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Challenges to the Jordanian Electronic Government Initiative

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Abstract

This paper aims to present a number of key challenges to the Jordanian Electronic Government Initiative as a precursor to embracing mobile government (the future electronic governmental service provision). The first wave of electronic governmental services was delivered through the web as the sole communication channel. Despite the limited success of a small number of governmental entities to utilise such a communication channel, the very limited penetration of the Internet in Jordan has dampened such cases of success and pushed key decision makers at the Electronic Government Initiative to consider more popular alternative communication media. This paper reflects on Jordan's past experience with electronic government to identify lessons learnt to be carried on to future mobile and second wave of electronic governmental service provisions.

Keywords

e-Government, m-Government, Strategic IT initiative, e-Readiness, Infrastructure, Liberalisation, Channel Reach and Richness.

Introduction

The emergence of the Internet and Mobile/Cellular communication media has changed the landscape of governmental service provision and future communication between governments, citizens, organisations and other governments. The emergence of such communication media has opened up the space for unlimited number of key applications and Information Systems namely electronic governmental service provision. Electronic governmental service provision can be perceived as an implementation of electronic business within governmental domains from an operational point of view. Such electronically mediated content delivery and service provision is supposed to lead to a number of benefits for individuals, businesses and governments namely: global service delivery, higher visibility at lower operational costs, stronger business relationships, shorter time to market, better customer loyalty, real time training and conferencing; personalised goods, easier to promote products and/or services and faster to disseminate information (Amor 2002 P17, Lawrence et. al. 1998, Turban et. al. 1999 P15, Simpson and Swatman 1998, Abu-Samaha 2005).

The adopted definition of e-Government in the Jordanian initiative is "the ability to submit [governmental] transactions on-line and make payments electronically where they are required" (MoICT, 2000). The use of electronic services and channels to provide governmental transactions and content has been considered as a powerful tool to improve internal managerial efficiency, public service quality and public participation (Moon 2003, Lawrence et. al. 1998 P8). The eEurope 2002 Action Plan indicates that e-Government "could

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transform old public organisation and provide faster, more responsive services. It can increase efficiency, cut costs, increase transparency and speed up standard administrative processes for citizens and business" (eEurope, 2000). Hence, it is highly believed that Information and Communication Technologies (ICT) can provide a more proactive action to handle the causes of the chronic decline of public trust in governments as Moon (2003) indicates "IT [Information Technology] appears to offer a useful opportunity to government to enhance public trust and citizen satisfaction by improving procedural transparency, cost-efficiency, effectiveness and policy participation. IT provides positive opportunities as well as many challenges to governments and the public". A conclusion emphasised by Vélez-Rivera et al (2005) who perceive electronic government systems to possess "an unprecedented potential to improve the responsiveness of governments to the needs of the people that they are designed to serve. To this day, this potential is barely beginning to be exploited".

This paper will articulate the concerns and issues surrounding the limited success of Jordan's e-Government initiative in terms of bandwidth and reach. The paper will reflect on a number of statistics and other qualitative reviews concerning previous experiences in the Jordanian electronic government initiative to establish why such a promising initiative have provided such a limited partial success. The paper is structured into a number of sections; each with its own domain of interest. The second section introduces a detailed description of the Jordanian e-Government initiative including its aims, vision and constituent ingredients. The third section provides a synopsis of the Jordanian telecommunication industry/market followed by an analysis of Jordan's readiness for electronic service provision. The fifth section provides a number of quantitative and qualitative assessments of the first wave of Jordan's electronic governmental services. While the final section provides an analysis of key issues and reasons contributing to the partial success of the Jordanian e-Government Initiative including conclusions and recommendations for the future waves of the e-Government initiative.

Jordan's E-Government Program

The electronic government of Jordan was conceived and established as a national program in the year 2000 aiming at coordinating information gathering from and dissemination to a variety of different governmental sources presented in an easily navigable format (Jordan e-Government Initiative 2003, MoICT 2000). The overall objectives of such initiative were: to improve the quality of governmental service delivery, to increase transparency, to improve responsiveness, to save time, money and other resources and to create positive spin offs (MoICT, 2000). While the initiative's vision can be viewed as "delivering services to people across society irrespective of location, economic status, education or ICT ability" which will eventually transform the government and contribute to economic and social development through transforming the way citizens, businesses and other entities interact with the government (MoICT, 2006a).

The Jordanian Ministry of Information and Communication Technologies (MoICT) was assigned to take the lead role in implementing the e-Government Program. MoICT's mission towards e-government is to provide support and capability to coordinate the management, implementation, interoperability and benefits of the national e-Government Initiative via:

- Supporting the e-Government strategy to be implemented across governmental entities
- Participating in planning and coordinating a national portfolio of e-Government initiatives
- Maintaining technological integration and interoperability of e- Government initiatives and encourage the re-usability of application components
- Planning and implementing security policies and a secure network environment
- Promoting and monitoring organizational transformation (change management) at the ministry, department and organizational level
- Educating the Government of Jordan employees and transferring knowledge
- Delivering successful e-Government initiatives and projects that are managed by dedicated project managers
- And providing analysis and information on the status of e-Government initiatives and projects to major stakeholders (Jordan eGovernment Initiative, 2003).

In terms of achievements, the e-Government program has been involved in developing and implementing major e-Government initiatives and service, these are:

- Income tax e-service was launched end of 2004,
- Drivers and vehicle licensing e-service was launched end of 2005
- Real estate registry and borders e-services were launched mid of 2006.
- A Secure Government Network (SGN) providing connectivity for web and email services to 18 governmental entities was implemented and hosted at an operation centre established by the e-Government program.
- An e-Government Contact Centre was established to provide business and technical support to SGN administrators and different categories of e-Government services' users.
- A comprehensive information security roadmap and e-Government Information Portal was launched in November 2006. The bilingual (Arabic / English) Information Portal provides a single official access point on the internet to government information required by different categories of users, including citizens, businesses, and governmental entities and employees (Jordan eGovernment Initiative 2003, MoICT 2006a).

ICT Infrastructure Liberalization and the Establishment of TRC

National infrastructure in the form of computers and public and private networks plays a pivotal role in the realization of any strategic IT initiative. In terms of national infrastructure, Jordan has one telecommunication company, four mobile network operators and an extended number of Internet Service Providers (ISPs) all of which owned and operated by the private sector. Furthermore, the Jordanian government has issued twenty-one more ISP licenses to meet the increasing demand for high quality, high bandwidth Internet connectivity (Telecommunications Regulatory Commission, 2005; Arab Advisors Press Room, 2005).

The liberalization of the telecommunication market in Jordan started as early as 1992, which led to the establishment of the Telecommunications Regulatory Commission (TRC) in the year 1995 (Telecommunications Regulatory Commission, 2005c). The vision of TRC is "A telecommunications environment that is competitive, advanced, regulated and available to all" (Telecommunications Regulatory Commission, 2005b). While, the Mission Statement of TRC is "To ensure the availability of advanced and high quality Information and Communications Technology (ICT) services to all users at just, reasonable and affordable prices by working with all stakeholders in an independent, open and transparent manner to create a regulatory environment that promotes fairness, competition and investment, thus assuring fulfilment of the Kingdom's long-term ICT needs" (Telecommunications Regulatory Commission, 2005b). TRC's business scope includes the following services/products: Public Switched Telephony Network (PSTN), Public Mobile Telephony (Cellular), Public Mobile Telecommunications, Radio Trunking, Paging, Data Communications Services, Global Mobile Personal Communications by Satellite (GMPCS) and Pre-paid Cards Services (Telecommunications Regulatory Commission, 2005b).

Regarding Public Switched Telephony Network (PSTN), TRC regulates the service providers (Jordan Telecom (JT)) who operate and manage a fixed public telecommunication network that provides local, national and international fixed telephony services and leased lines and BATELCO Jordan who were granted a class license in may 2005 to provide PSTN services in the near future (Telecommunications Regulatory Commission, 2005b). Regarding Public Mobile Telephony (Cellular), Jordan Mobile Telephone Services (Fastlink), which is partly owned by Motorola Co., has been providing this service since 1995 through a countrywide GSM900 cellular network. Moreover, JT were granted a license to provide Public Mobile Telephony through an affiliate (MobileCom) to provide a more competitive cellular service since September 15th 2000. The two companies had dual exclusivity (duopoly) for providing GSM900 public mobile telephony service until the end of 2003 when a license to operate public mobile telecommunications service was granted to (Umniah) on the 9th of August 2004 (Telecommunications Regulatory Commission, 2005b). In addition to Fastlink, Mobilecom and Umniah, Jordan has a fourth Public Mobile Telephony provider. The New Generation Telecommunication Company (Xpress) is the sole provider of Radio Trunking service granted by the

Telecommunication Regulatory Commission (TRC) on April 6th 2003 and launched commercially in June 2004.

ICT eReadiness

The Economist Intelligence Unit (2006) defines eReadiness as the "state of play of a country's Information and Communications Technology (ICT) infrastructure and the ability of its consumers, businesses and governments to use ICT to their benefit". On the other hand, the Jordanian Ministry of Information and Communication Technologies (2006) defines eReadiness as "the degree of preparation of a nation or community to participate in and benefit from ICT developments". According to the 2006 eReadiness Ranking of the Economist, Jordan was ranked 54th worldwide (out of 68 entries) and 6th in the Middle East and Africa (out of 10 entries). The ranking is calculated based on a number of weighted quantitative and qualitative criteria (nearly 100) organised into six distinct categories measuring the various components of a country's social, political, economic and technological development (Economist Intelligence Unit, 2006). On the other hand, McConnell International (2006) ranked Jordan's eReadiness between medium and low by establishing the status and progress of five interrelated attributes: Connectivity, E-Leadership, Information Security, Human Capital and E-Business Climate. This indicates that many conditions are suitable to conduct e-government and e-business initiatives though improvements are needed to support a proper e-environment. The report emphasised Jordan's leadership in terms of forward-thinking and extraordinary style and called upon capitalizing on Jordan's small, young and well-educated population. On the other hand, Connectivity and Information Security eReadiness attributes were rated as low to medium and E-Business Climate was rated as low.

The Ministry of Information and Communication Technologies' "The e-Readiness Assessment of The Hashemite Kingdom of Jordan 2006" report shows that Jordan has thrived in many aspects of eReadiness like: establishment of a regulatory framework in the ICT sector, enhancement of human capital and e-Leadership though there are still challenges that need to be overcome to complete the transition to an information society like affordability, quality and reliability of connectivity, the macroeconomic structure, business adoption, expansion of e-Government services and Research and Development (R&D) (Ministry of Information and Communication Technologies 2006).

According to REACH 3.0 the continued privatization and enhanced competitiveness of Jordan's telecommunications sector/market along with rigorous lobbying on the part of Ministry of Information and Communication Technologies (MoICT), Telecommunications Regulatory Commission (TRC) and Information Technology Association of Jordan (INTAJ) have resulted in significant improvements in telecommunication services and pricing. REACH (Regulatory Framework, Enabling Environment (Infrastructure), Advancement Programs, Capital & Finance, and Human Resource Development) is Jordan's strategic IT initiative that intends to lay out a clear plan of action to bolster the country's nascent IT sector and maximize its ability to compete in local, regional and global markets. The REACH initiative has called for providing preferential access to high-speed lines, providing competitive pricing on high-speed lines, initiating private sector-led Information Technology park, providing infrastructure for connecting Jordanians initiative, training customs officials to facilitate Import/Export of ICT products, increasing Internet and Personal Computer (PC) penetration rates and building Infrastructure for e-Government Initiative (REACH 3.0, 2003). While the 2007-2009 Ministry of Information and Communication Technologies' Strategic Plan has called for a competitive ICT industry and an increased awareness of using ICT to participate in sustainable economic development through providing support for various electronic initiatives in Jordan, attracting foreign investment in the local ICT industry, facilitating the establishment of offshore call centres, connecting schools, colleges and universities to a local fibre optic network for educational purposes and to introduce the concept of knowledge management to various public sectors (Ministry of Information and Communication Technologies, 2005d).

Government Services Delivery Channels Assessment (2000-2005)

This section presents the findings of a number of surveys conducted by the MoICT to evaluate the e-Government initiative as a number of Jordanian governmental institutions and agencies invested in technology and personnel to provide electronic governmental services to both citizens and businesses. The survey included 21 Interviews with Key National Figures, 142 Focus groups with Government Employees, 53 Focus groups with Companies, 48 Focus groups with Citizens, 395 Questionnaire surveys of Government Employees, 254 Questionnaire surveys of Companies, and 409 Questionnaire surveys of Citizens. The assessment was carried out by Arthur Business Consulting under the supervision of the e-Government program team.

The assessment of the 21 Key National Figures interviews shows agreement on the importance of the e-Government initiative. In terms of communication channels, the interviewees were unanimous to select the Internet as the primary contact channel of both citizens and businesses in terms of governmental relationship/contact whether via Personal Computers, kiosks or local school computer centers. However the interviews stressed the need to maintain traditional methods (face-to-face) of contact with the government while fax and post communication channels were deemed obsolete and economically infeasible (MoICT, 2005b).

Regarding questionnaires, traditional face-to-face remains the most popular way to contacting the government where 82% of business representatives and 87% of citizens contacted the Government in a traditional face-to-face manner. Regarding the preferred way to contacting a governmental agency by business owners, 39% of respondents chose the Internet, 55% chose telephone or post while more than 60% sent documents via fax. In terms of Citizens, only 14% used the Internet to communicate with a governmental agency while 36% of respondents used voice (MoICT, 2005b).

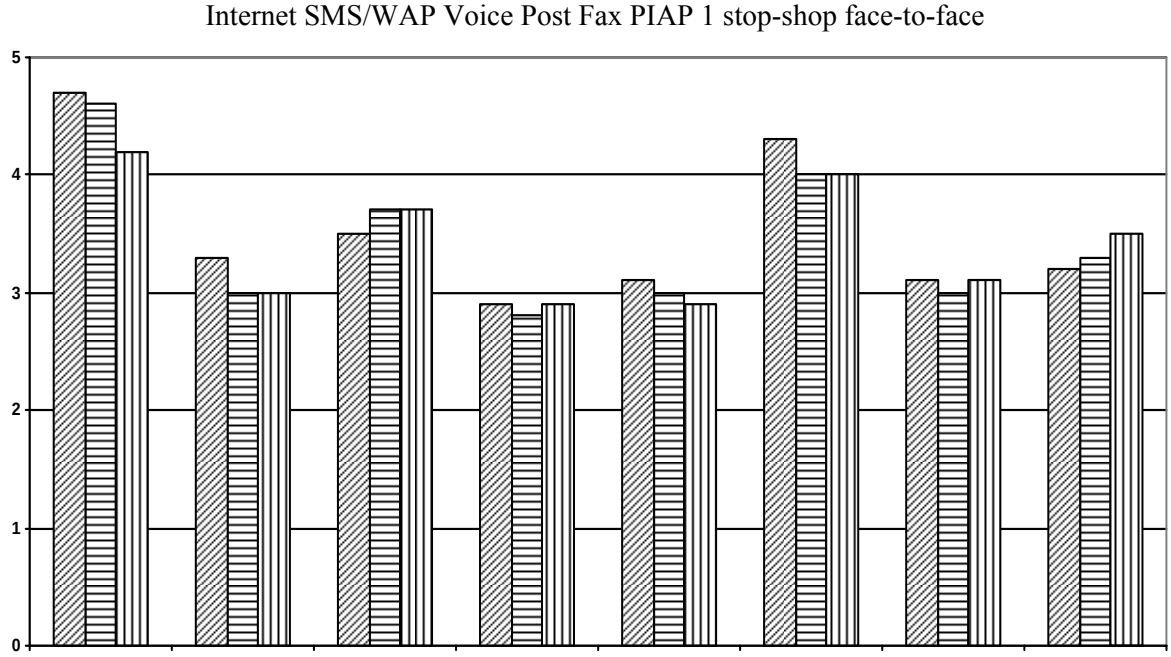


Figure 1 Preferred Information Distribution Channel (MoICT, 2005b)

Figure (1) presents a comparison of preferred information distribution channels where the first bar refers to governmental entities, the second bar refers to business entities and the third bar refers to citizens. Despite the fact that the Internet got the highest rating from all groups (Government Employees, Companies and Citizens) in terms of the most preferred interactive channel, telephone got a high evaluation as an alternative or supplementary communication channel from all groups of respondents. Furthermore, Citizens strongly preferred traditional face-to-face contact for interactive communication with service providers whereas Internet and telephone were widely accepted channels for interactive communication between service providers and recipients.

More importantly, the interviewees, focus groups' participants and questionnaires' respondents have drawn attention to resistance to change, technical weaknesses and budgetary constraints as major obstacles to the implementation of new set of e-Services; effective project management, change management and communication as the most important success factors; while Internet and phone were perceived as primary contact channels for the implementation of new electronic governmental services (MoICT, 2005b).

Evans and Wurster (1997) identified reach and richness as major indicators to assess any communication channel effectiveness. Evans and Wurster (1997) defined reach in terms of the number of people whether at home or at work exchanging information and richness in terms of bandwidth, customisation and interactivity. Bandwidth refers to the "amount of information that can be moved from sender to receiver in a given time"; customisation refers to "degree to which information can be customised"; and interactivity refers to "dialogue" (Evans and Wurster, 1997). Evans and Wurster (1997) explain that this trade off between reach and richness shapes "how companies communicate, collaborate, and conduct transactions internally and with customers, suppliers and distributors". In terms of reach, whether at home or workplace, Internet penetration is very minimal in Jordan; estimated at 2% of the population in 2004 up from 0.7% in 2000 while the penetration of the mobile phones is currently estimated at 47.4% of the population (Department of Statistics, 2005) and expected to reach 57% of the population by the end of 2009 (Arab Advisors Press Room, 2005). In terms of richness, currently the Internet can provide far larger amount of information that is easily navigable in many formats while the current wireless infrastructure is incapable of competing with such advantage.

e-Government Challenges and Lessons Learnt

Despite some successes, a number of operational challenges were encountered at the early stages of the e-Government program, which instigated the key decision makers to make important changes to the e-Government program. These can be summarised as:

- Low level of Internet penetration,
- Infrastructural constraints (high cost and inadequacy of bandwidth),
- The digital divide,
- Privacy and security concerns,
- Limited IT skills,
- Limited public sector reform efforts,
- Lack of an enabling legal framework
- Lack of awareness (MoICT, 2000).

In terms of accessibility of e-Services in Jordan, the figures of the Department of Statistics and MoICT show that Telephony penetration (fixed and mobile) in Jordan is high when compared to other communication channels like the Internet. INTAJ (Information Technology Association of Jordan) estimated that Jordan had 42,000 Internet users in the year 2000 despite limited affordability of personal computers and network accessibility (REACH 1.0, 2000). While Abu-Ghazaleh & Co. Consulting (2005) estimated the number of Internet users in Jordan in the year 2004 at 111,054 users up from 62,242 Internet users in 2002; a penetration rate of almost 2% of the population. 67% of whom used the Internet via pre-paid Internet cards while only 1% used the Internet via a leased line. This limited accessibility via the Internet was attributed to relatively expensive broadband connection coupled with limited time and low speed of connectivity (MoICT, 2005). On the other hand, the Ministry of Information and Communication Technologies (MoICT) figures indicate that 87.4% of households have either a fixed or mobile phone (MoICT, 2005a). The number of mobile phone's subscribers has gone up to 1,624,000 in 2004 from 1,219,000 in 2002 (Department of Statistics, 2005). According to Arab Advisors Press Room (2005) reduced rates, per second billing, extended validities and special offers were expected to introduce the market with a healthy growth rate of over 46% in 2005. Between 2006 and 2009, the Arab Advisors Group projects the Jordanian cellular market to grow at a rate of 10% to exceed 3.43 million subscribers by 2009, a penetration rate of more than 57% (Arab Advisors Press Room, 2005). The Department of Statistics indicate that the percentage of Jordanian households who own a fixed telephone line is 54.4%, though the number of fixed lines'

subscribers has gone down to 623,000 in 2004 from 629,000 in 2002 (Department of Statistics, 2005). Table 1 provides a comparison of communication channel in terms of popularity over the past few years and for the next few years.

	Year			
Communication Channel	2000	2002	2004	By 2009
Internet users	42,000	62,242	111,054	---------
Mobile phone's subscribers	---------	1,219,000	1,624,000	3.43 million
Fixed telephone line	---------	629,000	623,000	---------

Table 1 Analysis of Communication Channels Popularity

Despite the thrive for enhanced competitiveness of the Jordanian Telecommunication market and the existence of a number of competitive service providers whether wireless or wire-full, the unaffordable prices of both hardware and telecommunication devices as well as the high cost of telephone calls are perceived as the major constraints to the proliferation of ICT in Jordan. REACH 2.0 (2001) shows that despite the sharp fall in phone tariffs, affordability of Personal Computers remains the main hindrance to engaging in on-line activities for individuals.

For the purpose of this research project, the authors interviewed two prominent figures in the e-Government Program; the e-government Program Director (Mr. Khaldoun Naffa) and e-government Program Chief Technology Officer and Head of Operations (Mr. Hasan Hourani). These interviews aimed to assess the viability of mobile government from a strategic point of view. The interviews lasted for 1 hour each both held on Thursday 24th of November 2005 at the e-government Program headquarters in the Ministry of Information and Communication Technology. The interviews started by assessing the past experiences of electronic governmental services provision. Both interviewees agreed on the utter importance of electronic governmental services and expressed concern towards many operational obstacles. These obstacles included: education, awareness, preparedness, public sector reform, organisational and technical change management and transformation management. The interviewees indicated that the e-government program is perceived as a tool of public sector reform in terms of becoming more customer-centric, i.e. improve governmental entities/employees performance, increase cost effectiveness and increase transparency. The interviewees agreed on the technical success of the launched electronic services in terms of systems, technologies and infrastructure. Though they drew attention to the need to properly handle the softer human aspects of the change process. The interviewees pointed out that internal surveys show a fluctuation in usability of electronic governmental services. The interviewees attributed such fluctuation in service usability to over-sensitivity of users towards information confidentiality and security, lack of proper change management during the transition process, the need for more sponsorship and support, loss of key staff during the change process and ulterior/personal motives of both enthusiasts and resistors to change.

Regarding the liberalisation and deregulation of the local telecommunication market, the interviewees indicated that this move will result in providing alternative and/or complementary delivery channels to the already established Internet/Web based service delivery to capitalise on high penetration rate (reach) of such channels. Though the interviewees drew attention to limited richness of such alternative channels, in terms of limited bandwidth and capacity for data- intensive services, limited data presentation/display capacity and challenges to security/confidentiality of private data over public networks. On the other hand, the interviewees drew attention to one of the most neglected areas of the liberalisation effort, the need for electronic legislative enablement to be led by involved stakeholders.

Conclusions

The Jordanian e-Government initiative aims to transforming Jordan to a knowledge based society via improved governmental performance, enhanced national competitiveness, increased transparency and accountability, reduced cost of interaction and improved technical and non-technical competencies of the government (MoICT, 2003a). To achieve such an aim, the delivery of e-Government services in Jordan is currently planned to be service-oriented, customer centric, results-driven, based on modular and interoperable IT components and accessed via multiple channels (MoICT, 2006a). The paper has

presented and analysed the different aspects of Jordan's Electronic Government Program based on the published material of the Government of Jordan as well as non-governmental organisations. In addition, the paper presented the findings of a number of quantitative and qualitative assessment efforts to the past few years of electronic services provided by a number of governmental entities. In summary, lack of advanced and secure technical infrastructure, lack of high-volume of Internet users and limited use of digitised payment methods in the Jordanian society (like credit cards) remain the main reasons why most organizations and individuals in Jordan refrain from using the Internet to exchange products/services and funds on-line.

In terms of future scenarios, the paper provided an analysis of the possibility of using mobile governmental services as supplementary and/or alternative communication channel to web-based service delivery based on validating the richness and reach of the mobile network in comparison to the Internet. The analysis carried out in this paper shows that while mobile networks enjoy a higher level of penetration, these networks and mobile devices provide an inferior service in terms of display, interactivity and customisation specially when compared to web based service delivery. In addition the paper has highlighted a number of lessons learnt from the Jordanian e-Government experiment (low level of Internet penetration, infrastructural constraints (high cost and inadequacy of bandwidth), the digital divide, privacy and security concerns, limited IT skills, limited public sector reform efforts, lack of an enabling legal framework and lack of awareness (MoICT, 2000). The paper has highlighted the importance of paying attention to the need to properly handle the softer human aspects of the change process (education, awareness, preparedness, public sector reform, organisational and technical change management and transformation management).

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