

**Achievement of Market-Friendly Initiatives and Results Program
(AMIR 2.0 Program)**

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**E-government Portal Website
Scope and Vision Document**

Final Report

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0 Document Control

0.1 Document History

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0.2 Changes From Last Issue

Ver	Date Updated	Revision Author	Summary of Major Changes Made	Reviewed By	Review Date
0.3	May 25, 2002	Alan Johnston	<ul style="list-style-type: none"> - Added Strategy / Next Steps - Rewrote directory sections - Clarified authentication and authorization language 	Abed Shamlawi	May 30, 2002

0.3 Distribution List

AMIR ICTI Component Personnel	AMIR ICTI will copy and distribute to USAID, the e-government team at MoICT, PMO personnel, and EDS subcontractor personnel.

0.4 Referenced Documents

Reference Number	Title	Note
1.	The Hashemite Kingdom of Jordan e-Government Blueprint & Roadmap (version 5, 12 th September 2001).	
2.	Draft – Web Applications Assessment – EDS Report by Alistair Hodcraft	
3.	Jordan e-Government Information Interoperability Framework, V.02, 04 May 2002 – EDS Report by Peter Henshaw	
4.	Jordan E-Government Information Security Policy – EDS Report by Paul De Luca	

0.5 Abbreviations

COTS	Commercial Off The Shelf (a software package)
CCD	Ministry of Industry and Trade/Company Controller Directorate's (MIT/CCD) on-line business registration application.
GOJ	Government of Jordan
G2B	Government to Business
G2C	Government to Citizen
LAN	Local Area Network
MIT	Ministry of Industry & Trade
NIC	National Information Center
PC	Personal Computer
SGN	Secure Government Network
TRC	Telecommunications Regulatory Commission's (TRC) apply-on-line licensing application.
URL	Uniform Resource Locator – the official term for a web address such as www.nic.gov.jo

0.6 Glossary

This section defines the following terms that are used in this report:

Applications	<p>Computer programs that are accessed by Jordanian citizens through the Internet Web sites of the different GOJ Ministries (also known as Internet applications or Web applications).</p> <p>Computer programs that are accessed by civil servants through the SGN (also known as SGN applications or intranet applications).</p>
Content Management System	A software package that allows information content to be created, edited, approved and published on an Internet or intranet Web site. A content management system (and the business processes implemented to support it) will aid the creation of high quality information content by helping to ensure that content is accurate and up-to-date. Because inaccurate content has been shown to discourage users from utilizing Internet and intranet Web sites, a content management system is important to the success of many Internet and intranet projects. Content management systems are often implemented as one component of an Enterprise Portal Architecture.
e-Government	A fundamental change in the way a government interacts with its citizens. This involves moving towards recognition of the citizen as a <i>customer</i> of government services and is implemented through the introduction of new channels (generally Internet and telephone-based) that are underpinned by fundamental redesign of the business processes within government institutions.
e-Service	(Electronic Service) Any government service that is delivered through the use of Internet technology, either over the Internet or across an intranet.
Extranet	An intranet that is made available to users outside the relevant GOJ Ministry. These external users will be representatives of organizations that are business partners of the Ministry, such as providers of services or supplies. One way of allowing external users to access an extranet is by providing them with a unique user-id and password that gives them access to a restricted part of the Ministry's Internet Web site from which other users are barred.
Government to Business	Functionality (often provided on an Internet Web site) that allows the government to deliver some service or other to a private sector business.
Government to	Functionality (often provided on an Internet Web site) that allows the government to deliver

Citizen	some service or other to the private citizen.
Intranet	A network (also known as the SGN), restricted to GOJ civil servant, which links PCs within a GOJ Ministry, and which is protected from outside networks by a firewall. This is very similar to a LAN but an intranet uses the Internet protocol (TCP/IP) to provide users with access to information, rather than a LAN protocol. The information 'published' (made available) on an intranet Web site can be in a variety of graphical and enhanced formats that include intranet Web pages, PDF files and URL hyper-links. The intranet network can be used to exchange many different types of file including video and audio clips, pictures and graphics files. The only software that the users of an intranet require to have loaded on their PC is an Internet browser. The browser can be equipped with different 'plug-in' modules that allow it to display/play the contents of different types of file (including text, image, video clips and audio clips).
Internet - also known as the World Wide Web (www)	A worldwide network of linked PCs. Information is published to the public in graphical format on Internet Web sites for anyone to view. Many national governments now have one portal site to which users are initially directed, before being redirected (often by a search engine built into the portal) to the Web site of the government department that they are seeking. (For an example, see www.ukonline.gov.uk)
LAN	A network, restricted to government users that links PCs within a ministry. It uses protocols such as Token-Ring to share electronic files around the LAN. The format of these files is generally limited and will not usually include the graphical and enhanced formats that are available on an intranet.
Portal Website	A front-end software component that is provided on the Internet and on intranets (such as the SGN) that acts as a gateway to make it easier for users to find information and services. Most Portals Websites offer a range of functions but the most important elements are a content management system (to ensure that the information content is of high quality), a search engine (to help the user find the information content that is of interest to them), and a directory of users.
Secure Government Network	An intranet that is provided by the GOJ for the exclusive use of its civil servants. It will be provided with high levels of security to prevent any non-government users from gaining access to it. This type of network is also known as a Government Secure Intranet (GSI).
Web site	A technology that allows information in a wide range of graphical and enhanced formats to be made available on a network to any users who are connected to that network. The information is 'published' on a network Web server and this can then be accessed by users who are equipped with Internet Web browser software. A Web site is made up of one or more Web pages that contain information in graphical and enhanced formats. The network can be an intranet, extranet or the Internet.

1 Introduction

The Jordanian Ministry of Information, Communication, and Technology (MoICT) has set the ambitious goal of putting in place a complex e-government infrastructure and application environment by October 2002. Systems integration work is under way to establish a secure network that the Government of Jordan (GoJ) can use for internal government-to-government (G2G) and external government-to-citizen (G2C) applications.

The centerpiece of the GoJ's online applications will be an e-government portal website designed to give internal users (civil servants) and external users (individual and business) a window into the information and services provided by the GoJ. This vision and scoping document will serve as the basis for system design to be completed by a local technology firm chosen to implement the e-government portal solution.

The functionality and requirements described in this document have come from a variety of sources: elicitation of requirements from MoICT e-government staff, observations of e-government portals around the world – in Dubai, Singapore, the United Kingdom, the United States and other countries.

MoICT e-government personnel determined that the e-government portal website will be placed under the ownership and responsibility of the e-government programme management office (PMO) now under development and scheduled to be staffed and operational by September 2002. Since the PMO was not operational at the time of this analysis, the MoICT e-government steering committee assumed responsibility for the requirements phase, providing input and binding decisions on the scoping of the e-government portal development process.

1.1 Portal Definitions

Like many words in the vocabulary of information technology, the word 'portal' is used to mean different things in different contexts. Use of the term 'portal' continues to evolve and any attempt to provide a precise definition will undoubtedly lead to disagreement. However, the following two definitions should be acceptable to most IT practitioners. In any case, these definitions will be used in this document:

- **Enterprise Portal Architecture** – An enterprise portal architecture describes the configuration of a set of shared system services built as an integration platform for a large organization with a complex set of back-office, web-service, or legacy applications. The portal architecture usually defines a single point-of-entry to those applications for internal and external users on the Internet, an internal network, or both. Also known as a corporate portal, a portal architecture usually consists of a centrally managed suite of system applications – such as directories, email, authentication, content management, integration layers, database and data access layers, and so forth – which may be shared by applications, operating systems, and network services enterprise-wide. A portal architecture design and build-out is usually complex and expensive, but in some cases may represent a cost-effective solution for organizations that need a high-end, single-point-of-entry environment for data warehousing, knowledge management, customer relationship management, enterprise resource planning, interoperability requirements, and other needs.
- **Consumer Portal** – A consumer portal is a web site that creates a user-friendly, web-based directory environment allowing visitors to find on-line information, content, or services on a set of predefined web sites which may include the portal itself. Examples include the original, general-purpose web portals such as Yahoo, Lycos, or Excite. Designers of consumer portals organize and categorize content by subject area in ways that will make sense to the portal's users. These content taxonomies are translated into a web site design that allows site visitors to follow links which eventually lead to content they are looking for. Consumer portals also provide full-text searching of both the portal itself and of the sites it indexes. The main goal of the consumer portal is to lead visitors to the content they seek quickly, using the fewest mouse clicks possible, whether that content is located on the portal itself or an external site. Many consumer portals also offer personalization, web-based email accounts, and other useful features, and portal presentation is often tailored to specific audiences through user profile choices or authentication rights.

The two portal models described above are not mutually exclusive. It is perfectly possible to create a consumer portal using the services of an enterprise portal architecture. In fact, in deploying a corporate or e-government portal architecture, it may be wise to adopt a phased build-out with Phase I consisting only of content management, directory, authentication, and search engine services that will be used to build a consumer portal. Initially, a low-tech approach to application integration might consist of simple links to transaction-based web applications residing on external servers. Additional portal architecture functionality – more complex integration layers, data transformation, collaboration, and other functionality – could be added in subsequent phases.

Of course, such a phased approach assumes the existence of a comprehensive portal architecture design, completed before build-out begins, that serves as a blueprint for the entire enterprise portal system implementation. During design, the consumer portal would be considered just one of the many system requirements an organization is trying to meet by creating an enterprise portal architecture in the first place.

This Vision and Scope Document describes an e-government portal that fits the consumer portal model described above. The authors will attempt to avoid ambiguity by including the word ‘architecture’ in all references to enterprise portal architecture. For example, the shortened form ‘portal architecture’ may be used in place of enterprise portal architecture. But the word ‘architecture’ will be the cue to what is meant, and use of the word ‘portal’ by itself will be avoided as much as possible to limit confusion.

1.2 Background

Discussion of implementing an e-government portal began at least two years ago when the drive to develop an e-government initiative in Jordan began in earnest. Implementation of a portal was put on hold as e-government personnel gathered information, conducted observation tours of e-government projects in other countries, and studied the relative merits of different e-government approaches.

Early reflections about the e-government portal in Jordan centered on the example of Singapore, whose cradle-to-grave (or womb-to-tomb) approach to e-citizen services is cited as one of the most advanced e-government programs in the world – ranked higher by some than all western countries but Canada. The Singaporean portal model (www.sg.gov) has drawn considerable attention and was cited often as a model for eventual portal in Jordan. Singapore attained its lofty e-government standing with a staff of several hundred technology workers and an annual budget in the millions of dollars. Its high-end approach boasts broad e-services penetration throughout the Singaporean government, many transaction-based systems, and a well-educated, technologically advanced citizenry, most with Internet access.

In February 2002, the GoJ pledged to have an e-government portal up and running by October 2002, a period of only eight months. Developing an e-government portal from scratch under such an aggressive timeframe made it apparent that the high-end portal model, reliant on integrated, transaction-based systems, large budgets, and custom programming was at best a long-term goal for Jordan.

Further, as described later in this document, an important goal of the portal website is to serve as an on-line, initial point-of-contact for customers of the GoJ both inside and outside Jordan, and should lead users to valuable information and quality services both on the portal website itself and on other GoJ websites. The portal and associated GoJ websites must create a favorable impression of quality and professionalism, or users may not return.

1.2.1 Survey of Existing GoJ Sites

During the course of this scoping and vision exercise, analysts conducted a survey of current GoJ web sites by consulting the static catalogue of GoJ sites maintained by the National Information Center (NIC), and by performing a Google search to locate all web sites in the *.gov.jo domain. This informal survey produced the following conclusions.

- Favorable Impression: Many current GoJ websites will need upgrades to improve look-and-feel and the quality of their content. Most GoJ sites have not attained the level of professionalism that will lead to the positive impression that the portal must leave on its users.

- Content Problems: Many sites have limited useful content, and the type of content varies widely from site to site. Further, some sites have limited Arabic content, while others, whose content would be useful to non-Jordanian investors or researchers, have limited English content.
- Timeliness: Many sites have content that is out-of-date. Even potentially useful content may not have been updated in three years or more.
- Connectivity: The usefulness of many GoJ sites may be limited by the speed of their connections to the Internet. Many sites are on 56K lines. If the portal increases traffic flow to these sites, the bandwidth in place may not scale up gracefully.
- No Web Presence: Many GoJ ministries and agencies do not have a web site presence.

1.2.2 Content is Key

An e-government portal intended to serve as the GoJ's primary Internet presence, must have quality content which meets users' needs, is updated regularly, and whose presentation reflects value and professionalism. Therefore, given the short time frame and problems cited, it was concluded that the e-government portal needs to focus on content – the quantity of content, as well as the quality of content, and its presentation on the web in a way that reflects value, usability, and professionalism.

Thus the scope and vision described in this document will have the following orientation: instead of a custom-developed software application, the GoJ e-government portal should be built using a commercial off-the-shelf (COTS) content management system (CMS) whose features meet all current and anticipated needs of the GoJ portal. A content management approach carries with it many benefits:

- GoJ agencies or ministries with existing websites can improve the visual appeal and overall management of their sites quickly and economically by integrating them into the portal content management system.
- The GoJ agencies that currently have no website can develop one quickly and economically by building a site inside the portal content management environment. Thus new GoJ sites can automatically inherit the standard look-and-feel of the portal itself and individual agencies can avoid the need to make expensive IT investments for the sole purpose of putting a new web site on-line. Significant cost savings could result.
- The e-government portal, from the web visitor's perspective, will function as a web directory, based on the model of a 'consumer portal' as described above, whose main purpose will be to allow users to search for, find, and access content, information, and services offered on-line by the GoJ. Additional transaction-based functionality can be added later as more transaction-based services are developed by GoJ agencies. Access to current transaction-based systems can be implemented from the portal by providing HTML links to those systems.
- The e-government portal, from the content providers' perspective, will function as a full-featured content management system allowing non-technical users in GoJ ministries and agencies to put content on-line quickly and easily and with minimal-to-no technical skills.
- Since the e-government portal will act as the one-stop access point to GoJ information and services, portal content must be relevant and up-to-date. Just as important, content on all GoJ web sites – whether managed within the portal content management system or simply referenced by the portal website – must also be updated regularly and monitored for quality. This is essential for the GoJ e-government portal to succeed in creating a positive impression of Jordan, and in meeting the key business objectives outlined later in this document.

1.2.3 Organizational and Human Resource Challenges

Portal management is more than a technology problem: it is an organizational and human resource challenge as well. To create and maintain a professional on-line presence offering quality content and services, the GoJ needs an e-government content manager whose responsibility it is to maintain the portal at a high level of quality. It is anticipated that the content manager will be housed in the e-government Programme Management Office (PMO) and that position is described in more detail later in this document.

Though the content manager will be responsible for maintaining the structure and usability of the portal website, external GoJ agencies or ministries must provide, create, and maintain the content related to their organizations. The e-government portal will have a difficult time succeeding if external ministries, which are called external content providers later in this document, do not provide quality content (either within the portal itself or on their external websites) and keep the content current. This type of inter-ministerial collaboration on a project of this scope may be unprecedented in the GoJ, but such cooperation is a critical success factor for the e-government portal website.

The commitment from GoJ ministries and agencies does not stop at the organizational level. Staffing and human resource plan in every GoJ organization must insure that trained and qualified personnel are in place to fill the important role of content provider for the e-government portal and for each agency's web presence. Job descriptions must reflect the responsibility of maintaining a quality web presence at the level of each ministry and for the GoJ as a whole.

1.3 Business Objectives

In describing the scope of any software project, it is essential to begin by considering the non-technical objectives of undertaking the project in the first place. In the case of the GoJ e-government portal, the following objectives have been identified:

Availability of Information – The primary business objective of the GoJ e-government portal is to increase the availability of, and broaden access to, the information, content, and services that the GoJ makes available online to the general public and GoJ employees. Many different clients and customers stand to benefit from easier access to GoJ information: Jordanian citizens (both inside and outside the country), foreign investors, potential visitors to Jordan, and government employees themselves are just a few examples.

Efficiency of Finding Information – A second objective of the e-government portal is to allow clients and customers to find relevant GoJ information faster and more efficiently than they can now. The GoJ's clients and customers, as well as the government itself, stand to benefit from the efficiency of paperless information.

Marketing of Services – The e-government portal website will also provide an on-line marketing platform for the GoJ to make its services known to its constituents and clients, and will contribute to the GoJ's goal of improving customer service by making it easier to find and access government information. The e-government portal website is also a first step toward the implementation of customer 'self-service.'

Other – The e-government portal website may also contribute either directly or indirectly to the attainment of other important goals of the GOJ. The portal website may contribute to increasing the flow of foreign exchange into Jordan by providing a more efficient environment for the promotion of foreign investment and tourism. Further, it is anticipated that the lion's share of portal website design, development, and maintenance will be performed by local Jordanian firms. This will contribute to job creation in the technology sector and promote the growth of Jordanian technology firms.

Helping Users Find the Information They Want

The organization of the e-government portal website is the most important aspect of the implementation. Users must be able to easily find the information that is most useful to them or they will not return. Not only must the site allow user to find the service, the site must also contain information that is useful to them.

The table below provides the latest Pew research on what visitors to U.S. government web sites are looking for. These particular content categories may apply more to non-Jordanian than to Jordanian users, but the GoJ e-government portal, at least initially, may well have more users in the former category than the latter. At any rate, the chart shows that users are overwhelmingly looking for content. Transaction-based services tend to be at the bottom of the list. The conclusion inferred is that the implementation of the content management system should be weighted toward providing and organizing a robust amount of content about government services for users to find the site useful. Offering extensive transaction-based e-government services would not appear to be a critical success factor in the short run.

What site users do at agency web sites	
<i>The percentage of those who use government web sites who have ever done these activities at government web sites ...</i>	
Get tourism and recreational information	77%
Do research for work or school	70%
Download government forms	63%
Find out what services a government agency provides	63%
Seek information about a public policy or issue of interest to you	62%
Get advice or information about a health or safety issue	49%
Get information about potential business opportunities relevant to you or your place of employment	34%
Send comments about an issue to a government official	34%
Get information or apply for a government job	24%
Get information about elections, such as where to vote	22%
Get information that helped you decide how to vote in an election	21%
Get information about a lottery	21%
Get information about or apply for government benefits	20%
File your taxes	16%
Renew a driver's license or auto registration	12%
Renew a professional license	7%
Get a fishing, hunting, or other recreational license	4%
Pay a fine	2%
Pew Internet and American Life Project, Government Web Site Survey, September 5-27, 2001. N=815, Margin error: +/- 4%.	

2 Vision

2.1 Vision Statement

The dictionary defines portal this way:

Portal (pôrtl) noun :

- A doorway, an entrance, or a gate, especially one that is large and imposing.
- An entrance or a means of entrance: *the local library, a portal of knowledge.*

An Internet portal is an entrance as well. It's a place to go to find a wide range of services, content and commerce offerings in one convenient location. Like the models of consumer portals described above, the e-government portal is an entryway to the services and content that ministries, departments, and GoJ organizations offer users –both internal and external. Specifically, the portal website will be:

- A centralized online center where all government organizations, ministries, and agencies can publish content and make available information and services useful to users inside and outside government.

- An online center where users can find government information or services through an organized and searchable interface.
- “One-stop shopping” for government services, from the viewpoint of both the content provider and the information consumer.
- A web development environment where government organizations, ministries, and agencies with minimal technology skills can create high quality web content with a standard and professional look-and-feel, while avoiding the cost and complexity of establishing their own internet presence.
- A technical environment in which improved business processes can be exposed on-line.

2.2 Strategy: Next Steps

2.2.1 Planning and Management

Local IT firms will provide technical staff for the development and implementation of the portal website (see the following section). A project team, consisting of staff from local IT firms, AMIR ICTI component, the e-government PMO and from devIS will be formed and will jointly agree to an overall project plan for the implementation of the portal website.

The local IT firm will provide a system development life cycle document and a project timeline with milestones and dates for review of project progress. devIS and AMIR ICTI will take responsibility for reviewing each cycle to insure the quality and timing of system delivery.

2.2.2 Engage Local Information Technology Companies

In mid-June 2002, five Jordanian IT companies will be selected to perform technology tasks for the AMIR program on an Indefinite Quantity Contract (IQC). One of these tasks is the e-government portal website. Immediately after award, one or more of these firms must be selected to begin design and implementation of the portal website.

After the IQC contract awards, task orders must be developed by devIS to get the proper firms from the IQC pool involved in portal design and implementation as soon as possible.

It may be advantageous to select more than one firm to work on the portal website depending upon how the project is divided. For example, one firm may work on the G2G part along with its internal personnel directory, while another firm might develop the G2C and G2B sites. If multiple firms are assigned pieces of the task, tight coordination and management among them will be required.

2.2.3 Government-wide Coordination and Organizational Requirements

Government-wide participation in providing and maintaining content is critical to the success of the portal website. The cooperation of virtually every ministry and agency in the government will (eventually) be needed to insure success. It is anticipated that the PMO will assist with, or take responsibility for, eliciting and organizing the participation of GoJ ministries and agencies in the portal project.

The failure to obtain active cooperation and input from all required GoJ agencies and ministries is a huge task which, if not completed, will make it very difficult, if not impossible, for the portal website project to succeed.

2.2.4 Select Content Management System

A major component of the implementation process is the selection of an off-the-shelf CMS that satisfies the requirements of this document. It is assumed that there will be more than one product that will satisfy the requirements and will be available through local procurement. The CMS selection and procurement will be a key deliverable for the website development firm(s) as a product of the design process.

It is anticipated that there will be a review and selection of the COTs CMSs to select an appropriate system given the portal website's requirements. However, that does not necessarily mean that this must be a lengthy RFP process as it is likely that there is a rather large subset of these CMS packages that will fulfill the requirements. On the other hand, it may be legally necessary to perform the RFP

process due to procurement requirements. Likely, the procurement rules will likely dictate the method for selecting the CMS.

2.2.5 Design Portal Website / Coordinate with Enterprise Portal Architects

This document lays out a high-level vision and broad scope of the portal website project. The next key step is to move from vision and scope to a detailed design that can be implemented in a timely fashion, producing a professional, usable, and useful portal websites for both internal and external use – and all of that by the October 2002 deadline. The design must be strong in the principles of information architecture, in standard web site design, and in integration with key elements of the enterprise portal architecture now being designed by EDS.

As noted throughout this document, there are key areas in which the portal website will interact with or overlap with services in the enterprise portal architecture: central authentication, content management, enterprise directory services, email, and others. Therefore, it is essential that the portal website designers work closely with enterprise portal architects to insure that coordination on these key points is managed properly.

2.2.6 Portal Website Build

The final step in the process will be the build-out of the portal website itself. The build may be of a single, multipurpose site aimed at G2G, G2C, and G2B users, or it may consist of more than one site if designers propose separate sites for internal- and external-facing functionality. Whichever strategy is chosen, the build-out must be completed by the October 2002 deadline.

2.3 Assumptions and Risks

The following is a list of assumptions about the implementation environment where the e-government portal website will be developed. The failure of the validity of any of these assumptions will likely impact the ability to implement the project in a timely manner and within budget. These assumptions are the starting point for the risk analysis that the implementing firm will conduct during the design phase. Suggested mitigation efforts are also included to provide guidance for designers.

- **Assumption/Risk:** Government organizations, agencies, and ministries will participate in portal maintenance by providing and updating content on an on-going basis. The updating and maintenance to which we refer may be performed within the e-government portal content management system, or on other systems maintained externally. Stale, outdated content, whether within the e-government portal itself or on a linked external system, will have a negative impact on the usefulness and general impression of the GoJ e-government portal in general. See Section 1.2.3 Organizational and Human Resource Challenges.

Mitigation: The e-government portal website cannot succeed in presentation a single-point-of-entry, professional interface to GoJ information and services without full active cooperation from all GoJ websites, current or planned. So there is no remedy if this assumption does not hold.

To avoid this problem, it is recommended that the change management specialists in the PMO be enlisted immediately to deal with this critical issue.

- **Assumption/Risk:** It is assumed that GoJ organizations, agencies, and ministries will designate one or more employees whose job it is to act as web content provider for the portal, or for the organization's external website, and that that person will work closely with the content manager to maintain high-quality on-line content for the GoJ's on-line presence. The content manager must be able to identify, train, and provide ongoing support to these external personnel.

Mitigation: This is also a critical success factor. See previous Mitigation.

- **Assumption/Risk:** The position of content manager will be created within the e-government programme management office (PMO) to manage the configuration of portal content management software, revise portal structure and content in response to changing user needs and requirements, monitor portal operations to insure that content – both inside the content management system and in externally linked government sites – is regularly updated.

Mitigation: The e-government portal cannot succeed without a strong manager to maintain the portal, coordinate the contributions of external content providers, and provide the leadership

needed to create and maintain a professional on-line presence for the GoJ. Discussions with the MoICT e-government team and the team currently creating the PMO resulted in agreement that the position of content manager should be created in the PMO. Another recommendation would be to have the implementation Information Architect serve as the Content manager for the first several months of operation and overlap with the permanent Content manager to provide an effective transition. This assumption requires follow up immediately when the design phase begins.

- **Assumption/Risk:** Content management software will be procured in a timely fashion and at reasonable cost, and will meet the requirements outlined in this document.

Mitigation: Two things need to occur to fulfill this assumption: a survey of existing content management systems needs to occur immediately to assess which CMS product meets the requirements of this document, and 2) that survey needs to be coordinated with the designers of the GoJ enterprise portal architecture to insure that the CMS chosen integrates as required with all necessary elements in that architecture.

- **Assumption/Risk:** The secure government network (SGN) will be operational by mid-September 2002, if it is required for the G2G segment of the portal website. If it is determined that secure network access to the portal website is not required in the initial design, absence of the SGN will have no effect on the portal website.

Mitigation: There is little that e-government portal designers and implementers can do to mitigate this risk for the G2G segment. MoICT e-government personnel and the PMO must see that the network is in place if it is needed.

- **Assumption/Risk:** The PMO will be staffed and functional by the end of July 2002.

Mitigation: If the PMO is not operational by the time the e-government portal is deployed, the GoJ must outsource portal management to a private company. It would make sense to contract with the portal designer/implementer for this service.

- **Assumption/Risk:** Supporting technologies will be developed and maintained outside of the portal content management system: in particular, it is anticipated that the e-government portal will need access to an enterprise directory service, user authentication service, and government-wide email. Other needs may arise during system design. It is noted that portions of the portal website may not be effected if this assumption is false (for example, large portions of the G2C and G2B will be unaffected if the authentication service is not implemented.)

Mitigation: Mitigating this risk requires tight coordination with the designers of the enterprise portal architecture and close supervision of architecture build-out by the PMO.

- **Assumption/Risk:** A local vendor will be able to implement the portal solution as described.

Mitigation: There is little that can be done to mitigate this risk. The assumption is that a qualified firm will bid on the AMIR 2.0 Indefinite Quantify Contract (IQC) procurement, will be awarded a contract under the IQC, and will have personnel available to implement the portal solution in the timeframe required.

3 Portal Framework

One of the main visions of the e-government portal is to create a website that is at the heart of user interaction with the government. It is an ambitious task to create a central framework for organizing and presenting information and services provided by the entire government. The National Information Center in Amman has created a static website catalogue of known government services, but static web pages are not enough to satisfy the requirement presented for an e-government portal website. The portal website must be a sophisticated and interactive web-based application designed to reach targeted users with timely and accurate information.

Given the very short timeframe for implementation of the portal, a commercial off-the-shelf content management system will be implemented to serve as the architecture for e-government portal website. The content management system can meet the need to make available government information and services to targeted users by delivering content through multiple devices. The content management system will provide a data repository of published content supplied by various government ministries

and departments. The content database is described in predefined metadata that ultimately enables personalization and search capabilities for the end-user. The content management system will also help establish a methodology for collecting and organizing information provided by governmental organizations to better manage the organization of content.

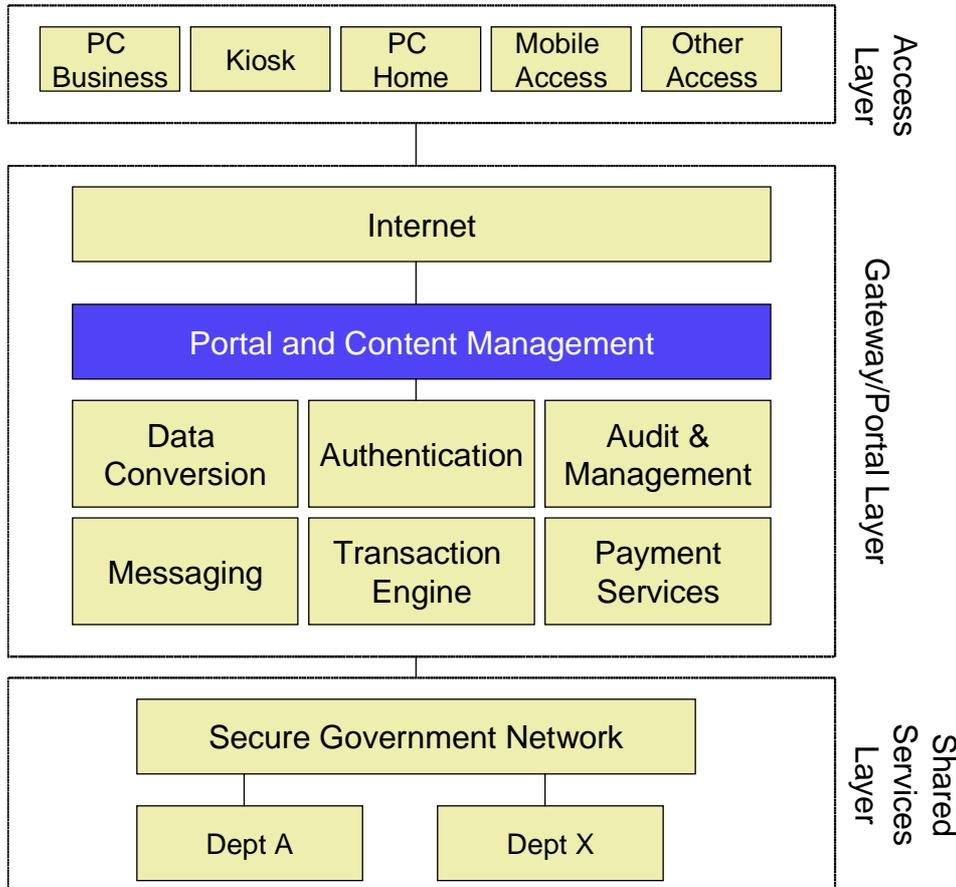


Figure 1: Content Management is one building block of the e-Government Blueprint

The implementation of a content management system is a building block in the implementation of e-government. Figure 1 displays the key elements of the Jordanian e-Government Blueprint and Roadmap and the relationship of the content management system to the other parts. It is noted that other parts of the Gateway/Portal layer, an example of an enterprise portal architecture as described in Portal Definition section, may or may not be implemented when the portal website and content management environment is built. However, it is required that each of these modules be able to interact with each other when they are implemented.

Decentralization is the key to content management: putting control of content collection and publishing into the hands of the local ministries and departments who are actually providing government services. IT skills are too valuable, expensive, and scarce to be used to manage non-technical tasks such as content provision. The content management system approach will help strike a balance between empowering government organizations and maintaining control. It allows non-technical content providers to put information on the portal without having to go through the webmaster bottleneck.

Implementing the content management system allows the content providers to quickly and easily update content without having to learn software programming or web development techniques. In addition to empowering the ministries with ownership and control of their content, the quality and cost of portal management will improve dramatically.

In a content management system, content is stored separately from its publication format. Templates allow the content manager to define format, style, and layout rules apart from the content itself. As a result, content can be published on different pages, or even different Web sites, using the template-driven formats. Changes to the templates automatically propagate changes throughout the entire site.

Figure 2 provides a context diagram for the implementation of the e-government portal using a content management system. Specific individuals at ministries and other government organization supply content for their organizations. The content manager, residing in the PMO, operates as a gatekeeper, ensuring the appropriateness and timeliness of the content provided by all providers. The content manager also serves as the architect for defining the taxonomy and organization of the presentation layer for content display. End users can browse and search or otherwise gain access to content using a web browser other device, such as email or a messaging system.

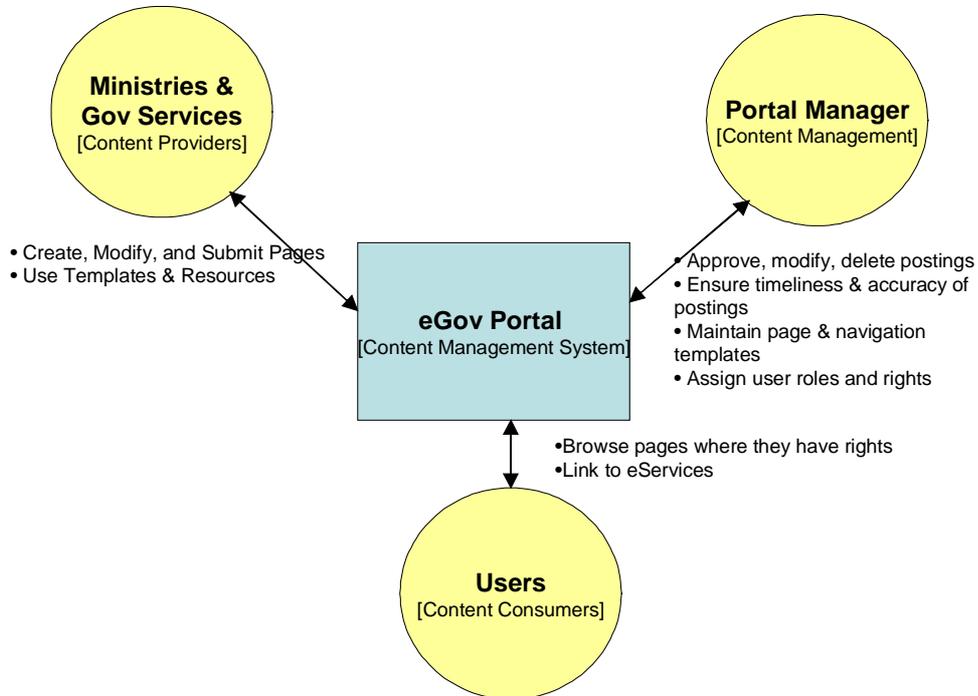
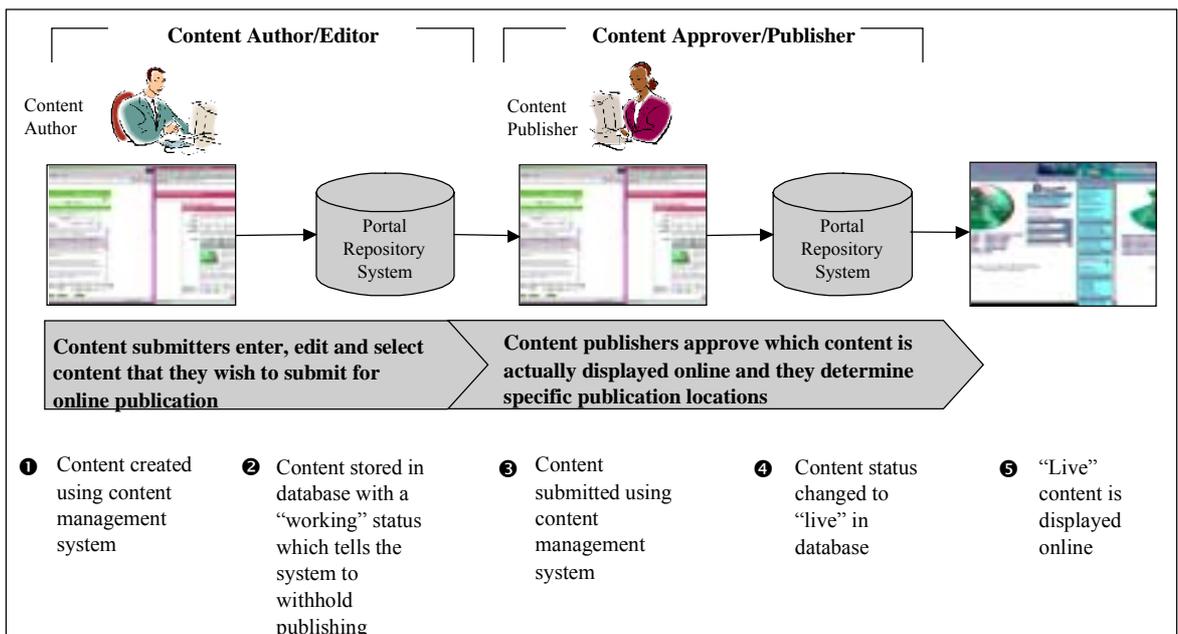


Figure 2. E-Government Portal Context Diagram

The content management process can also be viewed as a step-by-step process where the CMS facilitates the



traditional quality assurance and editorial process associated with content:

3.1 Look-and-Feel Design

The look-and-feel of the e-government portal – its use of standard graphics, color, logos, symbols, page layout, and other creative aspects of website design – is an issue that needs to be addressed early in the design phase. A standard look-and-feel was created for two GoJ e-government fast-track projects* implemented in 2001. The original intent was to use the look-and-feel not just for those projects, but also for an eventual portal design.

This document assumes that the TRC and MIT/CCD look-and-feel will be used for the e-government portal as planned. Given the short timeframe for initial deployment of the portal (October 2002) there will not be time to re-design a new look-and-feel.

3.2 E-government Portal Implementation Framework

Figure 3 provides an overview of the implementation framework for the e-government portal with a content management system. The content management designer needs close participation from ministry personnel (subject matter experts) to determine the type of content that portal website contains. This results in the definition of the metadata needed for implementation of the content management database. As the data is collected, the designer creates taxonomies of the content to determine logical links between content elements and provide logical access links for users. Information architects define and manage this process so that the final result is a website that allows users to find the information they are looking for with a minimal number of “clicks”.

	Content Development	Content Management	Content Delivery
Key Components	<ul style="list-style-type: none"> • Content Authoring • Digital Asset • Acquisition & Management • Content Inventory • Ownership 	<ul style="list-style-type: none"> • Content Administration • Workflow Management • Content Access & Security • Integration with Existing Websites 	<ul style="list-style-type: none"> • Web Browsers • Electronic Devices (e.g., PDA & Wireless) • Other Emerging Technologies
Personnel Required For Implementation	<ul style="list-style-type: none"> • Organizational & Subject Matter Experts • Domain experts (Finance, Human Resources, etc.) 	<ul style="list-style-type: none"> • Information Architect • PMO Content manager • External Content Providers at ministry/agency level 	<ul style="list-style-type: none"> • Web Designers & • Human Interface Experts

Figure 3 – e-government Portal Implementation Framework

3.3 E-Government Portal / Content Management Requirements

It is envisioned that the e-government portal website will be powered by a commercial off-the-shelf content management system package. The comprehensive capabilities of existing content management system packages on the market vary widely. However, the requirements for the portal website are quite

* Telecommunications Regulatory Commission’s (TRC) apply-on-line licensing application, and the Ministry of Industry and Trade/Company Controller Directorate’s (MIT/CCD) on-line business registration application

basic. The following list represents the basic requirements that the content management system package must provide out-of-the-box without requiring any technical or programming skills:

- **Templates Management** – Allow content contributors at government organizations to build and contribute formatted content in templates
- **Meta-data** – Create custom meta-data properties on content and allows users to profile content as it is being created
- **Personalization** – Serve personalized web pages, assembling content and design elements for individual site visitors using profiles or authentication or both.
- **Lifecycle Management** – Scheduling tools for users to schedule content publication and archival times
- **Archiving of Content** – Scheduled or manual placement of outdated content in an archive for future use or future reference. Archiving may occur automatically.
- **Workflow** – Workflow control functionality that allows the content manager to edit and approve submitted content
- **Multiple-Templates/Websites** – Allows content to be published through multiple presentation templates to multiple locations or web sites
- **Centrally managed templates** – Provide for centrally managed, reusable templates for adherence to e-government publishing policies and standards
- **XML Support** – Allow building templates, publishing content in XML format
- **Caching** – Intelligent caching to enable clustering of dynamic content servers
- **External Storage** – Content is stored in leading RDBMS as re-usable objects
- **Multi-lingual** – Support for content in both English and Arabic
- **Search Engine** – Full-text indexing of the portal website content, and of all external GoJ website content. Search engine functionality may have to be provided by an external search engine technology. Some CMS search engines can index and track content on external sites; some cannot.

3.4 Portal Management

3.4.1 Content Manager

The content manager is a person in the PMO with overall responsibility for management and maintenance of the e-government portal website. The content manager is responsible for the following:

- Configuration and maintenance of portal content management software
- Creation and maintenance of portal-specific and government-wide content.
- Ongoing revision of e-government portal structure, design, and layout to constantly improve usability and editorial qualities.
- Monitoring of portal content, and the content of externally linked GoJ websites, for timeliness, appropriateness, and quality.
- Liaison, trainer, and technical support person for external content providers in other GoJ ministries, agencies, and organizations.
- Assigning users to groups, and giving groups rights to content containers
- Creating page templates used by authors to create pages, navigation templates (which control the navigational elements to a site), and design the interface to browser-based clients
- Manage resource galleries, which contain images, videos and sound files for use by authors and page template designers

The position of content manager is not a technical position per se. The content manager must have good analytical and information architecture skills and needs to know the basic workings of the content management system in order to manage the portal website

3.4.2 Workflow

The content management system provides a method for streamlining the publishing process so that content moves quickly and efficiently from origination through the development and approval processes into production. The content management system accommodates any self-defined workflow, from the most simple to the most complex. For the e-government portal website, the initial workflow process consists simply of the author submitting content to the content manager for approval and posting. This process can change easily as the portal website evolves.

The content management system supports the notification of content contributors via email, as workflow steps are completed. The author's work processes are simplified this way, as they avoid having to check a separate system for new assignments, content approval or any other step in the process. The system further simplifies the author's work processes by allowing them to respond via email to workflow requests (such as "approve", "don't approve", or "pass").

3.4.3 Lifecycle Management

Sometimes, content is to be published to the portal website at a specific time, or removed from the site by a specific time, or both. This timing can be critical, sometimes for legal reasons. The content management system provides two features that support lifecycle automation: the ability to conduct scheduled releases of content, and the ability to set an expiration date for content. Both automated processes ensure that content is published and expired on time, without manual intervention.

3.4.4 Security

User security controls the content contribution process by ensuring that only authorized personnel have access to specific areas of the site and specific elements of the content (i.e. "scope"). The content management system has a "groups and users" security model that makes user role and scope attributes easier to administer.

3.4.5 Audit Trail

The content management system has an audit trail capability to provide a record of content activity and offer the ability to trace the path of changes. If a record of activity for research purposes is required, the audit trail allows users to see who has created or modified content, when it was done, and what was done. It offers accountability for content and can prevent future errors.

3.4.6 Directory Services

Authentication (user log-in/identification) for the portal website's content management system will be handled by an enterprise directory service. It is anticipated that the directory service will be built into the enterprise portal architecture now being designed by EDS. Portal website designers must create an authentication mechanism that interfaces correctly with the enterprise directory.

It is anticipated that authorization (what the user can do once authenticated) will be handled by the content management system.

Authentication for the G2G portal will also be handled by the enterprise directory service. Authorization for access to G2G-only information or personalization may also be handled by the enterprise directory, but that is a decision for the enterprise portal architect and the portal website designers.

Central authentication for GoJ transaction-based applications should be addressed and planned for in the portal website design, though there may not be time (or a pressing need) to implement central authentication for the initial portal website release in October. There appear to only be two public-facing web applications operating in the GoJ: TRC apply-on-line for telecommunications licenses and CCD business registration application. Both those application have authentication and authorization implemented internally.

3.4.6.1 Personnel Directory – G2G Only

The G2G (or G2Employee) users will be able to search a detailed personnel directory and identify individual government employees by organization, phone number, email, or physical address. It is anticipated that this data can be maintained in the enterprise directory's LDAP implementation, but this needs to be coordinated with the enterprise portal architect and the designer of the enterprise directory. The personnel directory can be viewed as a feature of the G2G portal and will provide an interface into the enterprise directory service, allowing search by name, organization, and location.

This service is only useful if it rapidly becomes the primary service as a personnel locator across the GoJ. Thus it is recommended that coordination of data collection and data entry for the personnel directory be treated as a separate task from the portal website or the enterprise directory services.

Due to privacy concerns yet to be clarified, it was advised that this name search and direct individual contact information not be provided to the public at large, but be reserved only for GoJ employees.

3.4.6.2 Organizational Directory – G2G and G2C/B

The enterprise directory will provide access to contact information for GoJ organizational units. This organization directory (without access to GoJ employees by name) will be made available to public users. The portal website will provide an interface to access the organizational directory via LDAP/enterprise Directory. As with the personnel directory the implementation of the organizational directory should be treated as a separate Task. It might be advantageous for one local IT firm to implement the personnel and organizational directories as two related sub-tasks.

3.4.7 Scalability

As the volume of content added to the repository and the number of people using the content management system increase, the content management system database will scale to accommodate the growing needs of the e-government portal website. This requires that additional storage devices and or servers be added to the production architecture. Since the content management system data uses leading RDMS technology, this task is simplified. The storage of content appears seamless to the user with the servers and storage devices invisible to the user.

3.5 Presentation

3.5.1 G2C, G2B, and G2G Interfaces

The e-government portal will be the central point-of-entry to GoJ on-line services for users outside and inside government. There will be some commonality between the information needs of both internal and external business or citizenry users; however, there will also be significant differences. A common feature of consumer portals is to present specialized content taxonomies for different classes of users (i.e. customers). The GoJ Portal will provide this type of capability.

An issue that needs to be addressed early in the design phase is how to physically address the logical presentation layer for the different classes of users of the e-government portal: government employees (G2G), business users (G2B), and the general public (G2C).

The portal designers will have several options; here are just a few:

Portal User Class	Comments
G2G - Private - Government Employees	This Portal may be physically separate from the Public Portal, but that decision is best left to portal website designers and the enterprise portal architect.
G2B – Public - Jordanian and International Businesses	This Portal may be simply a filtered logical view of the Public content or it could physically be separate.
G2C – Public - Jordanian Citizens and Other Consumers (i.e. foreign visitors, researchers, etc.)	

Information architects will have to determine early in the design process the need for separate interfaces, based on the real separation of content into user-class categories, and how best to handle this issue from the perspective of presentation, taxonomy of subject areas and information access requirements.

3.5.2 Personalization

The ability to sort content and deliver it, customized, increases the likelihood that site visitors return. Metadata that is created during the content authoring process makes personalization possible, and the content management system plays the important role of creating personalization-ready content. The content management system provides the capability of tailoring the presentation of content to a specific group or individual based on characteristics of that group or individual. In the initial phase, it is expected that the level of personalization will be limited and likely only focused on the G2G Portal; however, the content management system will allow personalization to be implemented to a greater level of detail as it evolves in subsequent releases.

3.5.3 Design Page Schematics

Once different types of content are identified, the information architect determines how it is to be displayed on a web page. Elements of usability are considered, as well as the nature of the content and the nature of the audience. Page schematics may vary from drawings to sketches to block diagrams. They are a first run at organizing the display and linkage of information so it is easy to read and visually pleasing.

3.5.4 Forms

The content management system provides the capability to present easy-to-use forms that give remote and non-technical authors a quick way to submit content. The forms guide authors through the process of entering content in the way that the content management system expects them to structure it. This provides a foolproof way of ensuring that they add the appropriate metadata to the content, as necessary. During the initial implementation phase, forms are created that will contain the minimal information that each government organization will need provide on its website. The minimal information that is provide for each website will ensure that the end-user will always come to some type of satisfactory conclusion from their search, even if it leads to a phone number or email account.

3.5.5 Templates

The use of templates allows authorized members of an organization to contribute content to a website using pre-established templates developed by a web page designer. The template is combined with the content at deployment time to provide the presentation of the content. By developing templates, the web page designer controls the look and layout of the entire web site (or multiple web sites) and designates areas that can be populated with content. One common web page template, for example, “locks down” the banner and navigation portions of a page, but allows the author to contribute to a section designated for page-specific content. In addition to the benefit of providing a consistent look-and-feel, templates offer the ability to reuse page specification to create multiple pages in a site. This frees the web page designer from involvement in the development of every Web page on the site.

The content management system provides the ability to not only develop templates, but to manage the templates themselves as content. With page templates, a non-technical end user can use familiar desktop applications such as Microsoft Word to create or update pages. The content management system shields the end user from complexity by combining the template and content document into an HTML file ready for publication.

3.5.6 Delivery Devices

Web Browsers

At the most basic level, the content management system provides universal access to content and features through a browser interface. Content contributors across the government range in profession, resources and skill. Users throughout the world overwhelmingly prefer to access information via their web browsers. Therefore, anything other than browser access is a significant barrier to use of the system.

Other Delivery Devices (Wireless, PDA's, etc.)

An inherent advantage to a centralized content management system is the ability to reuse and publish content to a variety of access devices such as PDAs, messaging devices, or telephones. Though the content management system has this basic capability, the initial release of the content management system only supports Web-based publishing. The implementation of publishing to other devices will evolve in future releases.

3.5.7 Dynamic and Static Web Pages

Web page publication methods are either static or dynamic, depending upon the approach required by the needs of the organization. Although sites are increasingly using a dynamic approach to content publication, many sites require only static publication for the type of content they currently publish. In static publication, HTML pages are generated by the content management system by merging contributor content with page templates. The resulting static pages are then presented to site visitors. This method is ideal for pages that do not change often: they are served faster and can easily be cached in memory, giving site visitors a faster page viewing experience.

Dynamic pages are pulled together when they are requested by a site visitor. The content for dynamic pages comes from a database and the content presented varies depending upon the request or query. In dynamic publication, requested HTML pages are generated on demand by the content management system or Web application, based on the page template and the content elements defined within. Content that changes frequently or is personalized for each user requires dynamic production.

One ministry may need dynamic page publication for the type of content it delivers. For another ministry, static publication without dynamic or real-time publishing may suffice for the time being. The content management system has the capability to handle both types of pages with a minimal amount of programming.

3.5.8 Language

The e-government portal website must be able to store content in both English and Arabic with as minimal extra effort as possible. The main challenge is creating appropriate meaningful indexing and organization as possible, though that may not always be possible.

3.6 Taxonomies, Categories, and Searching

3.6.1 Searching

There are several options for providing search capabilities in the content management system. The content management system provides the capability to perform full-text searches for content stored within the content management system database. For websites not configured in the CMS database,

industry-standard Web and intranet indexing software packages, such as Microsoft Site Server, will be implemented. These packages are designed to “crawl” websites and produce a local index for external websites. For a Web crawler to be able to index a page, it must get to that page through a series of hyperlinks, which originate ultimately from the designated root URL(s). The indexing software searches the links of specified pages and creates searchable indexes that provide the capability for users to find the information that they are looking for.

Today search technology allows for search engines to index all forms of data, be it HTML pages, Word documents, RDMS databases, etc. Once given the access rights search indices can be built on all data storage devices.

3.6.2 Taxonomy

Information architecture involves the design of organization and navigation systems to help people find and manage information more successfully. In doing so, the Information Architect needs to define taxonomies for the content provided by the authors. Taxonomies are often referred to as categorization schemes. Each refers to grouping together similar items into subject areas then can be grouped together into broader hierarchies. An example of this is Yahoo’s Subject Index.

The content management system allows content to be categorized as it is placed in the repository and subsequently located with ease. The content management system allows content contributors to create content categorizations for their content. The system also allows a contributor to search and locate content via these categorizations. After the content is published, site visitors are able to find the content they request from the site via the search engine.

The utmost benefit to taxonomies is better usability. Appropriately constructed taxonomies simplify the process of gathering the “right” information for use by simplifying the vocabulary used in the search process. Tagging systems using subject category strategies can greatly improve user hit rates. The following list provides preliminary subject areas for the top level subject area envisioned for the e-government portal website.

3.6.3 Initial Subject Area Taxonomy

The following list is preliminary categorizations for content that may be provided for the GoJ Portal Website:

- Business & Industry
- Transportation
- Agriculture
- National Resources & Environment
- Health
- Education & Training
- Tourism & Recreation
- ICT
- Law and Justice
- Budget & Finance
- Housing & Land Management
- Labor & Employment
- Culture
- Municipalities
- Science/Technology
- Planning

- Utilities
- Licensing

By no means is this list considered to be complete or set in stone. The information architect may determine that a completely different approach is needed. This list is provided merely as a starting point.

3.6.4 Content Maps

A 'content map' is a description of the site content as it might appear to a database. Content maps sort the data by type and identify any properties or relationships inherent in the data. They also suggest links which may not be obvious in the site map. For example, the site map may suggest paths leading to departments and services; the content map (which tells you that all ministries provide services and that services are provided by ministries) suggests links between ministry pages and services pages. The content map also serves to ensure that important content is not omitted from the site. If an item in the content inventory cannot be placed into a classification in the content map, then the content map (and probably the site map) must be revised to reflect this gap.

3.7 Content Providers

3.7.1 Required Personnel

The first process in content management is the collection and input of the desired content. For the e-government portal, the responsibility for this role is at the level of each government ministry, department, and or other public organization. (See Section 1.2.3 Organizational and Human Resource Challenges.) Each of these organizations appoints a representative or team that is responsible for updating content relative to that organization. These content providers or authors are subject experts for the services provided by their organization.

A process is put into place at each organization to ensure that content is updated in a timely and accurate fashion. During the content creation phase, the author is able to tag the content for keywords, categorization, and identify the profile of users that are able to view the content. When complete, the author is able to submit the content to the content manager for review, editing, approval.

The authors need not have technical skills in order to submit content. During the implementation phase, the structure of the content data is created in a template. The end result is that the author merely fills in the pre-defined template in order to submit content. The template further defines the final look-and-feel of the content (see Templates) so the author does not need to know HTML.

3.7.2 Ministry Websites

Several ministries currently have existing public websites that provide a wide range of information to the public from ministry to ministry. Further, the quality of user experience for each site varies from poor to good in terms of interface quality, data timeliness, presentation, and integrity. Currently, a public user seeking information on the web can expect an inconsistent experience with different government organizations on the web. That is precisely the problem the e-government portal with content management is designed to solve.

One of the main goals of the portal is to provide a consistent and satisfactory end-result from searches, as well as a common look and feel across all departments. This could be achieved by requiring all ministries to port the content or their existing websites into the content management system. Following this, they could shut down their existing websites and then let the content management system manage their website content. However noble this goal may be, there may be other extenuating reasons why a ministry may not want to port their content into the content management system. Because of this, the architecture allows for ministries to host their own web-sites. The content management system simply provides links into these websites as needed. This requires that the search functionality be able to not

only search the Content Management database, but also be able to “crawl” these ministry pages in order to return meaningful searches for the user (see Search Engine).

It is also noted, there exist transactional and database lookup services on several ministry websites. These services need to continue to reside on servers outside of the content management system. The content management system simply links to these services so that the end-user has the perception that the e-government portal website is providing the service, the service is physically outside of the portal domain.

4 User Classes

The following classes of users have been classified as priority users for the initial release of the portal website.

4.1 Government Users

4.1.1 Content manager

See Section 3.4.1 Content Manager for details.

4.1.2 Content Providers

Government employees responsible for creating and maintaining web content for their respective government organizations, agencies, and ministries. Content providers can either use the portal content management system to create a website within the e-government portal environment, or maintain an external website which is included in the portal’s services directory. Both are considered external content providers.

4.1.3 Government Users

Civil servants, employees, or contractors of the GoJ authorized to access the G2G features and content of the e-government portal, but who are not authorized to add, edit, or delete content from the portal.

4.2 Public Users

Public users included all users who are not in the Government Users class described above. Public users have been further subdivided into these categories.

4.2.1 Individual Users

- Jordanians citizens
 - Living in Jordan
 - Living abroad
- Non-Jordanians
 - Tourists
 - Researchers
 - Journalists

4.2.2 Business Users

- Jordanian Businesses and Investors
- Foreign Businesses and Investors

5 Initial Scope – Functional Requirements

This section provides a listing of the features that the initial e-government portal framework must provide for its various user groups.

5.1 All Users

This section describes features available to all users of the e-government portal, in particular Jordanian citizens, foreign tourists, researchers, journalists, business users, Jordanian businesses and investors, foreign businesses and investors, and government users. See User Classes for more information.

5.1.1 Log-in / Authentication

Users must be able to create user accounts, log into the system, and possibly see a portal presentation based on properties of the class to which the user belongs (i.e., government employee may see a presentation different from that of public users) User-created login accounts must support central authentication for all GoJ e-services. Though widespread deployment of online, transaction-based applications within the GoJ is not expected in the near future, central authentication must be designed into the initial portal release.

Not all users will have to be authenticated to access content from the portal website. For example, a public user would not have to be authenticated to look for tourist information. The use of authentication will only be required the moment the user tries to access information or services with a restricted security level (See 5.1.4 Access Transaction-based Applications below).

5.1.2 Browsing: Finding Content and Services by Subject Index

Users must be able to browse a subject area directory for government services and information, resulting in a list of links to available content on the portal or on external sites. Users follow links to the portal content or external GoJ sites. See Taxonomy 3.6.2 for a suggested subject index.

5.1.3 Searching: Finding Content and Services by Full-Text Search

User must be able to search for content by submitting queries to a full-text search engine. The search engine must index all portal content and all content of associated GoJ web sites and associated data sources. The result of the search will be a list of links to available content on the portal or on external sites. Users follow links to the portal content or external GoJ sites.

5.1.4 Access Transaction-based Applications

Users must be able to access transaction-based applications from the e-government portal. Only two such applications are currently known to exist: a business registration application at the Ministry of Industry and Trade Company Controllers Directorate (MIT/CCD), and an apply-online telecommunications licensing application at the Telecommunications Regulatory Commission (TRC), and only the TRC application is currently in use online.

Integration of transaction-based applications in the initial release is expected to consist of simple links to transaction-based applications running on an external GoJ web site (e.g. the TRC application). Subsequent releases of the portal website may include integration with more sophisticated integration

services of the enterprise portal architecture now under study. Future integration needs must be designed into the initial portal release, even if only simple linking integration is implemented.

5.2 All Government Users

This section describes features that are available to:

Government Users: Civil servants, employees, or contractors of the GoJ

Features described in earlier sections are also available to these users.

5.2.1 Log-in / Authentication

Authorized government users must be able to log into the portal using their user account in the GoJ enterprise directory service.

5.2.2 Personnel Directory - Lookup Government Employee Data

GoJ users should be able to look up names, email, mailing addresses, and phone numbers of GoJ employees and civil servants in a personnel directory service built on top of the Enterprise Directory Service. This directory, which will be external to the portal content management system, has not yet been designed or implemented. The initial release of the portal must link to this external system if it is available, or include such linking in the portal website design even if it is not.

5.2.3 Access Transaction-based Services

If and when transaction-based applications are available on the GoJ Secure Government Network, government employees should be able to access such applications from the portal website. No such transactions-based applications will reside on the portal website system itself. Integration with GoJ transaction-based applications is expected to use the integration layer described in the enterprise portal architecture currently under design.

5.3 Content Providers

This section describes features that are available to:

External Content Providers: Individuals appointed by their respective GoJ ministry or agency to provide content to the e-government portal website, or who will be responsible for creating and maintaining a ministry or agency website in the portal content management system.

Features described in earlier sections are also available to these users.

5.3.1 Add, Edit, and Delete Content

Some GoJ ministries or agencies may wish to build a website within the content management framework of the e-government portal, or otherwise contribute content to the portal. The users are expected to be non-technical employees and must be able to add, edit, and delete content without knowledge of HTML or any other technical aspects of web site development and maintenance. Content maintenance user accounts will be assigned by the content manager, who will also approve all content before it goes live on the portal website.

5.4 Content manager

This section describes features that are available to:

Government Users: Content manager only.

The content manager is a member of the e-government programme management office (PMO) unit in the Ministry of Information and Communication Technology (MoICT). The content manager is responsible for maintaining the e-government portal website and for insuring that the portal features and services meet the evolving information needs of the users described in the User Classes section above.

All features of the portal website and the underlying content management system are available to the content manager.

5.4.1 Configure Content Management Software

The content manager must be able to configure and manage the content management software on which the e-government portal is built. The content management software must provide user-friendly tools for maintenance and configuration since it is anticipated that the content manager will be specialist in architecting information presentation and content provision, not necessarily a trained technologist.

5.4.2 Add, Edit, Delete Portal-level Content

The content manager must be able to add, edit, and delete content from anywhere in the e-government portal website, including areas of the site delegated to other ministries or agencies.

5.4.3 Create User Accounts

The content manager must be able to create user accounts permitting external content providers to access and maintain designated sub-areas of the portal website. Those sub-areas can be used by external content providers to build a website-within-a-website for ministries or agencies that do not have, or do not wish to invest in, the IT infrastructure required to create a separate internet presence. The user accounts privileges must prevent the external content provider from editing or changing content in any non-authorized areas of the portal.

5.4.4 Create Templates and Revise Portal Design

The content manager or web designers under the content manager's guidance must be able to easily revise the portal design using templates that propagate structural or look-and-feel changes throughout the e-government portal website. These templates should be used also by external content providers so that consistent look-and-feel is maintained throughout the portal environment, and can be changed with minimal disruption to site maintenance.

5.4.5 Monitor and approve content from external content providers

User accounts should allow external content providers to submit content for inclusion on the e-government portal, but the content must not go live until approved by the content manager. See Section 3.4.3 Lifecycle Management for more information.

5.4.6 Monitor usage statistics

The content management system must provide standard usage statistics to allow the content manager to monitor site availability, usage, and trends. The content manager will use this feedback to revise the site to make it more useful to users.

6 Software Interfaces

This section lists the external systems with which the e-government portal must interface.

6.1 Personnel Directory (G2G) / Organizational Directory (G2C/B)

These are external systems (i.e. not a CMS function) that accesses contact information on individual GoJ users of the portal website and GoJ organizational units. This external system has not yet been designed, so the exact nature of the interface between the portal and the personnel directory cannot be known at this time. It is assumed that the personnel directory will be built on the Enterprise Directory to include at a minimum government employees' name, organization, phone number, and email address.

An Enterprise Directory is under design for the GoJ portal architecture. It is not currently known how the enterprise directory and the personnel directory will interact although it is expected that they may well be the same system – an LDAP server implementation that performs both authentication (see below) and locator functions. These needs must be coordinated with system architects currently working on an enterprise portal architecture.

6.2 Centralized Authentication

An external authentication service will be a component of the GoJ enterprise portal architecture now being designed under the Enterprise Directory Service. The exact nature of the interaction with this external service (i.e. not contained in the Portal/CMS) will have to be studied by e-government portal system designers and coordinated with enterprise portal architects.

6.3 Transaction-based Services

At the time of this writing, there are only two known transaction-based systems in the GoJ: the online licensing application at the Telecommunications Regulatory Commission (TRC) and an online business registration application at the Ministry of Industry and Trade – Company Controller Directorate (MIT/CCD). Only the TRC application is actually up and running on the internet. The CCD application is in use internally.

Integration with external transaction-based systems is thus not a high priority for the initial release of the e-government portal website. It seems likely that these modest integration requirements can be fulfilled in the initial release of the portal website by simply linking to these external applications. As more and more transaction-based systems are developed and deployed, subsequent releases of the portal will likely need more sophisticated integration. This need should be attended to by the initial design of the portal website, and coordinated with the designers of the enterprise portal architecture.