمة في إدارات وأقسام الهيئة المختلفة وتقبلهم للتغيير. كل هذه العوامل مجتمعة أدت إلى تجاوز التحديات والصعاب التي واجهت الهيئة في مسيرة التطبيق كما هو الحال في كل المبادرات التي تنضوي على تغيير في نمط العمل.

وتعتبر الهيئة الآن في موقف يمكنها من الانتقال إلى مرحلة الإدارة الإلكترونية التي تصبو إليها وذلك من خلال تنفيذ المرحلة القادمة من استراتيجيات تقنية المعلومات. كما أن الهيئة بصدد تعميم تجربتها وخبرتها في مجال تقنية المعلومات إلى شركات ومؤسسات القطاع الزراعي العربي بدءاً بشركاتها.

يهدف المقال الموجز إلى رسم صورة كلية لتجربة الهيئة في تبني وتطبيق استراتيجيات متكاملة لتقنية المعلومات.

¹ الهيئة العربية للاستثمار والإنماء الزراعي، ص.ب. 2102 الخرطوم، السودان، فاكس: 772600 183 (+249)، بريد إلكتروني: ahamid@aaaid.org