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MBA PROFESSIONAL REPORT

Eliminating Capability Gaps
In Wide Area Workflow (WAWF)
During Contingency Operations

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December 2007

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13. ABSTRACT (maximum 200 words)

This paper examines the online Wide Area Workflow-Receipt Acceptance (WAWF-RA) application used across DoD contracting agencies. It explains what WAWF does and its potential benefits to contingency contracting officers. The application works best when certain environmental conditions are met, like adequate IT infrastructure and vendors with a high degree of electronic-commerce (e-commerce) capabilities. Problems arise with using WAWF during emergencies and contingency operations because many times, IT infrastructure is scare and the country has inadequate e-commerce conditions. This research paper provides recommendations on bridging the capability gaps in the WAWF system so that it can be utilized to the maximum extent possible in any country under any conditions. The Department of Defense (DoD) developed online application to provide defense contractors and authorized government personnel the capability to produce and process contract documents such as receiving reports, and invoices over the World-Wide Web. The unique needs of the DoD, particularly regarding operations overseas and in support the Global War on Terror and other contingency operations brought several system shortfalls to light. Contract administration transitioned from traditional paper-based processes to WAWF during its beginnings. It is now mandated for use by all DoD contracting agencies.

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ELIMINATING CAPABILITY GAPS IN WIDE AREA WORKFLOW (WAWF) DURING CONTINGENCY OPERATIONS

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Submitted in partial fulfillment of the requirements for the degree of

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ELIMINATING CAPABILITIES CAPS IN WIDE AREA WORKFLOW (WAWF) DURING CONTINGENCY OPERATIONS

ABSTRACT

This paper examines the online Wide Area Workflow-Receipt Acceptance (WAWF-RA) application used across DoD contracting agencies. It explains what WAWF does and its potential benefits to contingency contracting officers. The application works best when certain environmental conditions are met, like adequate IT infrastructure and vendors with a high degree of electronic-commerce (e-commerce) capabilities. Some barriers preventing WAWF's use in contingency contracting are the host nation's poor information technology (IT) infrastructure, low-levels of IT knowledge and skills in poor countries, and minor capability shortfalls in the system itself. Depending on the region, a WAWF variation may be employed for internal operations only. Over time, the local market place can be built up for nearly total WAWF compliance. This research paper provides recommendations on bridging the capability gaps in the WAWF system so that it can be utilized to the maximum extent possible in any country under any conditions.

The Department of Defense (DoD) developed online application to provide defense contractors and authorized government personnel the capability to produce and process contract documents such as receiving reports, and invoices over the World-Wide Web. The biggest barrier to full implementation of WAWF is the banking systems of unstable countries. One of WAWF's main benefits to contractors and the U.S. Government is its use of electronic currency. Electronic currency is dependant on a stable economy and reliable banking system. Until this problem can be corrected, contingency contractors will continue to maintain and distribute large stockpiles of hard cash.

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I. INTRODUCTION

> Just as we must transform America's military capability to meet changing threats, we must transform the way the Department works and what it works on. (Rumsfeld)

A. BACKGROUND

The Department of Defense (DoD) acquisition process was originally a paper-based system. It was labor intensive and overly reliant on redundant physical tasks which transpired over several separate offices. As modern commercial business enhanced business capabilities with the Internet and electronic processing, DoD systems began to fall behind. Slowly, some DoD systems converted to modern electronic-commerce standards, while others have not, specifically, contingency contracting operations have not full capabilities on web-based operating systems.

Paper-based processes commonly have data entry redundancies and human errors such as misplaced documents that lead to delays in payments to contracted suppliers and therefore delay the delivery of goods and services. Minor problems and other process weaknesses like errors within the forms require rerouting of documents back to contractor and extend contract processing times.

Contingency environments can have higher than usual operational demands that may increase the level human error and mismanagement. Critical contracting documents that are already aging in long process cycles at the local commands often have negative effects on operations. (DFAS Kansas City welcomes "human voucher."2003)

The DoD Comptroller's Management Reform Memorandum #2 of May 21, 1997 titled *Moving to a Paper-free Contracting Process* also made the call for defense agency efficiency. Under Secretary of Defense (Acquisition and Technology) John J. Hamre responded to the memorandum with The DoD Paperless Contracting initiative. Hamre called for more modern contract "writing, administration, finance, and auditing." (Under Secretary of Defense Hamre, John J., 1997) His initiatives led to the development of a paperless contracting application named "The Wide Area Workflow (WAWF) System." WAWF was designed to improve the Receipt/Acceptance and Invoice/Payment process

of the defense contracting system. The new application tested well and was developed into a fully operational system by fiscal year 1999.

In the August 2001, President Bush released a Management Agenda and made clear his desire to:

> Secure greater services at lower cost through electronic Government (E-Government), and can meet high public demand for E-Government services. This administration's goal is to champion citizen-centered electronic Government that will result in a major improvement in the federal Government's value to the citizen. (Defense Business Transformation)

Defense Business Transformation Agency (BTA) and Defense Information Systems Agency (DISA) have shared ownership of the WAWF system.[1] BTA's mission is "To guide transformation of business operations throughout the DoD and to deliver enterprise-level capabilities that align to warfighter needs**."** (Business Transformation Agency)

A BTA online news release stated:

> WAWF provides the Department and its suppliers the single point of entry to generate, capture, and process invoice, acceptance, and payments related documentation and data to support the DoD asset visibility, tracking, and payment processes. It provides the nexus of information related to acceptance of goods and services in support of the DoD supply chain. (Business Transformation Agency, 2007)

WAWF enables real time responsiveness and automatically sends e-mail alerts to the involved parties at every transaction point in the process. When Defense Finance and Accounting Services (DFAS) receives an e-mail notice that an invoice is available for processing, the notice provides links to electronic versions of all the relevant contract documents in the Government Exchange Server (GEX) through an interface called Electronic Data Access (EDA). DFAS payment officials can immediately take action and validate the forms before and making instantaneous payments. (DFAS Kansas City welcomes "human voucher."2003)

[1] BTA falls under the auspices of USD AT&L.

Today, in places like Iraq and Afghanistan where huge forward deployed contracting efforts are underway, the WAWF system is not fully utilized. In fact, WAWF has not been fully deployed to any contingency operation. Those times when speed and accuracy are most needed, the contracting offices are doing their best with paper forms, printed, signed, scanned and e-mailed, as their main method of invoicing, receipting, and accepting goods and services delivered by the contractors.

B. PURPOSE

This paper will discuss a broad overview of electronic commerce (e-commerce) around the globe and WAWF fits into the online business realm. This project examines significant issues relevant to contingency contracting and lays a framework for the implementation of e-commerce and WAWF to enhance activities of authorized government agencies involved in contingency contracting.

The purpose of this report is to investigate recent initiatives by the BTA in relation to electronic business (e-business) capabilities and how electronic tools correct systemic weaknesses in defense contract life-cycle. WAWF and its relationship to Unique Identification (UID) and Radio Frequency Identification (RFID) have brought tremendous improvements to defense contracting, logistics systems, and supply chain management. WAWF has grown to be the dominating means of vendor payment in recent years. In 2003, the system processed 109,000 transactions costing $9.1 billion, and as deployment of the system spread to more Government agencies, WAWF managed 116,000 transactions totaling $11.2 billion by the halfway mark of 2004. “The estimated savings in manual hours versus processing invoices electronically totaled $70 million a year.” (Furlong, 2005)

This project also outlines why vendors around the world that live and work in poor and economically under-developed countries will have great difficulty accepting WAWF and the electronic transfer of funds (EFT). The problem itself is termed “The Digital Divide” and is discussed in Chapter V of this paper.

The study will also examine some of the future developments of WAWF and proposed tools that assist in automating contingency contracting processes. It examines how and why some of these initiatives are not aligned with the strategic aims of the BTA and why.

The scope of this project specifically includes aspects of e-commerce that are relevant to a contingency contracting officer (CCO). It does not include an examination of data security as that relates more to information technology (IT) experts than a CCO.

Today, WAWF is mandated for use for all defense contracts for all branches of service. (Federal Acquisition Regulation, 2007) Provided there are no legitimate and verified excuses documented in the contract WAWF is used with every contract written by the DoD today. CCOs and business specialists must be aware of these electronic processes, the groups who use them and their impact on the industry. Hopefully, educated officials will consider their knowledge of these improvements as they look ahead at solving future problems in contracting processes.

II. OVERVIEW OF WIDE AREA WORKFLOW (WAWF)

A. THE ELECTRONIC AGE

1. Electronic Commerce (E-Commerce)

Around the world, the Internet use has grown phenomenally and created electronic markets. E-Commerce is the common terms for buying and selling of goods and services over the Internet and is generally synonymous to what many refer to as electronic-business (e-business). Buyers and sellers use computerized hardware and software to mimic and automate business processes, and in some cases to create newer, more efficient processes. (Uzoke & Seleka, 2006 p. 290)

The new e-commerce functions nearly replaced the traditional business/consumer relationships and its accoutrements the retail shop and catalogue. (Uzoke & Seleka, 2006 p. 291) With the assistance of IT, e-commerce can take account of nearly all organizational processes by computerizing transactions and networking databases. Organizations benefit from enhanced "speed, accuracy, and visibility" of the transactions. (Kerber, 2003 p. 6)

2. Electronic Government (E-Government)

Electronic-Government (E-Government) is an offshoot of e-commerce yet the fundamentals are the basically the same. That is, one person or organization provides assistance, goods, or services to another person over the Internet. The term E-Government includes "access to online material required for legislative decision making," or possibly in the future, holding elections online. (Lowry, Cherrington, & Watson, 2001 p. 245) E-Government and e-commerce share comparable challenges which will be discussed more in Chapter V of this paper. Some of the major differences E-Government has with e-commerce are:

- It is a public, not for profit sector. Stakeholders are not profit driven.
- The nature and content of services are such that online businesses can accept some risk of fraud. The Government cannot; fraud destroys the integrity of the E-Government process, e.g., e-voting.

- E-Government services cannot abandon one supplier for another.
- The Government must serve 100% of the population rather than the profitable sector. This issue is further confounded by technical skills, language of online interaction. These issues are discussed more in the section titled “Digital Divide.”

  (Lowry et al., 2001 p. 245)

Because of the expansion of information communication technology (ICT) around the world, many countries plan to develop state of the art ITC platforms. Typically the first step is building websites to make available basic legal data and policies together with other information on grants and housing. More developed countries provide Web-based services like driver’s license renewal and tax filing. One of the most advanced achievements of E-Government is e-voting.

Citizens, businesses, and government employees experience cost savings from around-the-clock access to government information and services from any PC connected to the Internet. ICT also provides government agencies and departments “interdepartmental flows of information” while decreasing the time and effort required for “maintenance of redundant data.” (Lowry et al., 2001 p. 247)

As ore and more people gain access to online reports the number of printed copies made is significantly reduced. A good example of this was reported by the Government Accountability Office whose printing output was reduced by 33%, an approximately 150,000 to 200,000 page decrease due to its implementation E-Government initiatives. (Lowry et al., 2001 p. 247)

One example of a successful new contracting program is the Federal Business Opportunity (FedBizOpps) website which advertises synopses of actions over $25,000. Because of the broad audience of the World-Wide Web, soliciting for business online ensures a large degree of full and open competition.

Converting all DoD business systems to E-Government systems could save tens of billions in back office support, inventory, and logistics through more efficient performance, improved management reports, better financial visibility, and accurate logistics. (Kerber, 2003 p. 7)

3. Electronic Currency

Electronic currency changed the banking industry's future forever by eliminating the process of hand counting hard cash and checks. Electronic funds transfer reduces transaction cycle time and workspace. Electronic currency better supports the bank systems in the global economy. (*Globalizing electronic commerce: Report on the international forum on electronic commerce, Beijing, China, 20-21 March 1996* p. 50)

Electronic currency is simple, fast, and safe due to:

- Automatic processing of funds through data storage, funds transfer, and payments based on computers and networks.
- Wide use in production, exchange, distribution, and consumption.
- Combinations of savings, credits, and non-cash settlements.
- Use of cards creates a currency with no denominations.

(*Globalizing electronic commerce: Report on the international forum on electronic commerce, Beijing, China, 20-21 March 1996* p. 49)

In order for it to work, electronic currency must be:

- An unalterable, secure form of payment with governmental protection against counterfeiting.
- Anonymous. Payments are untraceable.
- Portable. It has physical independence.
- Infinite in duration. It exists until destroyed; it does not diminish or disappear.
- Two-way in usage- unrestricted as to use.
- Available to all.
- Divisible into smaller units Wide in acceptance- elements of common trust in cash.
- User friendly- simple to use.

(*Globalizing electronic commerce: Report on the international forum on electronic commerce, Beijing, China, 20-21 March 1996* p. 27)

4. Electronic Funds Transfer (EFT)

Electronic Funds Transfer (EFT) and EFT at the point of sale (EFTPOS) are:

> Electronic mechanism for the monetary flows accompanying the exchange of goods and services. EFT uses ICT to supply and transfer money between financial repositories (such as banks or bank accounts). EFTPOS is a form of EFT where the purchaser is physically at the point of sale, such as at a supermarket checkout. (Beynon-Davies, 2004 p. 152)

The benefits of paying vendors without using cash or checks are that it reduces the work load of not only the buyer and the seller, but also the banks. All parties are safer because of it and their funds are better protected. Overall it the most efficient means of fund transfer. (*Globalizing electronic commerce: Report on the international forum on electronic commerce, Beijing, China, 20-21 March 1996* p. 51)

5. Electronic Data

a. Electronic Data Interchange (EDI)

According to Paul Beynon-Davies's book "E-Business" (2004), Electronic Data Interchange (EDI) is,

> The computer-to-computer electronic exchange of business information using a public standard. In other words, EDI is an enabling system of protocol that powers the flow of information in a paperless environment by using standards that are the products of consensus between Government and Industry. (p. 146)

EDI is the IT term for the codes that translate business documents into an electronic message. The messages are broken down into data "segments," and further into multiple "data elements." Electronic "tags" identify the segments and its elements to the entity reading the message. The message sender and receiver have to agree on the EDI standards, or common language, in order to the message to transfer properly. Without EDI standards, a customer will not be able to read the seller's electronic receiving report and the invoice they send in return will be equally indistinguishable. (Beynon-Davies, 2004 p. 146)

With effective use of EDI, certain phases in contracting are now performed electronically. Inspections and certification forms are transmitted from the government quality assurance inspector's computer to the contract administrator's computer, via EDI and networks.

In today's electronic markets, EDI "provides the most cost-effective and time efficient way of exchanging and processing bills of materials, purchase orders, invoices, and other business related data at a lowest possible error rate, and helps reduce illegal trade conduct and corruptions." (Globalizing electronic commerce: Report on the international forum on electronic commerce, Beijing, China, March 20-21, 1996 p. 73)

One of the major set backs with EDI is that several industries and regions began developing their own standards for specific and limited uses. As technology and networks grew the standards and messages were not compatible for merging the data. Today there are EDI experts agree on four major standards:

- UN/EDIFACT. This is the main standard supported by the UN. EDIFACT stands for EDI for Administration, Commerce and Industry and is the only EDI standard that is truly accepted worldwide.
- ANSI X12. This is an EDI standard developed by the American National Standards institute (ANSI) separately from Europe. It is commonly used in the US and Canada, and to a lesser degree in Australia.
- TRADACOMS. This is an EDI standard developed by the Article Numbering Association in 1982 for the UK retail industry. It is currently the most widely used standard in the UK in this market sector.
- ODETTE. An EDI standard developed in the UK for use in the motor industry for supporting just-in-time manufacturing.

(Beynon-Davies, 2004 p. 147)

Broad standardization was an afterthought of the technology explosion and getting the world to talk the same ICT language will be expensive and technically challenging, especially for regions whose traditional standard lost the race for acceptance. (Beynon-Davies, 2004 p. 147)

b. Electronic Data Access (EDA)

Another key element of e-commerce that specifically relates to the WAWF is Electronic Document Access (EDA). According to the Defense Procurement and Acquisition Policy's Electronic Business department (2004), EDA:

> Acts as an electronic file cabinet for the storage and retrieval of post award contract documents used by multiple DoD activities. It replaces the

> paper process with a single, read-only "electronic file cabinet" that can be accessed by any authorized user, within both DoD and vendor communities. [2]

All defense contracts documents (along with several other agencies) written since the start of the paperless operations movement are stored within EDA. Every transaction within WAWF provides a link to the contract in EDA.

6. Public Key Infrastructure (PKI)

WAWF and its associated applications, e.g., EDA, uses Public Key Infrastructure or PKI certificates (also called digital certificates) to identify clients and allows them to "sign" documents online. Electronic "keys" are encrypted into the PKI certificates that bind to a digital signature. The digital signature is legally recognized as proof that the client "signed" the form.

PKI electronic transmission security enables "only authorized users…to access documents and records." (Lundsten & Arviso, 2006) It makes contractual transactions and electronic signatures controlled, unforgeable, and legally binding.[3] This software is essential in establishing identities and their legitimacy. Without PKI, WAWF users would not be able to authenticate their transactions.

Before users register on WAWF users must obtain a PKI certificate; and install it in the computer's Web browser.[4] (*WAWF training website.*2007)

B. LAWS AND REGULATIONS

> During the last decade, numerous directives within the Federal Government and DoD have addressed various aspects of implementing e-business practices. The motivating factors for these directives have been as varied as the directives themselves. (Kerber, 2003 p. 20)

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[2] For more information there is a DoD slideshow at http://www.acq.osd.mil/dpap/Docs/ebiz/eb_sps_conference/EDA.ppt#256,1,Department of Defense Electronic Document Access (DoD EDA).

[3] Electronic Signatures in Global and National Commerce Act ("E-SIGN") (Public Law 106-229).

[4] PKI Certificates may be obtained from either of the approved authorities: Operational Research Consultants Inc., Digital Signature Trust Co., and Verisign.

1. Major Guidance on E-Government

Of the many Government Acts and memorandums regarding E-Government, e-commerce, and paperwork elimination published in recent decades, a few stand out as direct influences in the creation of WAWF.

a. President's Memorandum of October 1993

In a commitment to "openness," this memorandum from President Clinton addresses the relationship of the Freedom of Information act and E-Government. In it, he states, "Each agency has a responsibility to distribute information on its own initiative, and to enhance public access through the use of electronic information systems." (Department of Justice, 1993)

b. Federal Acquisition Streamlining Act of 1994 and Federal Acquisition Reform Act of 1995

Both of these initiatives impacted federal acquisitions in major ways. In terms of E-Government, the Acts encouraged a greater use of credit cards and information communication technology (ICT).

c. IT Management Reform Act of 1995

This legislation gave the Administrator of Federal Procurement Policy (FPP) the authorization to "test alternative approaches for the acquisition of information technology by executive agencies." (Vice President Gore's National Partnership for Reinventing Government)It provided an aggressive agenda for the development, testing, and implementation of new means to use E-Government in procurement activities.

d. Office of Federal Procurement Policy (OFPP) Act

Section 30 of this act is known informally as the Government's main push towards e-commerce in relation to acquisitions. It requires federal contracting agencies to "establish, maintain, and use, to the maximum extent that is practicable and cost-effective, procedures and processes that employ electronic commerce." (The Federal Marketplace)

e. The 2001 Defense Authorization Act

This Act requires DoD to receive and process invoices electronically. However, it was not until July 1, 2005 that DFAS refused to accept and pay paper invoices. Management's decision to enforce the DFAR clauses was announced to contractors in a memorandum dated April 7, 2005. (Director, Commercial Pay Services Hinton, Jerry S., 2005)

2. General Guidance

The Defense Federal Acquisition Regulation Supplement (DFARS) requires vendors to use of the Wide Area Workflow-Receipt and Acceptance (WAWF–RA) application for submitting payment requests for all DoD contracts. Industry-wide use of WAWF–RA has become the standard of a more efficient payment process.

DFARS Subpart 232.70 recognizes three forms of transmitting electronic payment requests:

a. American National Standards Institute (ANSI) X.12 Electronic Data Interchange (EDI)
b. Web Invoicing System (WInS)
c. WAWF–RA.

(Defense Federal Acquisition Regulation Supplement, 2007)

Contractors are still allowed to submit a payment request by non-electronic format and through an electronic means other than WAWF–RA with authorization by the corresponding contracting officer.

The Defense Procurement and Acquisition Policy now require vendors to submit payment requests electronically when applicable DFARS clauses are in a contract. The clauses, listed below, are also required to be in the contract. If the vendor submits a paper invoice, DFAS returns it and sends the company an electronic invoicing quoting DFARS part 252.232-7003 "Electronic Submission of Payment Requests," "the Contractor shall submit payment requests using one of the following electronic forms:

a. WAWF-RA
b. Web Invoicing System (WInS).
c. American National Standards Institute (ANSI) X.12 electronic data interchange (EDI) formats. (Defense Federal Acquisition Regulation Supplement, 2007)

Additionally, contractor submission of the material inspection and receiving information is required by Appendix F of the DFAR Supplement by using the WAWF-Receipt and Acceptance (WAWF-RA) electronic form as noted in see paragraph (b)(1) of part 252.232-7003.

These two clauses must be in all contracts:

- 252.232-7003 Electronic Submission of Payment Requests - contractor shall submit payment requests using electronic forms.
- 252.246-7000 Material Inspection and Receiving Report -- contractor using the WAWF fulfill the requirement for a material inspection and receiving report (DD Form 250).

(Defense Contract Management Agency, 2007)

As a result, contractors are required in the contract and by public law to use WAWF. For medium and large companies, this transition was simple because e-commerce activities already took root in their basic operating procedures. Recent evidence illustrates how WAWF users are paid quicker and demonstrated boosts corporate cash flow. All vendors welcomed these improvements.

Currently, the DoD's financial systems are not fully integrated and WAWF facilitates the transmission of payment related data. By now it is common knowledge that the DoD's objective is to fully automate the payment process. WAWF advances the DoD's realization of 10 U.S.C. 2227's the electronic invoicing requirements, as added by Section 1008 of the National Defense Authorization Act for Fiscal Year 2001 (Pub. L. 106–398). (Peterson, 2007)

C. THE INVOICE RECEIPT/ACCEPTANCE PROCESS AND WORKFLOW

WAWF is a means "for defense contractors to create and submit invoices and/or receiving reports to government inspectors/acceptors for approval." (*WAWF training website.*2007)

When contractors deliver goods or services, they submit an invoice and create a receiving report. The Government entity that requested the goods or services inspects and accepts the deliverables to ensure they comply with the terms and conditions of the contract. Even on one contract, this action may involve more than one person often at

different locations. The defense activity receiving and inspecting process generates a signed receiving report verifying inspection and acknowledging acceptance. This is known as the "Receipts & Acceptance Process." In rare circumstances, the Defense Contract Management Agency (DCMA) carries out the inspection and acceptance for the receiving party. (*WAWF training website.*2007)

1. Registration

The Office of the Under Secretary of Defense, AT&L, published, "Guide to DoD Contracting Opportunities; A Step by Step Approach to the DoD Marketplace" on April 25, 2007. Shay Assad, USD AT&L, made 10 key points in the document, several of which were related to E-Government applications like FedBizOpps. Two of his main points referred to WAWF indirectly and one actually directly addressed WAWF. To understand the relevance and weight of this acknowledgement, one point was "Familiarize yourself with DoD contracting regulations and procedures," otherwise known as The Federal Acquisition Regulations.

a. Central Contractor Registration (CCR)

Mr. Assad's memorandum instructs contractors to "Obtain a Data Universal Numbering System (DUNS) Number and register in the Central Contractor Registration (CCR) System." It also states that "Vendors must obtain a NATO Contractor and Government Entity (NCAGE) Code." These are critical elements required to enrolling in the WAWF program and prerequisites to obtaining any contract award. The memorandum also provided URL links to the appropriate websites.[5]

In order to win Federal Government contract awards, contractors must register in the Central Contractor Registration (CCR)[6] and the WAWF databases.[7] FAR Subpart 4.11 is dedicated to CCR.

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[5] Obtain a DUNS Number at http://www.dnb.com/us/. Register in the Central Contract Registration database at www.ccr.gov.

[6] Source????www.ccr.gov

[7] Source?????http://wawf.eb.mil prior

> CCR is the primary vendor database for all U.S. Government procurement and financial departments. It collects, validates, stores, and distributes vendor data. It was mandated on October 1, 2003, that all vendors intending to do business with the Federal government are required to register. (*WAWF training website.*2007)

After registering, the contractor will receive their five character NATO Contractor and Government Entity (NCAGE) Code (commonly called a CAGE Code) which has many uses in the acquisition arena. A CAGE Code is also required for registering with WAWF.

b. WAWF

The most important guidance in Mr. Assad's memorandum in terms of this research paper is "Familiarize yourself with the DoD's electronic invoicing capabilities." It states:

> We encourage you to register with Wide Area Workflow (WAWF). This tool is DoD's primary system for the electronic processing of invoices and receiving reports. By submitting your invoices and receiving reports through the Web, Electronic Data Interchange (EDI), or File Transfer Protocol (FTP), they will be routed electronically, resulting in more efficient payments to you. More information on WAWF can be found at https://wawf.eb.mil.

Vendors must be fully registered before they can log on to WAWF. The user's registration controls their access and functions within the WAWF system based off the "user role" they choose and their CAGE Code authorization. As users register they establish a "personal profile" that documents their name and contact information. (*WAWF training website.*2007)

2. Process, Protocols, and Forms

The WAWF workflow is basically the same the traditional paper-based one except now the forms are easily accessible by all parties involved in one common location through the Internet. The interface is primarily in fill-in-the-blank format.

There are three documents a contracting officer needs in order to pay a contractor: the contract, the invoice, and the DD250 receiving report or Material Inspection and Receiving Report (MIRR). WAWF provides access to and processes those and following forms electronically:

- Invoice as 2-in-1 (Services Only).
- Invoice and Receiving Report (Combo).
- Construction Payment Invoice.
- Commercial Item Financing.
- Performance Based Payment.
- Progress Payment.
- Cost Voucher & Summary Cost Voucher.
- Miscellaneous Payment Invoice.
- Government Property Transfer.

(*WAWF training website*.2007)

3. Vendor Submissions

The WAWF system automated procedures allows contractors to generate and submit invoices and MIRRs electronically. “Internal edits ensure that the online form can't be transmitted until it's been properly completed.” (DFAS Kansas City welcomes "human voucher.”2003) Then the system will e-mail them a message indication whether the form was accepted or rejected or whether it needs modifications. (*Wide area workflow*.)

Almost instantly, WAWF emails a notification of the government’s completed processes to the contractor. At all times in the process, participants know the status of documents in process. If at any time a document needs correction and is rejected out of the system back to the contractor only those specific fields needing revision can be changed.

> The vendor will be able to view previously submitted documents and determine the current status, review actions taken by Government officials (to include access to the name, e-mail and telephone numbers), and as appropriate, initiate follow-on actions. (*Wide area workflow*.)

4. Authorization and Acceptance

As the contractor submits their invoices and receiving reports electronically, the authorized government users receive an e-mail notification that an inspection or acceptance is required on their behalf. The e-mail provides them access to a “virtual folder of accessible contract-related documents.” (Lundsten & Arviso, 2006) Without leaving their desk, inspection and acceptance officials can check the forms for accuracy and verify them against an electronic version of the contract itself via the Electronic Data Access (EDA) system.

At each stage of the workflow, users can accept or reject documents accordingly. If the forms are in order acceptance officials forward them to the paying agency. For additional process transparency, DCAA Auditors can view documents in WAWF at any time but they have no processing or approving authorization.

WAWF brought no reduction in the amount of steps and forms involved in the receipts and acceptance process, WAWF just automated them. The following is a list of participating entities with at least one “role” within WAWF, including:

- "Vendor" - vendors, suppliers, and contractors.
- "Inspector" and "Acceptor" - requesting activity.
- "Cost Voucher Reviewer" and "Cost Voucher Approver" – DCAA.
- "Local Processing Office (LPO)" - where documents must be certified by a local office before forwarding to DFAS.
- "Payment Official" – DFAS.
- "View Only" - supervisors and anyone who needs to view a document.

(*WAWF training website.* 2007)

5. Payment

Payment occurs within moments of approval. The Defense Finance and Accounting Service (DFAS) can view payment invoices online via WAWF and in real-time. “Financing documents flow in the standard manner from Inspector to Acceptor to LPO (if needed) to Pay Office.” (*WAWF training website.*2007) DFAS personnel will

compare invoices and receiving reports with the contract and then authorize disbursement through an electronic payment system. The whole cycle is reduced from days to minutes.

Vendors must work closely with the Government to make certain all their payment information is accurate and complete. Together they must make certain that the user's "CCR is current and up to date, especially bank information, as the CCR information is used to determine where contractor payments will be sent." (Lundsten & Arviso, 2006)

The final step in the process is completed when the contractor is paid via EFT.

D. WAWF USERS

1. Commercial Organizations

From the vendor's perspective, WAWF is a much better system than the traditional paper-based system. Because it is Web-based, contractors do not have to buy specialized software or require an accountant or a programmer to submit forms. (Furlong, 2005)

WAWF also improves a vendor's ability to get paid on time. The system extensively checks the forms for accuracy and completeness up front. Problems with the submissions are immediately e-mailed to the vendor for correction.

An example of a commercial business that benefited from WAWF is the Honeycomb Company of America. They are a small aircraft panel manufacturing business working for the DoD. They experienced major delays and late payments in the past which adversely affected their day to day operations. They were forced to borrow against the invoices due from DFAS and at times use personal financing for business functions. "Since adopting WAWF, the Honeycomb Company of America has experienced perfect payment from their DoD customers. This improvement has enabled them to cancel their arrangement with their lender, and saves Honeycomb Company of America over a quarter million dollars in interest payments a year." (Defense Business Transformation)

Typically a vendor benefits from WAWF from:

- Cost/time savings of submitting documents electronically through the Internet. No need to mail paper copies
- Faster payment; faster processing time
- Ability to view documents and their status at any time
- Immediate feedback when government rejects a document
- Audit trail that displays the comments for every rejection
- Ability to correct and resubmit documents online.

(*WAWF training website.* 2007)

2. Department of Defense

Leading businesses in commercial industry prefer the Internet for invoice and receiving transmission because it is easier to use and has the least impact on the business. Today, defense agencies have made many steps to keep up with modern commercial practices.

WAWF routes all documents online to all relevant agencies both internally and externally. The major role players in the process are Defense Contract Audit Agency (DCAA), Defense Contract Management Agency (DCMA), and the Defense Finance and Accounting Service (DFAS).

WAWF is also fully deployed to the Air Force (USAF), Army (USA), Defense Information Systems Agency (DISA), Defense Logistics Agency (DLA), Marine Corps (USMC), Navy (USN), Other Defense Agencies (ODAs), American Forces Information Services (AFIS), Missile Defense Agency (MDA), Navy, Special Operations Command (SOCOM), and Washington Headquarters Services (WHS).

E. BENEFITS

WAWF helped Government contracting offices diminish the amount of lost or misplaced documents which translated to diminished interest penalty payments. WAWF gave vendor-offered discounts immediate attention. In addition to streamlining the receipt and acceptance process, all users now have round-the-clock access to payment status.

Personnel who process the reports spend less time proofreading and re-keying data because the WAWF application automatically notifies users of any inaccuracies. Virtually all unmatched disbursements are eliminated.

The WAWF contributions to the contracting process include:

- Standard data that can be shared by a wider range of communities.
- Complete transaction visibility throughout the process.
- Reduced invoice, receipt and approval time.
- Faster routing of approved documents, resulting in quicker payment.
- Secure transactions with complete audit trail.
- Fewer lost or misplaced documents.
- Reduced postage, copy and storage fees.
- Reduced unmatched disbursements.
- Global accessibility of documents.
- Online access to payment records.
- Increased productivity.
- Secure transactions with audit capability

(Lundsten & Arviso, 2006)

WAWF allows DoD to reach its paperless contracting goals successfully. Some of its other accomplishments are:

- 95% reduction in Prompt Payment Act interest penalties ($7 million for the DCMA alone).
- Reducing progress payment rejects by 60%.
- Reducing invoice cycle time by 50-80%.
- Elimination of the manual entry of one million documents per year.
- 70% reduction in DFAS processing cost.

(Defense Business Transformation)

1. Cycle Time and Lost Documents

Under DFAS's old method of processing invoices for payment, invoices were matched with their associated contracts and receiving reports "in the mailroom" and become vouchers. (DFAS Kansas City welcomes "human voucher."2003) The physical

voucher traveled across several workstations and, barring any clerical errors, the business contracting with the DoD was paid on time. Marine Corps Fiscal Director Charles E. Cook III said about tracing the path of such vouchers, "One of the things that strikes me is how many times a voucher has to be touched in the database." Typically, an errorless voucher “will pass through about a half-dozen hands in DFAS-KC.” (DFAS Kansas City welcomes "human voucher.” 2003) [8]

WAWF’s real-time processing features streamlined the receipt and acceptance process from the same way e-mail affected the U.S. Postal Service. DCMA boastfully completes 99.99995% payments on time- a 60% reduction in cycle times. (Albany)

Additionally, the three documents required to pay a vendor mentioned earlier (the contract, the invoice, and the receiving report) are stored in one easily accessible place. The metrics show 50,000 less lost documents per year.

Because of WAWF provides “fill-in-the-blank” templates of all its forms, there is a huge reduction in re-typing information. Overall, the accuracy of the data is more accurate than ever before.

2. Savings

Two of DoD’s strategic objectives for e-business initiatives are reduced costs increased financial responsibility. WAWF meets these goals by reducing penalty payments, or interest, due to lost and misplaced papers. On the other end, it highlights discounts provided by the vendor so payment officials can take action on those items first, thus providing another means for the DoD to reduce costs. (Defense Business Transformation)

According the Government’s Prompt Payment Act (PPA), interest is paid to a contractor when payment is not made within 30 days of receipt or an acceptance of the goods or services. DFAS-KC reported almost $1.8 million was paid to vendors providing goods and services to the Marine Corps as interest in fiscal year 2001. (DFAS Kansas

[8] DFAS Kansas City handles contract payments for the U.S. Marine Corps.

City welcomes "human voucher." 2003) WAWF drastically reduces cycle time and the number of PPA violations correspondingly decreases.

The interest payments dropped from fiscal year 2004 ($66/million dollars paid) to fiscal year 2005 ($33/million dollars paid). Impressively, DCMA reported that WAWF saves U.S. taxpayers $1 million a month. (Albany)

> The benefit to our forces would derive from timelier and less costly combat support, more resources available for training, and additional resources being made available for military system improvements, upgrades, and acquisition. (Kerber, 2003 p. 7)

Defense agencies and industry alike save on labor expenses when manual data entry steps are eliminated. The achievements of WAWF eradicated several support occupations required for the former paper-based process such as mail, file, and copy rooms and their related workforce and rework from errors.

F. NEW DEVELOPMENTS

> While WAWF's progress to date is a major accomplishment, there is still more work to do, including assessing the feasibility of addressing impediments identified during a Spring 2006 analysis. Other next steps include continuing deployment of the existing functionality across the [DoD] and integrating WAWF with. Item Unique Identification (IUID) [and] Radio Frequency Identification (RFID). (Defense Business Transformation)

1. Unique Identification (UID) Tracking in WAWF

The Defense Information Systems Agency (DISA) and BTA realized the potential of WAWF to accommodate Unique Identification (UID) data and improve overall visibility. The highly accurate information is essential to the warfighter and for commercial businesses. It can be imbedded in the contract documentation as the item is traced throughout the supply chain and operational use worldwide and improve on document route speeds.

The Unique Identification (UID) initiative (formerly known as Unique Item Identification) provides the DoD with tracking of goods in a variety of statuses, to include maintenance and storage. UID marks official Government property and makes

that information available to supply, logistics and contracting agencies. It is extremely helpful for tracking shipments and inventory purposes.

DFARS Clause 252.211-7003 (c) deals directly with DoD UID and DoD recognized equivalents. It states that it is the Contractor's responsibility to provide UID or an acceptable equivalent for "all delivered items for which the Government's unit acquisition cost is $5,000 or more; and [certain] items for which the Government's unit acquisition cost is less than $5,000." (Defense Federal Acquisition Regulation Supplement, 2007)

> UID is the set of data for tangible assets that is globally unique and unambiguous, ensures data integrity and data quality throughout life, and supports multi-faceted business applications and users. (Albany)
>
> DFARS part 211.274-1 mandates the use of UID and describes it as:
>
> A system of marking and valuing items delivered to DoD that will enhance logistics, contracting, and financial business transactions supporting the United States and coalition troops. Through unique item identification policy, which capitalizes on leading practices and embraces open standards, DoD can:
>
> 1.) Achieve lower life-cycle cost of item management and improve life-cycle property management;
>
> 2.) Improve operational readiness;
>
> 3.) Provide reliable accountability of property and asset visibility throughout the life cycle; and
>
> 4.) Reduce the burden on the workforce through increased productivity and efficiency.
>
> (Defense Federal Acquisition Regulation Supplement, 2007)

Business and Government agencies using the UID Program minimize the potential for lost property during shipping and avoid duplicate requisitions. The emergence of this technological relationship is due to Defense Acquisition University's (DAU) training services to the Defense Acquisition Technology and Logistics (AT&L) agency and the cooperative efforts of Defense Information Services Agency (DISA). The critical element for UID success is handheld scanners that enable error-free data transfer.

It is possible to add another layer to speed and accuracy of the WAWF process. That is through the use of Radio Frequency Identification (RFID).

"UID will improve the time it takes to equip our warfighter" while providing "better item intelligence [to} warfighters for operational readiness. It improves item visibility. It ensures accurate DoD property valuation and accountability. It improves inventory access." (*WAWF training website.*2007)

2. Radio Frequency Identification Relationship to WAWF

Today, WAWF is the standard instrument for capturing and transmitting RFID data amongst the defense industry. RFID tag identification data and tracking was added to the WAWF arsenal in April 2005. According to current DoD Policy, "RFID tags that carry data are required to be attached to packages at multiple levels, including item packages, cases, and pallets. Unique Identifiers are required to be attached or directly marked on items using a data matrix to carry the UID data elements." (Albany) Through the use of RFID tags, trucks pass through sensors and the WAWF system is updated by satellite links around the globe. Some contracts for high dollar items or high-priority items require vendors to enter Radio Frequency Identification (RFID) tag data.

Packing levels can only be nested five levels (layers) deep. The DoD adheres to the International Standards Organization (ISO) standards for RFID tagging. There are five "layers" RFID tagging. They are:

- Layer 5 - Movement Vehicle (truck, aircraft, ship, train)
- Layer 4 - Freight container (20 or 40 foot Sea Vans, 463L Pallets with net)
- Layer 3 - Unit Load (Warehouse pallet, tri-wall packaging, commercial fiberboard packaging): One or more transport units or other items held together by means such as pallet, slip sheet, strapping, interlocking, glue, shrink wrap, or net wrap, making them suitable for transport, stacking, and storage as a unit. In distribution, an item or assembly of items assembled or restrained for handling and transportation as a single entity.
- Layer 2 - Transport Unit (cartons, boxes - second level packaging): Packaging designed to contain one or more articles or packages or bulk material for the purposes of transport, storage, handling and/or distribution.

- Layer 1 - Package (first level packaging - the "bubble pack"): The first tie, wrap or container of a single item or quantity thereof that constitutes a complete identifiable pack. A product package may be an item packaged singularly, multiple quantities of the same item packaged together or a group of parts packaged together.
- Layer 0 - Product item (individual item): A first level or higher assembly that is sold in a complete end-useable configuration.

(*WAWF training website*.2007)

3. Wireless Interfaces

WAWF managers have set their sights on hand-held, wireless hardware as the next phase of WAWF deployment. It is not hard to notice the value most business managers gain from their Personal Digital Assistants and the networking capability they provide. Additionally, most mobile phones manufactured today are Internet capable. These devices can access, download, and manipulate documents similar to the ones used on WAWF.

Bringing this feature to CCO is within reach except for the lack of mobile phone coverage outside of the U.S. and other developed countries. In order for CCOs to use such tools parts of the world that do not have adequate mobile phone coverage, they would require a satellite signal capability or secure network transmitter.

A handheld PDA that corresponded similarly to a global satellite phone would not rely on commercial mobile phone companies to develop access plans to the entire globe. They could tie in with pre-existing networks already in the contingency operation's communication plan. An alternative to this would be for the government organization's communications element to transmit wireless internet from an antenna to contracting personnel operating in the field.

The enhanced capabilities would provide "real time, anyplace electronic acceptance." (Albany) In a brief by DCMA, the possibilities of "multiple device and telecom solutions" were "being evaluated." (Albany) This technology includes PDAs and Tablet PCs. New handheld devices leapfrog infrastructure problems but they raise concerns of hardware quality, extent of access and costs.

Some defense industry experts have brought forward sturdy, handheld devices that can run limit programs, such as a handheld Standard Form (SF) 44 “for basic ‘cash and carry’ contracting, where one ordering officer serves about 500 troops.” (SPS Joint Program Management Office, 2006) Such devices are a step in the right direction because SF44 forms are used quite a lot to purchase items under $2,500 (in a contingency the limit is increased) but they are limited to only one function of acquisition. Because they lack Web-access, then they cannot reference any other pertinent data. If the same hardware simply ran a Web-browser and was provided the correct signal it could be fully WAWF capable, not to mention CCR and FedBizOpps too. This device and other like it do not have access to the EDA and electronic copies of contract material.

G. CHAPTER SUMMARY

WAWF-RA revolutionized defense contracting by opening the Internet to invoices and receiving reports and using computerized automation to improving process accuracy, timeliness, and efficiency. Commercial industry can expect continued savings through increased cash flows and reduced operating costs as discussed in this paper. “Many leaders in the defense industry have recognized the potential and are now registering to use WAWF.” (Furlong, 2005)

New technologies have facilitated the exchange of payment documents and tracking. As the process quickens, all parties are enhanced. All WAWF users have ideas of what they would like to see next from the BTA. It will no doubt include information technology (IT) improvements.

Several larger contractors are trained and utilizing WAWF. Perhaps they may be the ones to bring about further improvements. But many small businesses and Government agency officials are still developing their knowledge of WAWF and e-business wonders. In order to ensure WAWF continues working and expanding, officials must manage the capabilities and continuously train their organizations in the realm of IT. Conversely, as human resources hire more IT savvy people to ensure e-business initiatives serves in the DoD, they must understand how their skills can address the problems in the acquisition framework, just as WAWF eliminated problems.

III. BASELINE SYSTEM REVIEW OF CONTINGENCY CONTRACTING

A. INTRODUCTION

Some definitions from Joint Pub 1-02, the DoD Dictionary of Military and Associated Terms useful to this Chapter are:

> **Contingency:** a situation requiring military operations in response to natural disasters, terrorists, subversives, or as otherwise directed by appropriate authority to protect US interests.
>
> **Contingency contracting:** contracting performed in support of a peacetime contingency in an overseas location pursuant to the policies and procedures of the Federal Acquisition Regulatory System.
>
> **Contingency operation:** A military operation that is either designated by the Secretary of Defense as a contingency operation or becomes a contingency operation as a matter of law (Title 10 United States Code, Section 101[a] [13]). It is a military operation that: a. is designated by the Secretary of Defense as an operation in which members of the Armed Forces are or may become involved in military actions, operations, or hostilities against an enemy of the United States or against an opposing force; or b. is created by definition of law. Under Title 10 United States Code, Section 101 [a][13][B], a contingency operation exists if a military operation results in the (1) call-up to (or retention on) active duty of members of the uniformed Services under certain enumerated statutes (Title 10 United States Code, Sections 688, 12301(a), 12302, 12304, 12305, 12406, or 331-335); and (2) the call-up to (or retention on) active duty of members of the uniformed Services under other (non-enumerated) statutes during war or national emergency declared by the President or Congress. (Joint Publication 1-02 Department of Defense Definitions of Military and Associated Terms, 2001)

The conditions in contingency environments are typically dire and stark. The demands are high and require long hours at work. The challenges of the job increase by the nature of the operation- floods, war, conflict aftermath, and decrepit infrastructures of unstable governments. The contracting team first to enter Iraq found "looters had striped Government buildings bare." (Miller, 2006 p. 34)

In Title 10 of U.S.C. 101(a) (13) the term ``contingency operation'' is defined as:

> a military operation that designated by the Secretary of Defense as an operation in which members of the armed forces are or may become involved in military actions, operations, or hostilities against an enemy of the United States or against an opposing military force; or results in the call or order to, or retention on, active duty of members of the uniformed services under section 688, 12301(a), 12302, 12304, 12305, or 12406 of this title, chapter 15 of this title, or any other provision of law during a war or during a national emergency declared by the President or Congress.

Whether it is an emergency earthquake relief operation or a long-term, nation-building campaign the DoD requires support from Government contractors. Some reports estimate there are 180,000 contractors in Iraq versus 156, 247 military personnel. (Freshman senators call for commission to investigate wartime contracting, greater transparency, accountability demanded.)

The importance of the term “contingency” relates to whether the President or Congress officially declares an operation to be one. Additionally, the Secretary of Defense can declare one. At this point many of the dollar thresholds for contracting activity are increased to permit a quick reaction to the disaster at hand. CCOs can justify bypassing some requirements too because they are too time consuming and will not allow the CCO to make meaningful progress during an emergency.

The acquisition workforce needs to bring the transparency and accountability of a controlled environment to the war. Integrity and ethical values will be enforced through management oversight and operational requirements, which are part of daily, peacetime standard operating procedures.

Early reports from the war indicate capability gaps in acquisition planning, interagency coordination, and standard operating procedures (including requirements generation) (LtCol Neumann). Senators Webb and McCaskill (D-MO) established a Commission on Wartime Contracting to investigate the state of contingency contracting in Iraq and Afghanistan.

The Commission will consult with a newly expanded Special Inspector General for Iraq Reconstruction (SIGIR). SIGIR, established in October 2004, replaced the Coalition Provisional Authority Office of Inspector General and has authority to audit the logistics, security, and intelligence contracts in support of the war on terror (Special Inspector General For Iraq Reconstruction). Collaborative efforts between the Commission, SIGIR, and the workforce will improve wartime contracting.

While SIGIR continues their reviews and providing Congressional reports on a quarterly and semi-annual basis, the defense acquisition officials are planning a new means to establish and manage contracts "during war and post-conflict operations" called the Contingency Acquisition Support Office. For future contingencies, CASO will integrate into combat commands to better plan contractual support (Sprenger).

As DoD's "focal point for contingency acquisition support to [Combatant Commands]," CASO will help define requirements and coordinated interagency support with processes designed for the contingency environment (LtCol Neumann)

B. PLANNING

Contracting and logistics support is a vital aspect of operations planning. A significant amount of logistics support relies contracting. Prior to stepping off to a contingency an Operations Plan (OPLAN) is drafted. The Contingency Contracting Support Plan (CCSP) can be found in an appendix to the OPLAN's Annex D.

CCSPs provide instructions to the units on how the CCO will support them and the more detailed and thorough the plan, the better. The CCSP explains how the entire process, from requirements building to contract closeout, will be performed and whether or not any E-Government tools will be used and to what extent. CCOs will be reminded that many requirements they handle during peacetime operations are exempt in a contingency.

CCOs have unique safety concerns because they must leave the confines of the camp in order to conduct business in the local market. During their planning, they must

become familiar with the organizations rules for traveling and how to integrate themselves with the security efforts.

C. DOCUMENTATION

There is a heavy reliance of paperwork in all the phases of contingency contracting, which brings security, traceability, and record keeping challenges to new levels. Documentation is burdensome and confusing as CCOs trained on computerized, "paper-less systems," reverted to a paper document-based process. The extensive requirements for recordkeeping can be found in FAR part 4.8. Few agencies can confidently demonstrate control of processes for authorizing, collecting and approving documents into the billing system in such conditions.

> Inherent delays embedded within the current process. Key delays are evident in the receipt of paperwork and goods. Item documentation such as requisitions may sit in a person's in-tray for up to 12 hours before receiving attention. (Beynon-Davies, 2004 p. 364)

File maintenance, retention, and access have been ad hoc for most contingencies because the regular automating tools are not used. The Special Inspector General for Iraq Reconstruction said that their audits "found numerous missing contracts as a result." (Special Inspector General For Iraq Reconstruction, 2006 p. 51)

Unlike with the WAWF system, all documents are not electronically accessible to all users in the contracting process.

D. STREAMLINING

E-Government initiatives are not sufficiently used in contingencies. Contractors are most often exempted from registering in CCR in both contingencies and emergency operations.[9] CCOs are often not required to pay contractors with EFT when deployed on contingencies.[10] Both of these exceptions to E-Government eliminate the basic foundation of WAWF and E-Government assistance in contingencies.

[9] FAR Subpart 4.1102 (a) (3). Period at the end – check all the way through

[10] FAR Subpart 32.1103 (e).

Contractors are exempt from submitting electronic payment requests in the DFAR Subpart 232.7002 (4). The Contingency Contracting Officer (CCO) will often utilize a clause in the DFAR Subpart 232.7004 (c) and determine WAWF to be "unduly burdensome" to the contractor, i.e. the digital divide is too great to overcome and still provide support requested. (Defense Federal Acquisition Regulation Supplement, 2007)

E. SOFTWARE INSTALLATION

1. Standard Procurement System (SPS) and PD2

The DoD began standardizing and automating the contracting process in 1992 with the development of the joint Standard Procurement System (SPS). (Kerber, 2003 p. 30) The SPS internal document control program is currently managed by the BTA. (*Standard procurement system.*) Standard Procurement System-Contingency (SPS-C) is "an integrated set of contingency contracting software products" designed to give the CCO multiple contracting options, e.g., Blanket Purchasing Agreement, Letter Contracts, Indefinite Delivery Contracts, to chose from. (SPS Joint Program Management Office, 2006)

Although SPS "was not easily implemented in Iraq," it is the best E-Government automated procurement system we have and with improvement can do the job in a contingency. (Special Inspector General For Iraq Reconstruction, 2006 p. 51)

2. Procurement Desktop Defense

Procurement Desktop Defense (PD2) is the main software application carried on the SPS program. (*Standard procurement system.*)

> Using adaptive technology, PD2 is being linked to logistics and financial systems to enable accurate tracking and reporting of financial data through the budgeting, requisition, contracting, contract administration, payment and contract close-out processes. (*Standard procurement system.*)

PD2 is widely used by defense procurement agencies. Some of its best features are that it provides visibility over "joint requirements" and utilizes several "best business practices." It is also capable of supporting the DoD financial accountability objectives. (*Standard procurement system.*)

F. CASH PAYMENT

Contacting Officers cannot be cashiers because it creates a conflict of interests. However, the manpower constrictions in contingency environment sometimes make separating these duties impossible. In a letter dated August 20, 2004, the U.S. Marine Corps' Assistant Deputy Commandant, Installations and Logistics (Contracts), authorized the use of the Governmentwide Commercial Purchase Card (GCPC) as a method of payment for actions over the micro-purchase limit ($2,500). The conditions were that it could only be used in this manner for contracts with authorization from the Regional Contracting Office (RCO) or an authorized designee, or the Assistant Deputy Commandant, Installation and Logistics or their authorized designee, depending on whether the contract was less than $25,000 or more. This policy is for situations when there is no other feasible means of payment. Policies like this are useful in contingency environments when the banking infrastructure is weakened, providing the vendor can accept credit card payments.

For large dollar amounts or for contractors that cannot accept payment by credit card, CCOs are forces to pay vendors in cash. Large safes deploy with the office to hold the hard currency. Extensive security and disbursement procedures are required to adequately perform the payment process. Additional strains are placed on the vendor who must be present at the CCO's office to pick up the cash and transport it off the base.

The cash payment system is archaic when compared to WAWF and EFT capabilities. The CONUS procedures are more secure for the CCO and the vendor. The base security is also impacted by the entrance, inspection, and observation of the vendor passing through camp gates.

G. CHAPTER SUMMARY

There are several types of contingencies: major theater war, small-scale ones, Military Operations Other Than War (MOOTW), and domestic disasters are some common ones. Regardless of the type, there is specific planning involving contracting for each to improve responsiveness of the contracting agency.

Logistic planners should take into consideration the infrastructure of the country and security requirements. CCOs should plan to carry their deployment kits and CD ROMs full of their programs, documents, and references.

The obstacles to efficient operations are dramatically higher and its unpredictable nature can bring a whole bevy of new requirements. Contract administration in a contingency is less effective due to lower amounts of surveillance when compared to continental U.S. (CONUS) and U.S. military installation standards. With restricted mobility CCOs have to make considerable sacrifices in order to inspect deliverables as often as they would like.

Ultimately, a CCO is responsible for the entire contracting system and requirement management. They must, to the best of their ability source goods and services from the local economy. They can be deployed at a moment's notice so they have deployment kits pre-packed and ready to travel that includes most of their material needs.

The Government's paperless reform initiatives have yet to be fully adopted in this environment, but based on lessons learned from extensive contingency contraction operations in Iraq and Afghanistan, planners are looking for new ways to make things run more smoothly.

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V. IMPLEMENTATION OF CONTINGENCY STANDARDS FOR WAWF

A. DIGITAL DIVIDE

The digital divide was identified as soon as some countries benefited from ICT faster than others. In terms of the World-Wide Web, it is an old concept but it persists in hampering global e-commerce today. Internet experts believe the digital divide will challenge future developments if it not seriously addressed by world leaders today.

It is defined as the "phenomenon of differential rates of awareness, interest, access, skills and use of ICT among different groups in society." Evidence suggests that "the lower socioeconomic groups in society are the least aware, are the least interested, have the least access to ICT, have the lowest levels of [computer and internet] literacy and use electronic services the least." (Beynon-Davies, 2004 p. 253)

The digital divide "reflects the differences in the access to information, the Internet, and other technologies including differences based on race, gender, geography, economic status, and the skills, knowledge and abilities to use the information. IT research reported that an estimated "80% of the world's population" was "unable to participate in information revolution" as recently as 2001. Further stating that in the US "45% of the population does not have access to basic technologies"[11] but these figures were expected to drop rapidly by 2005 although the Digital Divide has not been crossed by the time of this paper's writing in 2007. (Lowry et al., 2001 p. 251)

Poverty is generally the cause of the digital divide. In poor countries, the cost of Internet service is too high to be affordable to most people. Sometimes, in developed countries, the cost is too high for its most low-income regions. There are "internal digital divides between urban and rural areas, genders, age groups, racial groups, etc." (United Nations Conference on Trade and Development, 2006 p. 8)

[11] Similar reports can be found on www.excelGovernment.org

Developing countries around the world "lack the infrastructural, economic, and socio-political framework for the development of electronic-commerce" that exists in the U.S. and other developed countries like Canada or most of West Europe. (Uzoke & Seleka, 2006 p. 290)

U.S. citizens are "over 22 times more likely" to be familiar with computers and the Internet than citizens of an under-developed, low-income countries. Secure Internet servers are "over 100 time more" widespread in First-World countries. Mobile phones are "29 times more prevalent" and with better coverage areas too. "Relative to income, the cost of Internet access in a low-income country is 150 times the cost of a comparable service in a high-income country. There are similar divides within individual countries. ICT is often non-existent in poor and rural areas of developing countries." (United Nations Conference on Trade and Development, 2006 p. iii)

The UN Conference on Trade and Development (UNCTAD) reported in 2006 that:

> Internet connectivity is nearly non-existent in rural areas of developing countries and, when it is available in urban areas; it is decidedly inferior to the service in the developed countries. (United Nations Conference on Trade and Development, 2006 p. iii)

1. Connectivity

According to UNCTAD (2006), the term "connectivity" is defined as:

> The number of Internet hosts per capita, number of PCs per capita, the number of telephone mainlines per capita and the number of mobile subscribers per capita. As such, it gives a measure of the infrastructure development. (p. 39)

In short connectivity refers to a country's computer and network physical infrastructure. Without connectivity, the "essential physical hardware," people cannot access ICT. (United Nations Conference on Trade and Development, 2006 p. 44)

a. Personal Computers

According to UNCTAD (2006):

> PC estimates are available for developed countries, but measurement may be unreliable. Most ITU (International Telecommunications Union) data are estimates of PC stocks from sales or import data. This is inaccurate for developing countries, where shipment data are scarce and significant channels for PC imports are omitted (e.g. smuggling, grey market, and local assembly). Increased PC penetration rates should increase ICT connectivity. (p. 45)

b. Telephone Lines

Another connectivity "limiting factor" is a country's telephone mainlines per capita. It indicates the degree of possibility for "dial-up" access. (United Nations Conference on Trade and Development, 2006 p. 45)

c. Mobile Phone Service

Mobile phone service is "increasingly important" in measuring connectivity because it can allow technological leap-frog into the market. "Current methods of Internet access emphasize PC-based applications," but third-generation wireless technology and wireless application protocol can provide connectivity without relying on cumbersome hardware and expensive physical infrastructure. (United Nations Conference on Trade and Development, 2006 p. 46)

2. Access

According to UNCTAD (2006), the term "access" is defined as:

> The number of estimated Internet users, the adult literacy rate, the cost of a local call and GDP per capita. This component aims at describing the opportunity to take advantage of being connected. (p. 39)

These factors influence people's access to ICT as much as connectivity. There are varying means to measure a countries degree of access. For example,

> The number of subscribers paying for Internet access is more precise than the number of users and implies a certain degree of usage in terms of realized actual users. It may not reflect full usage as it omits free or shared

> access. For developing countries, subscribers may constitute 'elite' consumers and fail to include common types of usage (e.g. shared access and cyber cafes). (United Nations Conference on Trade and Development, 2006 p. 46)

a. Literacy

"Language barriers" and "illiteracy" impede widespread use of ICT. Internet trends have changed to include languages other than English more and more. "43% of online users and 68.4% Web content use English, down from 80% of English language Web pages in the late 1990s." (United Nations Conference on Trade and Development, 2006 p. 47)

In addition to spoken language, Internet users require a certain amount of technical skills. Computer and internet literacy (e-literacy) is defined as "the low-level skills required to use ICT effectively." The main skills would be:

- Being able to use a keyboard and a computer mouse.
- Being able to conduct basic operations with operating systems such as MS Windows effectively.
- Being able to use productivity packages such as office software effectively.
- Being able to use Internet and Web tools such as browsers.

(Beynon-Davies, 2004 p. 254)

b. Cost of a Local Call

The cost of a phone call is a critical indicator of a countries "access" to the Internet, because not everyone can afford to pay the fees for a call if they use dial-up.

> In Europe, the practice of per minute billing has been considered a major obstacle to Internet adoption. Some countries may have high Internet connectivity but relatively low user levels. The most widely used Internet access method is dial-up. (United Nations Conference on Trade and Development, 2006 p. 47)

c. GDP per Capita

Another critical indicator of access is the general population's income and whether or not their budgets permit them to buy information technology hard/software

and still support themselves and their families. This also includes how the cost of a local call impacts the average person's spending power. In poor countries these barriers can be too high for some to enter the electronic marketplace.

> $1 an hour charged by a cybercafé is unaffordable for people whose average income is $2 per day. Average national income is also [an alternative] variable for a country's level of development, often related to a countries level of investment and thus its connectivity and infrastructure. (United Nations Conference on Trade and Development, 2006 p. 48)

3. Social Exclusion

The digital divide is essentially a matter of social exclusion. While parts of society start with better condition they are able to progress at a faster rate. Those less fortunate social groups trying to enter the ICT community for e-commerce, E-Governance, or simple social practices find the barriers to entry to be very high. It is reflective of historical economic, political, and social exclusion of past civilizations in that all parties would benefit more will full participation but the activity is simply unavailable to many, mostly poor, people.

> Thirty four of the lowest [ICT] ranking 45 nations are in sub-Saharan Africa, India and its neighbors Nepal, Bhutan and Pakistan also fall into this group. The other low ranking countries tend to be scattered around the world – for example, Haiti, Cambodia, Lao People's Democratic Republic, Solomon Islands, Papua New Guinea and Yemen. (United Nations Conference on Trade and Development, 2006 p 3)

The U.S. has very limited contingency operational experience in regions on its own side of the divide. Contingency planners take these factors into consideration when deciding what the host nation has to offer in terms of support and what the Joint forces must provide to provide adequate computer and network support.

B. REQUIREMENTS TO FACILITATE IMPLEMENTATION OF WAWF TECHNOLOGY

The digital divide and its prevalence in a country will be the biggest determining factor as to whether or not a local contractor can participate in the DoD's E-Government programs such as WAWF. Unfortunately in a contingency contracting environment, processing paperwork is more difficult than in normal peacetime conditions. Electronic

data processing systems which were integral to the process are taken away. Contingency Contracting Officers loose their ability to monitor payments in real time and the extent and adequacy of internal audits drops significantly.

The luxuries of online processes and traceability are lost in Iraq and Afghanistan for several reasons:

- Local vendors have little or no computer access.
- Internet security, compatibility, and connectivity difficulty.
- Contracting websites are written in English.
- Contractual documentation is required to be in English.
- Not all vendors have translator assistance.

A local vendor must have access, connectivity, and literacy in order to participate with the CCO. It is possible that costs be offset as over-head and included in the price of the contract. Additionally, the country must have laws protecting the security of the electronic marketplace. And finally, a stable banking system must be in place to facilitate EFT. The whole environment contributes to a contractor's capability to use WAWF.

If a country's digital divide is significant, then WAWF has limited potential. Joint forces and the contracting office will bring their own computers and network services; therefore WAWF can be used internally. Cash payments may still be required; however, it is worth examining what it will take to bring contractors in an undeveloped country up to the level of ICT effectiveness in order to use WAWF.

1. Hardware

Gaining access to information communication technology (ICT) "requires significant initial investment for hardware and software installation, maintenance, and training." (Lowry et al., 2001 p. 251) There are also legal and trust concerns over information security and privacy of information.

Since the WAWF application is entirely Web-based, users do not need to download content or software to their PC in order to gain access to the system. Therefore, no additional "hardware is needed to implement WAWF. All that is need is access to the Internet." (Defense Contract Management Agency, 2007)

There are, however, some hardware requirements to use WAWF and its Web-based training course. They are:

- Pentium or Pentium Pro processor-based personal computer (166 MHz or higher)
- 64 MB of RAM
- Monitor: 24 bit color recommended. This training was created for use at 1024 x 768 resolution. WAWF administrators recommend configuring the monitor resolution to 1024 x 768 for optimum display.

(*WAWF training website.*2007)

The CCO has enough hardware capabilities in their deployment kits, i.e., a portable computer, Pentium or better CPU, a portable printer, mobile/satellite phone, and modem to meet the aforementioned requirements. In the future they will benefit from enhanced portable capabilities so they can operate out of a vehicle.

2. Software

There are no specific contractor or government programs to install on a user's PC in order to participate in the WAWF application. It is important that users use current operating systems such as Windows 98SE, NT 4.0, or better. The computer must be a PC and not Apple because WAWF will not work with Apple's operating systems and Safari, the default Apple internet browser. The computer must have internet browser and connect with "at least 56 kilobits/second download speed." (*WAWF training website.*2007)

3. Training Requirements

WAWF training course are updated "continually." (*WAWF training website.*2007) The complete training session lasts "about two to three hours depending on how many questions are asked." (Defense Contract Management Agency, 2007) The application also has developed a robust and user friendly "Help" page. DCMA is also available to help vendors who need training. In addition, DFAS provides "hands-on" training free of charge to vendors at their various offices in the United States.[12] (Lundsten & Arviso, 2006) This option is not available to local vendors in the contingency environment.

[12] Contractors can register at www.dfas.mil/commpay/vptraining.htm.

WAWF training takes place in two distinct steps. First is the Web-based Training Course[13] which presents an introductory overview, basic instructions, some case studies and simulations. The second step, the Hands-On Practice System Site,[14] is "a mirror-image of the real WAWF system." Users perform simulated actions based on the lessons.

At the end of the training session the user reaches the "Conclusion" page. Here trainees can track their progress print their completion certificates. (*WAWF training website.*2007)

Users should retain a copy of their certificates and provide a copy to their organizations' official records. The two training websites are:

- http://www.wawftraining.com for the WAWF Web-base training.
- https://wawftraining.eb.mil for the WAWF practice server.

(Defense Contract Management Agency, 2007)

C. WAWF IMPLEMENTATION ISSUES

The flexibilities in Government policies between peacetime operations U.S. installations and wartime or contingency operations impact a contracting agency's quality of service. Certainly some variations must occur to accommodate the demographic and social changes. The instability found in contingency environments challenges the strength of WAWF's legal and technological support.

External to U.S. forces are markets that could adapt to WAWF. Internal operations only require small network and hardware improvements to implement a limited version WAWF. Electronic money would most likely be the final variable to apply because banks in undeveloped countries "are not adequately prepared for the cashless economy or the age of electronic money despite their traditional roles of controlling money supply and determining monetary policy." (*Globalizing electronic commerce: Report on the international forum on electronic commerce, Beijing, China, March 20-21, 1996* p. xx)

[13] wawftraining.com

[14] wawftraining.eb.mil

1. Compatibility

The majority of E-Government activity transpires within developed countries. "However most of the world's population exists outside the borders of these countries." (Uzoke & Seleka, 2006 p. 290) If contingency contracting offices want to exchange information electronically with local vendors the correct EDI standards are required.

a. Problem

Most environments where the U.S. performs contingency operations are under-developed countries that "lack the infrastructural, economic, and socio-political framework for the development of [e-commerce]." (Uzoke & Seleka, 2006 p. 290) Internet use in developing countries is growing; unfortunately e-business improvement has not kept pace. "Several factors have contributed to the poor pace of e-commerce development…Such factors include: consumer mistrust of local Internet service and products; uneven diffusion of Internet across countries and poor ICT infrastructure; and unorganized electronic marketing; Government policies and low credit card penetration." (Uzoke & Seleka, 2006 p. 292)

b. Solution

Research based on the United States Department of Commerce data indicates that in order for e-commerce to take a hold there needs to be "active engagement of Internet activities by the population at large." (Uzoke & Seleka, 2006 p. 291)

Developing e-commerce can be accomplished in three stages:

- Readiness: the readiness of people, businesses, infrastructure, and the economy as a whole for e-commerce activities
- Intensity: the intensity with which information and communications technologies are utilized within a country, and the extent to which e-commerce activities are undertaken
- Impact: e-commerce begins to make impact on national economy and business activities in the country.

(Uzoke & Seleka, 2006 p. 292)

2. Documentation

> WAWF–RA keeps historical files that are readily available for both contractor and Government use. No reporting, recordkeeping, or compliance records will be required from small entities. All such records will be generated by DoD as a byproduct of the use of the required systems. DoD invites comments from small businesses and other interested parties. (Peterson, 2007)

3. Politics/Legislation

Contracting is not a secure form of business wherever governments poorly regulate their country's e-commerce. When critical contracting steps occur online and through e-mail in undeveloped countries, "it is frequently difficult to determine the precise nature of contractual obligation." (Beynon-Davies, 2004 p. 267) The reason is, according to some analysts, is that not all governments acknowledge electronic communication as "a 'writing' that will be accepted in a court of law." (Beynon-Davies, 2004 p. 267)

Additional contractual difficulties with e-commerce are:

- The lack of opportunity for parties to evaluate the goods being sold before purchase
- The difficulty for parties to authenticate each other
- Because a sales transaction may be conducted across national borders, it is frequently difficult to determine which nations' contractual law applies in a particular case. This is expressed as the problem of jurisdiction.

(Beynon-Davies, 2004 p. 267)

> At the international level, there is no consensus on contractual law. However, the Unite Nations Commission on International Trade Law (UNCITRAL) has, in its Model Law on E-commerce, attempted to establish an international standard. Although this law has no authority until individual countries adopt it through their respective legislative processes, it does represent an effort to bring clarity to electronic contracts in the international environment. The UNCITRAL Model Law adopts a minimalist approach, recognizing that contracts may be made and signed in an electronic environment, and that electronic transmissions may satisfy signature requirements. Similarly, the E.U. has issues a Directive on Electronic Signatures (1999/93/EC) that requires member states to enact legislation pertaining to the authentication and recognition of electronic-signatures. (Beynon-Davies, 2004 p. 267)

D. POST-IMPLEMENTATION REQUIREMENTS

Oversight and monitoring are essential fraud prevention measures. Regardless of the size of the contract, the fast paced nature of contingency environments is the more common causes of contracting problems. Financial payments can be made without visibility or adequate verification of delivery of the goods and services. Customers have little ability to reject over-deliveries. In some cases, such as food services, an over delivery is welcomed because the alternative is an undernourished warfighter.

Both combat commands and contractors are adjusting to fighting wars and providing security with contractor support. The workforce is doing everything possible to keep up support up and spending down. However, there are only so many hours in a day a contracting officer can efficiently administer contracts. Managing never before seen levels of contracted logistic support in the fog of war will result in waste, mismanagement, and shamefully, fraud.

Political pressure and visibility warns the industry about deliberately defrauding the American taxpayer. This discourages contractors who fear bad publicity and legal penalties from behaving poorly. Not all of the businesses in support of the coalition are American or governed by our laws. Congressional investigations mean absolutely nothing to many organizations involved in contingency operations.

Audits and investigations can reveal errors, fraud, waste and abuse. They can retroactively suggest better business practices. Their proposed solutions will shape the future of contingency operation spending in the years to come. It has taken many years but the lessons learned have begun turning things into new, more effective and efficient directions.

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VI. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

A. SUMMARY

The unique needs of the DoD, particularly regarding operations overseas and in support the Global War on Terror and other contingency operations brought several system shortfalls to light. Contract administration transitioned from traditional paper-based processes to WAWF during its beginnings. It is now mandated for use by all DoD contracting agencies. It is currently not usable in immature contingency environments and very limited in its use with U.S. vendors in operations in mature contingency environments. (Kerber, 2003 p. 37)

WAWF is a PKI secure Web-based system for electronic invoicing, receipt and acceptance. It creates a virtual storage of the documents required to pay a vendor. Once produced, the virtual records can trigger observance directly to the Government inspectors and acceptors named on the contract to which the documents are related. The WAWF application uses interactive applications online transfers the same data previously submitted on paper versions of DD250, and other relevant forms.

Prior to WAWF implementation, Defense Contract Management Command (DCMC) conducted a survey of contracting offices and identified "awaiting final invoice"[15] and "awaiting final payment for reasons of posting errors" as some of the delays in contract close-out. (Engelbeck, 2002 p. 399) The researcher contends that when contingency contracting fails to use WAWF and other E-Government assets that these problems will reappear.

Nitin Desai, a special advisor to the U.N. Secretary General and chairman of the first Internet Governance Forum held in Athens in 2006, said,

> The big expansion in the internet in the next five years is going to take place in developing countries…A lot of it in countries which are not English speaking ... where people don't even know the Latin alphabet, for instance, China…This is a medium which in five years' time will have users who are not your classical internet users...These are not research

[15] As much as 25% of the contract delays were caused by awaiting the final invoice.

> professionals in developed countries ... It's going to be a lay user. It's going to be a user in China, in Arabic speaking countries, in India…Look at the way the internet technology is going to interface with the mobile technology. Once you get that, the cost of access won't be more than the cost of using a mobile phone ... India is talking in terms of half a billion people having mobile phones, in a matter of barely five years. (*Internet expansion 'will happen in developing countries'*.2006)

Despite some obstacles, WAWF has the "potential to expedite the entire payment process" in a contingency environment and "eliminate many of the inherent problems associated with data input into computer systems by multiple people at different locations." (Furlong, 2005) Local contractors would receive payments in a timelier and more accurate manner. CCOs and contract administrators could be more productive.

> A person employed in a redundant task is one who could be countering terrorism or nuclear proliferation. Every dollar squandered on waste is one denied to the warfighter. And that means we must recognize another transformation: the revolution in management, technology and business practices. Successful modern businesses are leaner and less hierarchical than ever before. They reward innovation and they share information. They have to be nimble in the face of rapid change or they die. (Rumsfeld)

WAWF enables users in the contracting process with electronic access to contract documents relating to invoice, receipt, acceptant and payment. It virtually eliminates paper contracts, invoices, and receiving reports. (*WAWF training website.*2007)

WAWF is available twenty-four hours a day for contracting purposes *and* enables DoD supply and logistics personnel to track goods and services. It is clear how it can improve military functions in any contingency. Local business must begin learning about computer technology in the beginning phases of a contingency. In time, their confidence in its use for business purposes will develop. Because WAWF is available at all times it can work at the pace of the U.S. forces involved in a contingency operation. DoD contracting personnel have the tools that support them best in their most trying activities.

B. CONCLUSION

This purpose of this section is to provide several conclusions that can be drawn from the research. The summary portion above briefly explained the basics of WAWF, its advantages, and its potential in contingency operations. These concepts are built on several smaller conclusions explained here.

1. Conclusion #1- Legal Standards Are Not Universal

In Chapter I, the issue of electronic currency was discussed. Because of the digital divide, several requirements for the implementation of e-commerce cannot be effective. The main reason is that most governments do not have the legal standards in place to secure and protect the transaction data or protect its users from counterfeiting. Also, if the country's banking system or computer network infrastructure is unstable, the electronic currency will not be infinite in duration.

2. Conclusion #2- EFT Requires Stable Banking Systems

If the WAWF system could pay a vendor by EFT and eliminate the cash distribution functions of a contingency contracting office, the vendor would still have few if any places to spend that money within their borders. Therefore, the money is of no use to them and they would most likely demand cash payments regardless of their organization's ICT skill level.

Funding can cause more disputes in relationships with a contractor than all other aspects of contracting. WAWF needs a thorough procedure for paying contractors in other forms than cash that can include credit cards, EFT, or EFTPOS.

As long as there are developing countries whose people and businesses do not use e-commerce, CCOs will have to use paper and cash. This does not mean that WAWF can not be partially implemented to assist their internal processes.

3. Conclusion #3- WAWF Can Benefit CCOs

If "the WAWF system arrived in the [forward deployed] Vendor Pay section, it could all but eliminate the problem of late-arriving invoices and receiving reports, and it

should eliminate most errors in completing those documents." (DFAS Kansas City welcomes "human voucher." 2003) As the Defense Department's standard contracting software platform, WAWF could give suppliers and approved Government officials degrees of access and oversight of payment process that are much needed in contingency operations.

4. Conclusion #4- The Future of WAWF Should Mimi Commercial Practices

When planning to use e-commerce one must understand that the "home shopping business methods" is the proper model. (Uzoke & Seleka, 2006 p. 291) The desired end result will be an "integrated and streamlined both its internal and external processes in order to improve efficiencies, lower costs, and increase competitiveness." (Kerber, 2003 p. 14)

C. RECOMMENDATIONS

Steps should be made to support or enhance the local connectivity and access issues. "E-Commerce thrives on the utilization of credit cards and other online payment systems" so the should be more emphasis on "encouraging the establishment of credit management firms with their economies." (Uzoke & Seleka, 2006 p. 294) The following are the researches recommended steps to bridging WAWF's capability gaps.

1. Recommendation #1- Follow These Stages of E-Commerce Implementation

a. Preparation

Contractors would first develop some awareness of information communication technology (ICT). The incentive for them would be a "promise of reality." (Lowry et al., 2001 p. 254) They should be made aware that future business transactions will take place online. It is in the CCO's best interest to make phone numbers, office hours, contracting policies and other basic information easily accessible to local businesses online. In time, the contractors will begin developing their literacy.

Vendors interested in gaining business from the U.S. will be active in their Internet use and develop the means to integrate it into their daily business operations.

b. Exploration

The next step would be slowly increasing requirements for interaction via the Internet. Solicitations should be advertised online with the FedBizOpps website which is the standard means of soliciting in CONUS. Simultaneously, the contractor's data security and privacy must be increased until they have full encryption and safety competence.

Contractors can begin e-mailing the government. The benefit with this is now they can contact a WAWF user, a role, rather than a by name individual. This will ensure a faster response and allows flexibility for CCO turnover.

If Internet the connection speed is slow, the WAWF website already allows users to download the Training Course and complete it offline. Other information should be made "downloadable" so getting disconnected will not cause the contractor to loose their progress.

c. Integration

All contracting offices operating in the contingency should be use a single access point to the Government data. This single point of entry can connect subordinate organizations and standardize operating procedures. Competition will be broadened. Contractors will be "insulted from bureaucratic complexity" and the process becomes "more transparent." (Lowry et al., 2001 p. 255) This single point of entry site should also provide links to all relevant references.

Also at this stage of implementation, businesses can begin registering themselves in the Central Contractor Registry (CCR) and WAWF. As their literacy improves they will gain faster access to the Government websites they use the most. Contract administrators will have less administrative burdens as contractors update their information on their own. Overall, a higher degree of participation is gained because now contractors can receive e-mails and updates online. (Lowry et al., 2001 p. 256)

2. Recommendation #2- Improve Upon Current System Framework

Certain changes must be made to the current website to maintain its strength against other agency initiative and to allow for future innovations. It must compliment existing information, and be accessible and applicable to a wide (multi-lingual) audience content relevant. WAWF website will only be useful to CCOs is it user friendly crosses service boundaries provide citizens, businesses and government officials with the information they need to interact directly with government organizations.

3. Recommendation #3- Provide Portable WAWF Access

BTA must find ways to enhance synchronization through the use of PDAs. CCOs would greatly benefit from the use of portable, globally accessible, Internet capable wireless hand held devices. Field agents like the QA inspectors could complete most of their tasks[16] and access all the relevant documents without being at a PC or ever using a printer. They will have all the benefits of WAWF with full mobility.

If authorized Government personnel have portable devices, then it stands to reason that the wireless internet would also be available to the contractors. It may be worth the investment to leapfrog the physical infrastructure startup costs and provide vendors with a mobile phone or PDA that enables them to complete their WAWF transactions without using a PC, printer, modem, or cable. It is also important that all E-Government initiatives work at integrating their EDI, enforcing standards, and develop one device that has a multitude of applications rather than automating one application. The initiative must be well structured in order to optimize development resources.

4. Recommendation #4- Find Alternatives to Cash Payments

There have been several suggestions to eliminate cash for e-commerce developed. Two of these concepts have potential to enhance contracting actions in contingency areas. They are:

- Encrypted credit card systems, such as electronic smartcards. These are based on government authorized currency systems and existing credit card

[16] It is their job to ensure the contractor delivered the correct amount, to the correct location, all performance requirements were met, and the invoices were accurate.

systems using encrypted transactions of credit card numbers. (*Globalizing electronic commerce : Report on the international forum on electronic commerce, Beijing, China, 20-21 March 1996* p. 2)

- ATM machine online where your account has a balance of currency deposited and you deduct or debit against the balance online.

(*Globalizing electronic commerce : Report on the international forum on electronic commerce, Beijing, China, 20-21 March 1996* p. 2)

EFT development requires four stages of implementation:

a. Computer-aided funds transfer and settlements among banks;
b. Funds transfer between banks' and public institutions' computers, such as "salaries to savings accounts";
c. Self-service banking, such as the use of ATMs;
d. Automatic account deducting service by using POS. This is a new stage for EFT. Some call this service "Electronic Payment Service" (EPS).

(*Globalizing electronic commerce: Report on the international forum on electronic commerce, Beijing, China, 20-21 March 1996* p. 50)

5. Recommendation #5- Make WAWF Open to All

Recent estimates claim that one billion people around the world accessed the Internet in 2006. Only a small percentage of them are literate in English and many of whom use a different alphabet than the one used in America, the Latin alphabet. Organizations like the UN IGF are taking steps to enhance the individual language capabilities of countries around the world. Eventually, a multilingual WAWF application is needed to include businesses operating online in languages other than English. (IGF Secretariat, 2006 p. 11)

The "lack of access to the Internet in indigenous languages is detrimental to many potential and existing [contractors, especially in] developing countries." (IGF Secretariat, 2006) The more "open" WAWF is the more it promotes competition "on an equal basis across a wide range of Internet markets." (IGF Secretariat, 2006 p. 13)

6. Recommendation #6- Provide Access Assistance to Local Vendors

The digital divide, and specifically access, is a key problem to implementing WAWF into marketplaces in developing countries. "Despite the rapid spread of the

Internet, five billion people remained without access to [it]." (IGF Secretariat, 2006 p. 12) Here are some suggestions for overcoming access barriers.

> Local contractors must be protected by the U.S. laws on e-commerce.
>
> The appropriate regulatory environment (sometimes referred to as the enabling environment) at the national level could do much to foster the deployment and growth of the Internet. National policies could encourage investment in capacity and growth, support the establishment of Internet exchange points (IXPs), create a favorable legal climate for supporting e-commerce, promote the extension of broadband networks, and encourage competition in the ISP industry that would lower prices. (IGF Secretariat, 2006 p. 12)

Perhaps connectivity costs could be absorbed by the WAWF system and ultimately the U.S. government in hopes that the efficiencies gained will produces a net benefit.

D. THESIS CONCLUSION

In conclusion, this research paper provided an overview of global electronic commerce and how the U.S. Government has used it to its advantage. Specific emphasis was made to the Wide Area Workflow system and its advantages and limitations. WAWF has become a great asset in Government acquisition and is hamstrung by the conditions of immature theaters. Contingency Contracting Officers can benefit by any steps made to use WAWF in the course of their operations. Finally, recommendations to overcome the gaps in its abilities were discussed herein.

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