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Kevin W. Banks

kwbanks@hotmail.com

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Kevin W. Banks

kwbanks@hotmail.com

Abstract:

An integral part of technologically advanced societies since the mid-1990s, the Internet is a relatively new feature of Iraqi society, at least in its commercially developed form. The limited and heavily monitored browsing and e-mail access that was available under Saddam pales in comparison to the wide array of Internet opportunities opening to the people of Iraq as reconstruction continues.

Keywords: Internet, invasion, Iraq, Jihad, reconstruction, Saddam, terrorism

I. INTRODUCTION

Begun in the 1960s as a pioneering computer research project for the U.S. Department of Defense's Advanced Research Projects Agency (ARPA), the ARPANET evolved into today's Internet, a globally connected network of computers and servers. Driven by a variety of motivations, thousands of individuals and organizations around the world produce innovations that give the Internet its true power—the ability to traverse borders and geopolitical boundaries, bringing affordable communications to millions of people and opportunities for socialization, entertainment and education. Initially found only in military and research organizations, the Internet today is accessible virtually everywhere, even aboard the space shuttle, where NASA has tested its own version of the Internet, "IONet" [Halperin 2003]. It is the "Information Super-Highway," yet already that title fails to properly communicate the breadth and impact of its offerings: more than just an information distribution system, for some, access to the Internet is now a matter of life and death.

With the intense focus of the world on the political and military situation in Iraq, the rapidly expanding Internet offerings sweeping across Iraq have gone relatively unnoticed, and yet these offerings are changing Iraqi society in ways that may be more dramatic than in most other countries. By the time of the 2003 U.S. invasion of Iraq, the United States already had 30 years or more in which to digest the changes brought to its culture by computers and early predecessors of today's Internet; Iraqi society however, while allowed very limited and heavily suppressed Internet access under Saddam, is today being confronted with nearly two decades of tremendous commercial Internet development all at once. This sudden exposure to the latest Internet technology is straining traditional Iraqi cultural norms, yet at the same time providing innovative solutions for the Iraqi people as they struggle to rebuild their society. Moreover, due to the unique security conditions in Iraq, ordinary citizens and terrorists alike are pioneering innovative uses for the Internet.

In this paper I will attempt to address the question of how the Internet is positively and negatively impacting Iraqi society—a society racked by war and terrorism, seeking to reconstruct and redefine itself. Section I discusses the history of the Internet in Iraq under Saddam Hussein. Section II discusses the impact of the U.S. invasion on Iraq's Internet connectivity as well as the development of terrorist exploitation of the Internet in Iraq. Section III addresses the progress in rebuilding a future-looking Internet infrastructure. Section IV discusses the societal impact of Iraq's new Internet offerings, and Section V will offer concluding observations.

II. INTERNET LIFE UNDER SADDAM

The story of the Internet in Iraq is a complicated one. Its progress was interrupted by two wars, and in between the wars, by a stranglehold of state censorship. The roots of the Internet in Iraq go back as far as 1982, when a "research center and database system" known as the Regional Documentation Center [RDC) of the Arab Gulf Cooperation Council (AGCC) was created with its headquarters at al-Mustansiriyah University in Baghdad; by December 1989, this center had data connectivity with the other members of the AGCC and close to 1,000 dial-up users, but no e-mail service [Burkhart 1998]. Additionally, this center also had connections to Dialog and "other Western database vendors", but as is so common in the story of Iraq's Internet evolution, the links to these databases were cut due to the outbreak of war on August 2, 1990, the day Iraq invaded Kuwait [Burkhart 1998]. Around that time the Iraqi Library Association developed plans to establish a nationwide network for Iraq's libraries, but by 1998 the network had disappeared [Burkhart 1998]. On a more positive note, 1998 saw the Iraqi government establish the General Company of Internet and Information Services (GCIIS); however, access to the Internet was not available to Iraqi citizens until 2000 [ANHRI 2003-2004].

In the tightly controlled environment under Saddam, Internet access for the average citizen had little value. To begin with, only one Internet service provider existed, the Ministry of Culture and Information [cnn.com, 27 July 2000]. For most users, access was only available at the 65 government Internet centers—the Iraqi version of an Internet café—and before one could surf the very limited number of allowed Web pages, he or she would have to survive an entrance interrogation conducted by the officials running the center [ANHRI 2003-2004]. These officials would question potential customers about the pages they intended to view before they would be allowed to enter, and the officials could, on their own authority, bar people from entering the facility for any reason [ANHRI 2003-2004]. Once people succeeded in gaining admission, they were subject to what in the West would be considered Draconian usage policies: users were required to adjust the computer monitor so it would face the door; they were forbidden to delete the history of Web sites they surfed; and they were forced to subscribe to the government e-mail

service provided by the GCIIS in lieu of free e-mail services [ANHRI 2003-2004].   E-mail sent via this service passed through two local channels, Orouk and Woraka, both heavily monitored [ANHRI 2003-2004]. It was not uncommon for recipients to receive e-mail messages several days after they were initially sent due to the time it took the censors to read and clear messages; what is more, Internet users had to pay 200 dinars for each and every e-mail they sent, an amount equal to about 10 cents U.S. at that time[1] [ANHRI 2003-2004].

The situation in universities and other institutions with Internet centers was not much better. Those in charge would intercept and read inbound e-mail to students and determine whether or not to deliver messages based on content, as well as intercepting student e-mail sent out of the institution for the same purpose [ANHRI 2003-2004].

Under Saddam, those able to afford a personal computer could subscribe to the government e-mail service for approximately 100,000 dinars ($50); if they preferred to have a direct connection to the Internet, they could subscribe via the GCIIS for around $750 U.S. per year [ANHRI 2003-2004]. Even if one could afford these prices, Internet access was dependent on the user signing an intrusive Internet usage agreement which stated:

> The subscription applicant must report any hostile Web site seen on the Internet, even if it was seen by chance. The applicants must not copy or print any literature or photos that go against state policy or relate to the regime. Special inspectors teams must be allowed to search the applicant's place of residence to examine any files saved on the applicant's personal computer. [ANHRI 2003-2004]

Given Saddam's reputation for brutality, this policy must have had a chilling effect on Internet usage.

Kurdish northern Iraq provided the solution to those who tired of the oppressive government Internet policies. In July 2001, Michael Rubin, a former visiting lecturer at Hebrew University, gave a briefing on the nine months he spent as a visiting professor at northern Iraq's three universities. In his briefing, he said that during his time in northern Iraq, Internet cafes were springing up everywhere, including approximately 24 Internet cafes in Sulaymaniyah [Rubin 2001].   Many people, including groups of youths, would make the trek to Kurdistan where they could surf and e-mail without government monitoring; in fact, these censorship-weary Iraqis comprised 10 percent of the Internet users in Kurdish Internet centers, and the cost for this freedom was actually about the same as Internet services in areas controlled by the Iraqi government [ANHRI 2003-2004]. As can be seen on the map in Figure 1, the trek to Kurdistan was not a short trip; as an example, the distance from Baghdad to Kirkuk using Google Earth measurements is approximately 150 miles on a straight line (210 miles from Baghdad to Arbil).

Figure 1. Map of Iraq and Kurdistan[2]

As the years progressed, the number of Internet users under Saddam grew very slowly. By 2002, out of a population of 24 million, there were only 45,000 Internet users, and many of these were government officials; the remainder were those who had the financial means to afford such access, which cost around 2,000 dinars per hour, the equivalent of about $1 U.S. [ANHRI 2003-2004].   This price for Internet access in Iraq represented a considerable amount, given that the average Iraqi income by 2001 ranged from $770 to $1,020 and was projected to be even lower at the end of 2003, just $450-$610 [Schifferes 2003]. Just prior to the 2003 U.S. invasion, 25,000[3]

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1 Based on the figures provided in the ANHRI article, which, after extrapolation, indicate that one Iraqi dinar was worth approximately .0005 U.S. dollars

2 [Kokhaviv Publications 2003]

3 As an indication of the difficulty in obtaining reliable Internet statistical information for the Saddam years, the official web site for the Multi-National Force in Iraq [http://www.mnf-iraq.com/index.php?option=com_content&task=view&id=17&Itemid=8)

home-based accounts were added to the number of Internet users in Iraq, which still represented a relatively low percentage of Iraqi Internet users given the overall population of 24 million [Krane 2003]. Furthermore, Iraq's total Internet bandwidth usage was only about 10 megabits per second which is roughly what a large city office building in the U.S. might have used at that time [Krane 2003].

The growth of Internet usage in Iraq, though modest, was brought to a halt in the period immediately following the U.S. invasion. Once the U.S. attack began, a Cisco switch located at Internet address 62.145.84.250 which connected people in Baghdad to the Internet stopped responding, and Uruklink.net and its email server went dark after a weekend of missile strikes [McWilliams 2003]. With hits on the transmission antennas on top of the Iraqi Ministry of Information, Iraq found itself cut off from the Internet [Krane 2003].

III. INVASION AFTERMATH

In the aftermath of the 2003 U.S. invasion, prospects looked dim for the quick rebirth of Internet services in Iraq. The 65 government Internet cafes were looted, and employees of the State Company for Internet Services took away anything that was left in order to protect it; power sources were not reliable and phone lines were non-functioning [Krane 2003]. Out of this chaos, determined efforts were made to restore limited access, requiring great creativity. For example, engineers from the State Company for Internet Services found and salvaged a satellite transceiver from what was left of the Ministry of Information, hoisted it on top of a two-story structure in the al-Adel neighborhood in West Baghdad, and after weeks of patch-work, got it to the point where it could send and receive a signal [Krane 2003]. "'We built it from scrap. We had to weld it and build it manually,' said Abdullah, a gray-haired man whose fingers fidget over a string of wooden prayer beads" [Krane 2003]. Abdullah went on to say that once the Internet was back up and running there would be no censorship, with the possible exception of pornography. With this functional satellite dish, 50 computers, a diesel generator, and security guards, these humble beginnings signaled the May 2003 birth of Baghdad's first Internet café post-U.S. invasion [Krane 2003]. Since that time, Internet cafes have sprung up all over Baghdad and the rest of Iraq as reconstruction provides the necessary infrastructure and telecommunications backbone for Internet access. Despite obstacles encountered by those seeking to open Internet cafes, by 2004 in Baghdad alone there were already as many as 150 Internet cafes (IOAI). As of July 2007, there were roughly 2,000 Internet cafes nationwide, making Internet access available to hundreds of thousands of Iraqis [MNFI 2007]. In a May 2007 report by the UN Office for the Coordination of Humanitarian Affairs, Hisham Abdul-Azim, a senior official in the education ministry, stated that Internet subscriptions have almost tripled as compared to 2004 numbers [Irin 2007].

Terrorism and the Internet in Iraq

Amidst the chaos of the early stages of Iraqi reconstruction, the Internet saw a very dark side of its personality emerge as terrorists in Iraq capitalized on the global access it afforded. Abu Mus'ab al-Zarqawi came to international prominence by mastering the use of the Internet in his war against coalition forces in Iraq, firing his first "e-salvo" on May 11, 2004, when he video-taped his beheading of Nicholas Berg; the video was soon posted on the al-Ansar Web forum where it was downloaded millions of times and inspired copy-cat beheadings [Glasser and Coll 2005]. This "9/11 of the Internet" as it has been labeled by Evan F. Kohlmann, a consultant who monitors jihadist sites and operates the site www.globalterroralert.com, made Zarqawi a household name [Glasser and Coll 2005]. Illustrating just how unprepared the West was culturally for this type of Internet warfare, Kohlmann went on to say: "For years, people were saying how the Internet would be used by terrorists. And then all of a sudden somebody was beheaded on camera and it was, 'Holy smokes, we never thought about the Internet being used this way!'"[Glasser and Coll, 2005].

Unlike Usama bin Laden's al-Qaeda, which used older technology such as fax machines and satellite television, Kohlman considered Zarqawi "a new generation" surrounded by individuals in their twenties who "view the media differently" [Glasser and Coll 2005]. A sign of Zarqawi's Internet savvy was his use of like-minded, Web-savvy jihadists. His "information wing" took his 46-minute "All Religion Will Be For Allah" video and distributed it via the Web in a number of formats, to reach a global audience; these formats included a high-quality, large-file version of 150mb for those with high speed Internet connections, smaller, lower quality 4mb versions for those with only dial-up access, options for viewing in either RealPlayer or Windows Media Player and even a version designed for play on cell phones [Glasser and Coll 2005]. Experts have gone so far as to claim that these "electronic guerilla" tactics will serve as the model for future insurgents around the world "…where no act goes unrecorded and atrocities seem to be committed in order to be filmed and distributed nearly instantaneously online" [Glasser and Coll 2005]. This prediction seems to be supported in a statement by David Bacon, an Air Force Colonel staff officer at Multi-National Force-Iraq, who says that al-Qaeda in fact orders its militants to film each of their attacks on Iraqi forces or those of

puts the number of Internet subscribers prior to the 2003 invasion at 4,500, and Internet users at 10,000, figures nowhere near the 45,000 Internet users listed in the ANHRI article, and nowhere near the 250,000 users and 25,000 home based accounts listed in Krane's article.

the coalition [Michaels 2007]. Zarqawi's other online Internet tactics in Iraq included immortalizing suicide bombers and praising their religious zeal, baiting the U.S. military, publishing the monthly Internet magazine *Thurwat al-Sinam* (*The Camel's Hump*) which provided religious justifications for jihad and information on how best to engage in such warfare, and negotiating with Bin Laden online regarding joining forces [Glasser and Coll 2005]. Zarqawi's Web supporters, following suit, provided Web postings for Iraqi insurgents with information ranging from the best routes to take into Iraq to the names of mosques in Syria that would be willing to host insurgents [Glasser and Coll 2005]. Supporters of the insurgency and jihadist cause in Iraq also contributed material for those interested in entering Iraq. Included in the document "Road to Iraq" which appeared in *Jihadweb*, an online magazine, were recommendations that those looking to enter Iraq via Syria "wear jeans" and "use a portable music player" in order to look more Western [Curiel, 2005]. In March 2005, the Ansar al-Sunna forum posted a notice to those seeking to enter Iraq as fighters, warning that there were checkpoints in two Syrian cities near the Iraqi border, and that "would-be" fighters should steer clear of hotels near the border as the Syrian government had issued orders to report any Arab that checked in [Curiel, 2005]. In addition to providing information for individuals attempting to enter Iraq, files were also posted online containing instructions on how to shoot down aircraft with surface-to-air missiles; one supporter of the Iraqi insurgent cause even posted a three-minute video detailing how to make a suicide bomb vest, showing it being detonated on a mannequin and destroying nearby objects [Curiel 2005]. "The technology of the Internet facilitated everything…" claimed a Web posting in the spring of 2005 by the Global Islamic Media Front, an organization which often disseminated Zarqawi's statements via the Internet; the posting went on to say that Web sites today are "the way for everybody in the whole world to listen to the mujaheddin" [Glasser and Coll 2005].

Perhaps one of the most telling indicators of the impact Zarqawi and his Internet-savvy supporters have had on the conflict in Iraq can be found in another statement by Kohlmann: "I don't know how to distinguish the Internet now from the military campaign in general in Iraq" [Glasser and Coll 2005]. Indeed, the Pentagon has been developing plans to "attack the computer networks and Web sites used by terrorists," and General David Petraeus stated before Congress: the "war is not only being fought on the ground in Iraq but also in cyberspace" [Michaels 2007]. Further evidence of this multi-dimensional warfare can be seen in the terrorist exploitation of publicly available satellite imagery. Using Google Earth, a free, downloadable application that provides such imagery, terrorists were able to more accurately target British bases in Basra; Major Charlie Burbridge, the British military spokesman in Iraq, stated "There is a constant threat of reconnaissance missions to access our bases and using these Internet images is just another method of how this is conducted" [Harding 2007b]. Google Earth obscured such installations at the request of the British government [Harding 2007a].

Sounding resigned to the new era of "e-terror," Kohlmann concludes "It's the exact reason why we built the Internet, a bargain-basement, redundant system for distributing information…we can't shut it down anymore" [Glasser and Coll 2005].

The Internet as a Portal to Jihad

In addition to functioning as a tool used by insurgents for gathering intelligence and disseminating information, the Internet also serves as a tool for luring impressionable youths to the world of jihad via online propaganda and outright recruitment. Web sympathizers of the jihadist cause are one component of a larger phenomenon in which non-fighters, using the Internet's global access, can still participate in global jihad in general, and jihad in Iraq in particular. Their education and economic circumstances enable them to invest considerable time in such efforts: "young, educated, unemployed people can spend hours managing or contributing to such sites from their own homes, rather than traveling to Iraq or Afghanistan to do battle" [El Deeb 2004]. The target audience for these Web supporters are those like themselves living in the developing world: the "educated and disenfranchised," as well as Westerners [El Deeb 2004]. Dia'a Rashwan, a specialist on Islamic militants, says of such Web-based supporters that "they have no other part in holy war. Electronic holy war is their contribution" [El Deeb 2004]. While these supporters work far from the battlefield, their activity is not without risk; on July 5, 2007, three men in the UK were sentenced to prison terms for making jihadist material available on their Web sites, and thus "inciting terrorist murder" via the Internet [Pallister 2007]. Twenty-three-year-old Younis Tsouli, using the nickname Irhabi007, a combination of the Arabic word for "terrorist" and the code name for James Bond, made available, via the Web, messages from al-Qaeda, videos of beheadings and attacks by Abu Musab al-Zarqawi's organization in Iraq, and was sentenced to 10 years in prison [Pallister 2007]. Considered Iraq's "godfather of cyber-terrorism for al-Qaida," Tsouli hacked into vulnerable Web servers and posted files and videos [Pallister 2007]. The judge who pronounced sentence offered an interesting insight into this new era of "cyber jihad" by observing that, with respect to Tsouli, "he came no closer to a bomb or a firearm than a computer keyboard" [Pallister 2007].

The Internet's power for socialization is another effective component in this developing phenomenon of e-jihad. Motivated by the online propaganda posted by these extremist groups, the susceptible are lured into relationships with those who recruit for jihad. Kohlmann states that there is "a great deal of evidence to suggest a direct

correlation between (insurgent) propaganda and the recruitment of individuals into the terrorist movement" [Curiel 2005]. Gabriel Weimann, professor of communication at Haifa University in Israel, has found that Web sites supporting the insurgent and jihadist cause do not provide details such as contact information for contacts in Syria or Iraq but rather serve as mechanisms by which personal relationships are established between those interested in getting involved and recruiters; such relationships then lead to information on how to enter Iraq to join the fight [Curiel 2005]. Weimann further states that recruiters for terrorist groups "may also use more interactive Internet technology to roam online chat rooms and cybercafés…" and that "electronic bulletin boards and user nets (issue-specific chat rooms and bulletins) can also serve as vehicles for reaching out to potential recruits" [Weimann 2005].

As an example of how online participation in jihadist Web sites can lead to recruitment, Kohlmann offers the case of Abu Osama al-Sudani, a Sudanese student who lived in Riyadh, Saudi Arabia: Al Sudani followed closely a Web forum associated with the violent Ansar al-Sunna group, making his support for their actions clear; eventually he became so desirous of being involved personally that he traveled to Iraq and was reported to have died in an unspecified "martyrdom operation" on the same date that a suicide bomber killed four and wounded 15 in Baquba [Curiel 2005].

Beyond Web sites and forums, videos are extremely useful to terrorist recruiters. Kohlmann argues that videos are in fact the best tool for recruiting and spreading propaganda; there are in fact so many videos of beheadings and other killings available on the Internet that fan clubs have actually formed around certain such videos, and, Kohlmann adds, "They trade these videos like baseball cards" [Curiel 2005].

The Internet as a Vehicle for Insurgent and Jihadist Message

In the battle for public opinion, Iraqi insurgents and their Web-supporters worldwide have turned to the Internet to promote their cause. Al-Qaeda has put considerable effort into this "public relations" aspect of warfare; Osama bin Laden's deputy Ayman al-Zawahri in fact stated in 2005 that a majority "of this battle is taking place in the battlefield of the media" [Michaels 2007].

In their paper, "Iraqi Insurgent Media: The War of Images and Ideas," Daniel Kimmage and Kathleen Ridolfo detail how insurgents, jihadists and their Web supporters exploit the Internet to distribute quantities of professional-looking media presentations in an attempt to sway public opinion, encourage those involved in the insurgency, and even influence Arab media. Just some of the products used in this effort include online magazines, videos, flash creations and mp3s [Kimmage and Ridolfo 4, 62]. In addition, as of a January 2007 press release, there was even an online television channel "Sawt al-Khilafah" ("Voice of the Caliphate"); while it no longer operates at the Web address given in the press release, "Sawt al-Khalifa" was purported to broadcast jihadist-related material and films produced by several insurgent groups [Kimmage and Ridolfo 59-60].

There are a number of strategic reasons such groups have made prolific use of the Internet, and Table 1 summarizes some of the key points as enumerated in Kimmage and Ridolfo's paper.

As a sign of the unique, media-related component of the Iraq conflict, the U.S. army reported in 2007 that it captured six al-Qaeda "media centers" in Iraq; in one house that was raided north of Baghdad in Samarra, forces found "12 computers, 65 hard drives and a filming studio" [Michaels 2007].

As a fitting prologue to the previous discussion of the jihadist and insurgent manipulation of the Internet, news outlets reported in July 2007 that the Islamic State of Iraq (ISI) was in reality nothing more than an Al-Qaeda "virtual" front created in cyberspace to, as Brigadier-General Kevin Bergner stated, mask "…the foreign influence and leadership within al Qaeda in Iraq in an attempt to put an Iraqi face on the leadership of al Qaeda in Iraq" [Yates 2007]. In postings on its Web site, the ISI named Abu Omar al-Baghdadi as its leader, significant for the fact that this is a name with Iraqi origins, thus giving the appearance that an Iraqi was in charge, while the leader of Al-Qaeda in Iraq, Abu Ayyub al-Masri,[4] an Egyptian, was identified as the organization's minister of war [Foxnews.com 19 July 2007]. As a result of the July 2007 capture of Khaled Abdul Fattah Dawoud Mahmoud al-Mashhadani, the highest ranking Iraqi in the leadership of Al-Qaeda in Iraq, it was learned that in reality, Abu Omar al-Baghdadi was a fictional character invented and advertised via the Internet to hide the fact that the Egyptian al-Masri was actually the head of the ISI [Foxnews.com 19 July 2007]. To further bolster this ruse, al-Mashhadani said that an actor with an Iraqi accent was used to make audio statements as the fictional al-Baghdadi, which were then posted on the Web [Yates 2007]. What is more, in an effort to further mislead Iraqi supporters, the Egyptian leader, al-Masri, actually swore allegiance to al-Baghdadi and vowed to obey him, and Osama bin Laden's deputy, Ayman al-Zawahiri even referred to al-Baghdadi in video as well as Internet statements [Foxnews.com 19 July 2007]. As recently as

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4 Al-Masri replaced Zarqawi as the leader of Al-Qaeda in Iraq when Zarqawi was killed in a June 2006 airstrike.

November 7, 2008, it was reported that al-Baghdadi was still active as head of the Islamic State of Iraq; he issued a warning to President-elect Barak Obama in a speech posted to a militant Web site in which he said that "it would be better for you and us" to "withdraw your forces" and "return to your homes" [Foxnews.com 7 Nov. 2008].

Table 1. Strategic Elements of the Insurgent and Jihadist Use of the Internet		
Element	Strategy	Example
Decentralized Infrastructure	By relying primarily on the Internet for the distribution of their media productions, they operate on a modular basis that allows individuals anywhere on earth to assist with the production or creation of the end product. The dynamic nature of this model means that if a particular site is shut down or blocked, the materials are still available on numerous other sites.	Only the footage taken by insurgents has to be produced in Iraq; this footage can then be transferred via the Internet or cell phone to the individual or team that will produce the final product, which is then uploaded to a site from which it can be downloaded.
Electronic Books and Periodicals[5]	Insurgents and jihadists have published a number of books concerning the war in Iraq, the insurgency…etc., as well as posting weekly and monthly publications. All these electronic publications are available for download in both Microsoft Word and Adobe Acrobat formats.	Ansar al-Sunnah produces "Hasad al-Mujahidin" ("Mujahidin Roundup") in which they give details of their activities, and from time to time indentify "spies" and other "enemies" who they have executed.
Expanding Replication of Message	Much like the ever-expanding "snowball" rolling down a hill, information posted on insurgent Web sites is replicated to other forums, greatly multiplying the numbers of people who will see the message.	Arab media utilize the materials in their reporting.
Biographies of Martyrs	Insurgent and jihadist Web sites offer "motivational documents" which are designed to encourage current supporters and attract new ones. One example of this type of document are the "biographies of martyrs."	In one such biography, a father discusses his son Aqil, an Egyptian who was one of the first volunteers for martyrdom to enter Iraq from another country. An educated young man, Aqil found his way into the world of jihad via the Internet, made his way to Mosul, Iraq, worked in Al-Qaeda's media effort under Zarqawi, and then blew himself up near American soldiers.
Videos of Insurgent Attacks	There have been hundreds of videotaped attacks available on various Web sites which serve to both advertise the specific group behind the attack through the use of the group's logo on the video and to encourage future such attacks.	As of the article date, Ansar al-Sunnah hosted a "Top 20" competition between its insurgency brigades to see which brigade could execute the most visually captivating attack on U.S. forces. The "Top 20" is a video compilation of such attacks designed to foster a "healthy competition" among insurgent groups.

The Internet and Self-Defense

Terrorism and deadly violence are the two aspects of the Iraqi Internet experience that have differentiated Iraqi Internet usage from other Internet-connected nations. As the age of "e-terrorism" was established in the Iraqi conflict, so too was the cultural phenomenon of using the Internet to stay alive. Iraqis have set up Web sites that provide advice to other Iraqis on how to avoid roaming "death squads" [North 2007]. One of the better known sites—the "Iraq League"—recommended using Internet-based, Google Earth satellite imagery to map out escape

routes for loved ones as well as mapping out the most likely route that attackers might take [North 2007]. Other advice includes warnings about allowing armed men to take you in for questioning: "If they tell you we just have a few questions and you will be back in an hour, don't believe them. You will be dead in an hour or disappear for months" [North 2007]. The site apparently does not clarify who "they" refers to but it does imply that patrols by the Ministry of Interior are among those to be avoided.

The Internet is also providing Iraqis the opportunity to work from the safety of their home. Due to terrorist threats against Iraqi academics, University of Baghdad professor Saad Jawad prefers to stay home and do his work on the Internet rather than to risk traveling to campus: "Other than my short trips to the campus, I'm at home almost 24 hours a day, seven days a week," [Krieger 2007].

As with any Internet-connected country, defending government computer systems from hacking is now a concern for the Iraqi government as well, as al-Qaeda has added hacking to their weaponry [Levinson 2008]. The Interior Ministry, which in 2003 had no Internet-connected computers, has 5,000 today, and it is the responsibility of Maj. Ahmed Khathem, head of Iraq's newly created cybercrimes division, to defend these systems against hacker intrusions which could steal sensitive personal data, putting lives at risk [Levinson 2008]. One such hacker, who calls himself the "Iraqi Hacker" came very close to obtaining "reams of sensitive data, including e-mails and addresses of the ministry's thousands of security officers"; had it not been for an alert employee at the Ministry of the Interior who alerted the cybercrimes division to a suspicious pop-up window, the "Iraqi Hacker" might have succeeded [Levinson 2008]. The "Iraqi Driver" is another hacker, identified as living in the Wasit Province south of Baghdad, who has hacked nearly 1,500 Web sites since 2005; fortunately, this hacker does not normally do permanent damage to these sites, but the fact remains that he has hacked into some of the most sensitive ministries in Iraq including Interior, Communications, and Electricity, as well as a number of Iraqi banks [Levinson 2008]. As if coping with these threats was not enough, Maj. Khathem's division has had to fight the problem of equipment shortages. As of the date of the Levinson article referenced above, Maj. Khathem's division had one borrowed laptop computer, and one of the members of the cybercrimes division, Ali Hussein, stated, "We could have the most powerful anti-hacking force in the world, but we'd still have no computers, so we couldn't do anything… the government thinks about guns, tanks, and raiding houses. Hackers just aren't a priority" [Levinson 2008]. Despite these pressing needs and dangerous threats to Iraq's Internet-connected infrastructure, at least one expert sees the problem of hacking in Iraq as a positive development; Bruce Schneier, British Telecom's head of IT security stated "…if Iraqis can be hackers, it means they have food, shelter and clothing, and they're not terrified for their lives" [Levinson 2008].

IV: RECONSTRUCTING IRAQ'S INTERNET INFRASTRUCTURE

Terrorism and hackers notwithstanding, Internet users in Iraq today are beginning to reap the benefits of Internet access on a par with—and in some cases exceeding—technically advanced societies. From Voice over IP (VoIP) communications to wireless access, online newspapers to live streaming Iraqi television, the Internet is providing Iraqis a taste of the freedom of information and communication unthinkable under Saddam. Furthermore, the decreasing prices and increasing availability of computer equipment in Iraq are making ownership of computers a reality for many who could not afford such things under Saddam. Prices for computers have fallen from $1,000 just after the U.S. invasion to $400 in 2006 [Gilbert 2006]. These price drops have paralleled a tremendous increase in the average monthly government salary which increased in the same time frame from $50 under Saddam to $200 in 2006 [Gilbert 2006]. Faras Behenam, a clerk at the Tooza computer store stated that in 2000 there were between 70-80 shops on the half-mile stretch of Sina'a street, a retail district in Baghdad, but as of 2006 there were 300 computer shops on this same street [Gilbert 2006]!

Despite the affordability of computers today in Iraq, there are frequent power outages which frustrate computer and Internet usage. As recently as March 2008, most Iraqis could still expect to have only a few hours of electricity each day, in part due to the fact that demand for electricity has increased 125 percent over 2003 levels due to the availability in Iraq of more "energy-intensive devices" [Zavis 2008]. While there is a growing availability of UPS (Uninterruptible Power Supply) products in Iraq (AITC-Iraq http://www.aitc-iraq.com/op.htm is one Iraqi computer company that sells such UPS products), they would not be much help in these outages which last much of the day.

VoIP has proven to be useful to the people of Iraq while the process of rebuilding the telecommunications infrastructure proceeds. VoIP provides an alternative to regular telephone communications; instead of using normal telephones and the associated wiring, conversations are transmitted over the internet. By way of example, millions of people worldwide use Skype (www.skype.com) as this type of alternative to expensive international phone calls. In Iraq, Internet cafes have provided these same types of VoIP "telephone services," as well as video conferencing capabilities, enabling Iraqis to economically call friends and family all over the world. Currently, TigrisNet (http://www.tigrisnet.net/TigrisEnglish/index.html), which claims to be Iraq's "leading communications provider," offers its customers VoIP domestic and international calling, and even offers U.S. phone numbers which, when

dialed from the U.S., will connect the caller with the Iraqi subscriber, thus reducing costs to both caller and subscriber as well as simplifying the international call.[6]

In addition to VoIP, Iraqis can stay in touch via "chat" sessions in which they can conduct real-time, text-based conversations with friends and family. Ibrahim Mahamoud, a 24-year-old Iraqi, visits Internet cafes where he uses Internet chat sessions to stay in touch with his family: "I used to speak with my relatives who live abroad once every few months…now I can chat with them anytime I want" [Mroue 2005].

Advances are being made to physical telecommunications cabling to not only reconnect Iraqi cities, but to connect them using state-of-the-art technology, providing tremendous room for future growth. Nortel (http://www.nortel.com/) announced that as of November 2006 the Iraq Telecommunication and Post Company (ITPC), the "sole fixed-line" operator in Iraq, presented Nortel with a $20 million contract to install a 5,000km fiber-optic network connecting 35 major Iraqi cities. The intended purpose for this fiber-optic network is quite revealing: "to deliver high-quality high-bandwidth data, video and multimedia services for personal and business communications" [Nortel News Release, 2006]. These "services" go far beyond just Internet browsing, and hint at a modernized, multimedia-enabled society where entertainment options and state-of-the-art business processes might become feasible on a par with the West. This Nortel fiber-optic network would also connect to the existing network which Nortel installed in 2004 that linked Baghdad and Basra and would boast an impressive bandwidth capacity of 160Gbps [TeleGeography 20 Nov. 2006].

Beyond fiber-optics, WIFI and WiMAX installations are bringing the Internet to those living in remote areas. In October 2005, Wireless Interactive Communications, Inc. announced it had installed its "RedFire" Wi-Fi product with the potential to reach thousands of Iraqis [wimax.com 2005]. Mohammed Omed Ali, the CEO of Impulse for Communication and IT stated: "The RedFire is allowing us to reach villagers at unprecedented distances. Village centers and citizens now have Internet connectivity for the first time ever" [wimax 2005]. Along with such access comes educational opportunities, international news-awareness, and business opportunities never before possible in Iraq.

Iraqtel, a national wireless in the local loop (WiLL) licensee, announced in 2006 that it would partner with Canadian firm Redline Communications (http://www.redlinecommunications.com) to install WiMAX broadband access in various parts of the country to provide Internet access as far away as 30 miles from fixed broadcast locations as an alternative to satellite-based (VSAT) Internet access [TeleGeography 20 Nov. 2006a]. While this network would initially only cover Basra in southern Iraq, Iraqtel plans included extending it across the country [TeleGeography 20 Nov. 2006a]. Such a system, which would provide the ability to privately access the Internet anywhere in these coverage areas, must certainly have been seen as quite a change from the Saddam-era, heavily monitored Internet access in official Internet cafes. While difficult to confirm, a posting in a group discussion about "Iraq WiMax" stated that on February 24, 2007, the first WiMax signal in Iraq was transmitted in Basrah using RedLine equipment [Yousif 2008]. In Baghdad, Kalimat Telecom has launched a $500 million WiMax network—the first such network in Baghdad and one also supported by RedLine hardware—aimed at attracting customers such as "large commercial facilities, residential areas and government institutions" [Garcia 2008].

More so than perhaps even in some technologically advanced nations like the United States, wireless technologies in Iraq play a critical role in providing Internet connectivity to the nation. TigrisNet, for example, has set up city-wide, wireless networks in approximately 17 Iraqi cities, extending from the northern edges of Iraq to Um Qasr in the far south,[7] as can be seen in Figure 2. As an example of the extensive coverage within the cities, Figure 3 shows the TigrisNet Wi-Fi coverage for Baghdad.

Tigrisnet also claims to be creating Iraq's "first fully meshed national infrastructure," an infrastructure which enables communications between these cities to be transmitted via satellite in such a manner as to make "delay-sensitive media" such as voice communications possible.[8] Additionally, TigrisNet24 Wi-Fi subscribers can log on in any major city with their account credentials and access a high speed Internet connection.[9]

Finally, in May, 2008 it was reported that EVDO technology is making headway in Iraq. The Iraqi Telecommunications Ministry contracted with a foreign company to provide 20,000 EVDO Internet lines which offer Iraqi laptop users an alternative to wireless hotspots and WiMax coverage. [Iraq Updates 15 May, 2008]. EVDO is an "always on," 3G technology carried by a CDMA signal and which, like cellular phone calls, offers "seamless

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6 As of 11/8/08, this information could be found at http://www.tigrisnet.net/TigrisEnglish/voice_connect/index.html
7 As of 11/7/08, this information could be found at: http://www.tigrisnet.net/TigrisEnglish/infrastructure/index.html
8 As of 11/7/08, this information could be found at: http://www.tigrisnet.net/TigrisEnglish/infrastructure/index.html
9 As of 11/7/08, this information could be found at: http://www.tigrisnet.net/TigrisEnglish/wifi/index.html

roaming," which makes it possible for laptop users to surf the Internet, send and receive e-mail, and even access corporate VPNs, all while traveling in cars, trains…etc. [EVDOinfo 2005].

Figure 2. Map of TigrisNet's National Communications Network[10]

Figure 3. Coverage Map of TigrisNet's Baghdad network[11]

The positive advances in these various technologies have not been without obstacles; among the main problems, insurgent attacks have dogged reconstruction efforts, and engineers have often had to travel in pairs, wearing body armor, riding in armored SUVs, and accompanied by a team of armed guards [Zorpette 2006b]. In May 2003, crews completed a project linking Baghdad to al-Kut—a city 175km south of Baghdad—with fiber-optic cable, and the next day insurgents "dug up the cable in five places and cut it" [Zorpette 2006a]. In 2006, two German engineers were kidnapped near their workplace and threatened with beheading but were released after 99 days [Spiegel, 1 Feb. 2006; Gebauer 2006]. In May 2007, Irin reported that the Islamic Army had threatened a plan by the Iraqi Ministry of Higher Education and Scientific Research to establish almost 200 Internet centers in universities in Iraq providing free Internet access to students [Irin 2007]. Viewed as a threat to Islamic morals, Abu Muhammad, who claimed to be a spokesman for the Islamic Army stated bluntly: "We don't agree that such services should be offered and will do whatever is needed to prevent this system from working properly in Iraq" [Irin 2007].

Cellular Networks in Iraq

Since very few Iraqis have access to landlines for communications (as of a 2007 Iraq Development Program Web site, less than 3 percent had such access[12]), a wireless communications system has provided the solution [Zorpette 2006a]. "The reality is that mobile telephony is becoming the foundation of telecommunications in Iraq…many people cannot get a landline, so they're going mobile," stated one Iraqi telecommunications engineer [Zorpette 2006a]. This engineer went on to say that mobile service is critical for businesses as well: "Whole businesses are operating with cellular phones as the only means of communications" [Zorpette 2006a].

Cellular networks have come to play an important role in the expansion of the Internet in Iraq. The newer generations of cell phones now available in Iraq are providing a powerful alternative to traditional Internet access for both self-expression and information dissemination. Interestingly, while other infrastructure reconstruction projects have been hindered by insurgent attacks, the mobile networks have been built with relatively little opposition, mainly due to the fact that insurgents depend upon cellular phones for planning attacks [Brand 2007].

Currently there are three mobile operators in Iraq: Asia Cell, Zain Iraq,[13] and Korek in the Kurdish region, with a combined subscription base of 13.4 million [Paul Budde 2008]. The number of cellular subscribers has indeed grown rapidly. MTC Atheer, now part of Zain Iraq, saw its subscriber base climb to three million in its first two years of business [TeleGeography, 22 Dec. 2006]. Ali al Dahwi, the chief executive of MTC Atheer, said that the company had invested $430 million U.S. in the Iraqi market and that more money would be invested in the future to build up its

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10 Map taken from TigrisNet Web site 15 Nov. 2008: http://www.tigrisnet.net/TigrisEnglish/covmap/index.html
11 Coverage map taken from TigrisNet Web site 15 Nov. 2008 : http://www.tigrisnet.net/TigrisEnglish/covmap_pops/baghdad.html
12 As of 11/4/08, this Web site was available at http://www.iraqdevelopmentprogram.org/idp/industry/comms.htm
13 In December 2007, the Zain Group, based in Kuwait, purchased Iraqna for $1.2 billion and merged it with MTC-Atheer, which it also owns.

infrastructure in the north of the country [TeleGeography 22 Dec. 2006]. It is interesting to note that in 2004, Iraq topped the list of 19 countries that had triple-digit growth in the cellular sector, with 1,757 percent growth, for a total of 1.2 million subscribers [TeleGeography 9 May 2005]. By the end of 2007, there were a total of 12.8 million Iraqi mobile subscribers[14]; between early 2008 and June of that year, Zain Iraq's subscriber base alone had climbed from 7.5 million to 7.935 million, and al Dahwi, now General Manager for Zain, said he hoped to reach the 10 million subscriber mark by the end of 2008 [Klaus 2008; Paul Budde 2008]. Al Dahwi went on to say that he expects Zain Iraq's coverage area to extend to all of Iraq by the end of 2008 as well [TradeArabia, 2008]. In addition to mobile phone service, Zain Iraq will also concentrate on bringing improved data and Internet services to Iraq, as well as offering EDGE technology with its faster rates for data transfers [Klaus 2008]. In May 2008, it was reported that Zain Iraq had contracted Nokia Siemens Networks in a $150 million deal to increase Zain Iraq's capacity and upgrade other components of its network [Unstrung 2008]. This project is expected to be completed within 10 to 12 months, and will upgrade Zain Iraq's network capacity to accommodate 12 million customers [Sutton 2008]. Another recent improvement Zain Iraq has made to its Iraq and Middle East network is its "One Network" initiative in which Zain's customers in Jordan, Sudan, Iraq, and Bahrain can communicate with each other while traveling in these countries, at local rates, and still have access to their "home country services" such as Voicemail, Customer Care, SMS… [Iraq Updates 2008]. Offering a positive assessment of the Iraqi telecommunications market, al Dahwi stated "We feel the Iraqi market will prove in the next few years to be the most dynamic in the regional market with the highest percentage of growth" [TradeArabia 2008].

In addition to Zain Iraq, other companies are making considerable investments in the Iraqi mobile telecom sector as well, creating what appears to be a very active mobile industry. In October, it was reported that UAE-based Etisalat was close to concluding a deal to "buy a majority stake" in Korek Telecom—a stake worth up to $1 billion U.S. [Telegeography 10 Oct. 2008]. While Korek's license allows operation in a limited region, Etisalat plans to extend service across Iraq [Telegeography 19 Sept. 2008]. In February 2008, Itisaluna Abr al Iraq implemented the first stage of its operations in Baghdad and Basra, providing "fixed wireless voice and Internet services" via its CDMA2000 1xEV-DO network [Telegeography 25 Feb. 2008].   Itisaluna succeeded and next began expanding service to "the provinces of Alfurat Al Awsat and the southern provinces of Iraq", with plans to expand its coverage to all of Iraq by the end of 2008 [Telegeography 14 July 2008]. Additionally, it was announced in June 2008 that Asiacell plans to invest USD $1 billion in the next two years to expand its coverage area and to increase the number of Asiacell subscribers from five million to six million by the end of 2008 [Telegeography 5 June 2008].

Beyond providing improved mobile communications, the telecommunications sector impacts Iraqi society through simple economics. At an Iraq Defence, Security, and Communications Summit in Dubai in February 2008, Ali al Dahwi noted that Zain Iraq "contributes to the Iraqi economy more than $250 million annually in direct and indirect salaries, where we directly employ more than 2,500 people and upwards of 50,000 other individuals indirectly" [ameinfo 2008]. Al Dahwi added that this economic benefit is "directly contributing to the financial welfare of over 250,000 Iraqis" [ameinfo 2008].

The Iraqi telecommunications sector is also growing in its importance to international telecommunications. In a speech delivered at the same Dubai summit, Bob Fonow, a senior advisor to the Iraqi Ministry of Communications, said that "Iraq is the most important strategic network in the Middle East" due to its position between Europe and Asia and due to the "young Iraqi engineers who enter the labor market" [Iraq Directory 2008].   Mr. Fonow went on to say that 200,000 to 300,000 technicians and engineers will be needed in the information and communications technology sector in the next 5 to 10 years [Iraq Directory 2008].

In the years since the U.S. led invasion, the cell phone itself has also come to play a significant role in Iraqi society. There is, perhaps, no better indication of this than Iraqi personal expenditures on cell phones. A survey conducted by Baghdad University in the summer of 2005 revealed that at a time when the average family in Iraq had a monthly income of roughly $150 U.S., many middle-class Iraqis were paying an incredible 25 to 50 percent of their income for cellular service [Zorpette 2006a].

Like Internet innovations which facilitate both positive and negative socialization, cell phones and cell networks are now fueling both ends of the socialization spectrum. On a personal level, cell phones make it possible for friends and family to check in after terrorist attacks to see if their loved ones are safe, while at the same time make it possible for terrorists to execute those very attacks and even detonate bombs [Zorpette 2006a; BBC 2007]. What is more, cell phone usage by insurgents is allowing U.S. forces to track and target those individuals; al-Zarqawi was located and killed in an airstrike in part due to intelligence gleaned by monitoring his cell phone usage [Perry 2006]. On an impersonal level, cell phones can spread positive and negative information to a large audience. Probably the most

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14 [Paul Budde 9]

famous example of large-scale, negative socialization is the video of Saddam's execution. Not only was the now-famous, unauthorized version captured by a cell phone, it also rapidly spread cell phone to cell phone, as was footage from the 2006 attack on a shrine in Samarra [Jackson and Macleod 2007]. Kohlman has found that even before the video of Saddam's execution, insurgents were watching and forwarding videos of beheadings from cell phones, an innovation which enables insurgents, jihadists, and their supporters to engage in "Internet jihad," even from remote desert locations [Curiel 2005]. Thus cell phones in Iraq now make it possible for all sides in the conflict to distribute information to a broad audience, even without traditional Internet access.

On the positive side of socialization, multimedia-enabled cell phones today give Iraqis an opportunity for self-expression that sometimes takes very funny forms. Following is a link to a *New York Times* Web site on which five comical Iraqi videos, all captured by cell phones, are available for viewing. One video shows a young Iraqi mocking radical Islamic extremists by wearing a head and face scarf, yelling in Arabic—presumably about jihad and infidels, then beheading a fish. A lengthy video shows a man dancing ecstatically over the joys of filling his portable propane tank.[15]

SMS also provides Iraqis opportunities for expression. Iraqi television programs such as the reality show *Free* offer viewers SMS numbers to which they can dial in and cast votes [Zeidel 2008].

There are several commercials advertising Iraqi cell phone service on Youtube.com. One such commercial worth noting is an ad for Iraqna.[16] It is interesting in that it uses the alluring images of social interaction available through cell phone communications. The ad shows a room full of silent, Iraqi men waiting for someone to find an active radio station, when suddenly a cell phone rings. The cell phone user hesitatingly answers it, and immediately everyone in the room is smiling and answering phones and socializing with each other and with the various callers.

V: THE SOCIETAL IMPACT OF THE INTERNET IN IRAQ

With the proliferation of Internet cafes and Internet access, "blogging" has become common in Iraq. Blogging, a term derived from "Web Logs," is a form of online journaling, enabling anyone with Internet access to post their opinions on any topic. Iraqi blogs usually discuss the current situation in Iraq and how that situation affects the author's life and family. One of the most famous Iraqi bloggers, Salam Pax, actually got his start under Saddam. Playing a "cat and mouse" game with Iraqi censors, he managed to remain undetected at a time when such postings could have brought about his imprisonment or execution, and endangered his family. His postings were soon noticed by major news outlets which brought him unwanted publicity and put him in fear for his life but after the 2003 U.S. invasion, he became even more prolific [Guardian 2003]. One of his blogs, "Where is Raed?" (http://dear_raed.blogspot.com/), was compiled and published as a book, *Salam Pax. The Clandestine Diary of an Ordinary Iraqi* and is available on Amazon.com [Soriano 2004]. His other blog is "The Daily Absurdity Report," otherwise known as "Shut Up You Fat Whiner" (http://justzipit.blogspot.com/). In addition to blogs, Salam has also produced and posted on the Internet a 13-minute video[17] in which he interviewed people on the streets of Baghdad and detailed in an amusing fashion, how to stay alive in Baghdad:

> Blue jeans have been known to get you into trouble, but tight ones will definitely get you killed…colourful shirts? Please no flowery patterns and anything in red has been deemed especially offensive… forget about your cool spikey hair style. Hair gel is a lethal—I always knew hair products were evil, now I have divine confirmation. And so here I am, on Baghdad streets modelling my special "get killed" outfit… [Pax 2006a]

In another of Salam Pax's blog postings on "The Daily Absurdity Report," he detailed the tragic story of Ahmad, who after leaving work and rushing to the hospital to visit his father who had been shot in a random drive-by-shooting in Iraq, is himself brutally murdered as he leaves the hospital [Pax 2006b].

Zeyad is a dentist in his late twenties whose blog "Healing Iraq"[18] related the following tragic story witnessed by his brother Nabil. A female hairdresser was pulled out of her taxi by four gunmen, a bag was placed over her head, and then the men shot her to death. Her corpse lay on the street for over three hours because everyone was afraid to go near it. "The worst was when Iraqi troops arrived at night to pick up the corpse. They had to shoot it several times to ensure it wasn't booby-trapped with explosives, something that is becoming more and more common in our area of Baghdad" [Zeyad 2006]

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15 This video as of May 23, 2008 could be accessed at: http://www.nytimes.com/packages/khtml/2006/08/07/world/20060807_CELLVIDEO_FEATURE.html.

16 This video, as of May 23, 2008 could be found at http://www.youtube.com/watch?v=3L9RRwCLP7Q&NR=1.

17 As of May 23, 2008 this video now appears to be only for sale, at: http://www.journeyman.tv/?lid=56445. The quote regarding dangerous fashions was taken from the video transcript which is accessible from this same page.

18 As of May 23, 2008 this could be found at: http://healingiraq.blogspot.com/search?q=hairdresser

While blogs can provide useful illustrations of societal trauma as in the previous examples, they are primarily the opinion and perception of the blog's author and as such cannot be relied on exclusively for facts related to specific events or conditions. Furthermore, some of the Iraqi blogs have not been updated for a year or longer, including the previously mentioned blogs by Pax.

While blogging allows Iraqis to connect with a global audience and share opinions and information, the Internet is facilitating a new phenomenon best illustrated by the Kurdish situation: "cyber-states—nations created in cyberspace because of the lack of a nation in real space" [Farah 2004]. Kari Neely, who at the time of the 2004 Salon.com article by Christopher Farah was a doctoral student at the University of Michigan, asserted: "Cyberspace allows people to coalesce in a new kind of territory to maintain cultural traditions that might otherwise be threatened with extinction through assimilation, warfare and population displacement" [Farah 2004]. Internet-savvy observers have long postulated that such "cyber-states" would connect geographically separated peoples based on "shared interests or common goals;" in the Kurdish case, the Internet is allowing the disenfranchised people who are spread around the globe to create these very types of virtual cyber-states via networks of "ethnic nationalist Web sites" [Farah 2004]. In addition to political forums and chat rooms, these nationalist Web sites provide outlets for Kurdish "literature, poems, short stories, novels…and even dating centers" [Farah 2004]. Bryar Fattah, a 20-year-old former Iraqi living in Great Britain, even created a Kurdish site called KurdTeens.com, and made an interesting comment about the importance Kurds attach to the Web: "We sometimes feel like each Web site is like a city from the Kurdish cities. Our virtual Kurdistan is not on the ground. It is in our minds" [Farah 2004].

In addition to strengthening Iraqi communal ties as in the Kurdish example, the Internet also brings innovations that threaten traditional Iraqi culture. Young Iraqis are now able to meet members of the opposite sex in certain popular Internet chat rooms [Sabah 2006].   While perhaps not a significant development to those living in more technologically advanced societies, this type of online social networking and dating is shaking the very fabric of the Iraqi social order. Marriages in Iraq are often arranged, and the nontraditional dating opportunities the Internet now provides are causing great concern among Iraqi parents [Sabah 2006].   Layla Ahmad is a retired teacher with three children. Regarding such Internet dating in Iraq, she says that:

> We are a conservative society…we don't accept that our daughters meet boys through the Internet. It's dangerous, and you can't observe your children and what they are talking about…three months ago, I discovered that my daughter was chatting with somebody online…I took her computer and sold it. [Sabah 2006]

Once these Iraqi youths meet online they often set up a date where they can meet in person. Since most singles in Iraq live with their parents, finding a meeting place proves challenging as venturing out at night is dangerous [Sabah 2006].   Noor al-Mosawi, a 29-year old Iraqi woman who uses the Internet for dating, had this to say about Internet dating in Iraq: "It's easy for men to find what they want through the Internet, but for girls like me, it's difficult to find husbands…" [Sabah 2006] It seems clear from this growing reliance on the Internet for finding romantic relationships that traditional values and roles are beginning to blur and traditional Iraqi parental consent is being bypassed. Noor al Mosawi's two-month relationship with one such Internet match serves to illustrate this Internet-powered cultural shift away from honoring parental roles in arranging or at least approving relationships: "When he started asking me to go to his house, I broke up with him…I told him, if you want to go out with me, you should ask for my hand from my parents first. He refused, and so we broke up" [Sabah 2006].   Finally, this Internet intrusion into what has traditionally been the realm of parental privilege is producing a cultural tension and confusion that even young Iraqis can sense. Muhannad Mohamet, a 19-year-old who uses the Internet to arrange dates with university students, acknowledges that he "would not expect" to meet his wife in such chat rooms: "I'm not against finding my wife through the Internet, but the problem is with our traditions…what shall I tell my parents when they ask me where I found her? They will not let me get married in this way" [Sabah, 2006].

SMS messaging, though not a traditional Internet medium, has also impacted traditional familial norms in Iraqi society. In a program which aired on Iraqi al Sharqiya television about a year ago, the question of whether or not parents or brothers have the right to monitor the SMS messages of family members (children, sisters) was discussed [Zeidel 2008].

Beyond the new freedoms of expression and socialization available via blogging, online dating and SMS, some argue that the Internet will also bring to Iraq a "flattening of social hierarchies." In an article by David Plotz at Slate.com, Plotz argues that Iraq has traditionally been a hierarchical society ruled by the Baath party and tribal chiefs [Plotz 2003]. The Internet, he postulates, will flatten this social hierarchy by enabling anyone to contact any other individual or group of individuals via e-mail, and by empowering human rights organizations to inform a broad international audience of abuses. Plotz goes on to argue in this article that such "flattening" will "democratize power"

in that the Internet will allow determined individuals to "push their ideas in front of decision-makers…" something that was impossible under Saddam.

In addition to flattening hierarchies, Plotz also advances the idea that the Internet will provide fertile soil in which the NGO (Non-Governmental Organization) community will grow at "lightning speed" [Plotz 2003]. He uses the hypothetical case of women in Baghdad wanting to lobby for women's rights and argues that they will immediately have access to advice from Arab and western women's groups via the Internet. Thus, he argues, women in Iraq will be educated on various issues faster than ever possible in the past. Plotz then proceeds to build a scenario in which this hypothetical women's group will recruit interested women via the Web from all over Iraq, and then go on to form coalitions with other online groups that are focused on similar issues involving women, for the purpose of lobbying the government on women's issues. Time will tell whether this scenario is realistic, but with the rapid development of the Internet facilities in Iraq, it is certainly possible. If successful, such Internet-powered, grass-roots movements would either bring about more openness and accountability in government, or bring about a return to some of the more repressive censorship reminiscent of Saddam.

Lofty projections aside, the Internet for many Iraqis simply provides an escape from the daily strains; "…it gives them a way of forgetting the daily violence and also enables them to communicate with their relatives and friends who have fled the country," says Hisham Abdel-Azim, the senior education ministry official [Irin 2007].

Despite the relative freedom of Internet access in Iraq, the problem of censorship is certainly one consideration for those seeking to challenge authority via the Internet. The Arab Network for Human Rights Information reports that a number of Iraqis have complained about Internet censorship; some of this censorship is the result of the policies of Internet café owners, some censorship is the result of pressure from Islamic religious leaders who claim the Internet is enticing Muslims away from prayers, and some of the censorship could still be coming from the government itself [IOAI 2007]. One Iraqi blogger, Khaled Garar, claims to have been arrested in July 2005 by guards at his university for surfing sites they did not approve of and for printing out the Web sites he visited. After spending several days in prison he was released only after signing an agreement to not inform family members of the other prisoners he met as to their whereabouts [IOAI 2007].

A much more extreme form of censorship for some Internet café users and owners has come from Islamic radicals who have engaged in vigilante censorship, placing "spies" in Iraqi Internet cafes to look for anyone surfing "erotic" sites [Sarhan 2007]. The Iraqi Aid Association (IAA) has reported that "dozens" of Iraqis have been murdered and others abducted after viewing such sites [Sarhan 2007]. Ibraheem Abdel-Qahar was abducted after viewing pornographic films in an Internet café; after leaving the Internet café, he was taken by three men to a location where they beat him "with an iron bar and belt," made him "drink chicken blood and his own urine," and burned his legs with cigarettes [Sarhan 2007]. After suffering through six days of such torture, Abdel-Qahar was released and warned that he would be killed the next time he was caught looking at pornography [Sarhan 2007]. In February 2007, two owners of an Internet café on Palestine street in Baghdad were tortured, then beheaded, for supposedly permitting Internet access to pornographic sites [Sarhan 2007].

Iraqi Commercial and Media Online Presence

Both Iraqi media and commercial interests are making use of the Internet, much as in technologically mature countries. Iraqi newspapers, television, radio and news agencies are all finding their way online; some television and radio outlets actually have "live streaming" features which enable Internet users to view and/or listen to broadcasts on their computer.

Iraqi business is beginning to take advantage of the mass marketing possibilities which the Web affords. The Iraqi business directory, which can be found at http://www.iraqdirectory.com/en/default.asp, lists Iraqi businesses with some form of Internet or e-mail presence on the Web.

The Iraqi financial sector is also benefitting from the Internet. In fact, one of the topics of discussion at the February 2007 Iraq Information Communication Technology Summit in the UAE was modernizing "banking and financial databases" [IDP 2007]. The Iraqi Stock Exchange is now online, offering daily reports and other useful investment information, and Iraqi banks and financial institutions are beginning to develop an online presence. At least one Iraqi bank—Warka Bank (http://www.warka-bank.com/)—is offering online banking, providing customers the ability to log in to some form of private access, other banks just provide informational Web sites; however, if Iraq continues its march toward modernizing its use of the Internet, online banking services will most likely be available for customers of all Iraqi banks, with the potential to transform the way Iraqis do business.

It Is a Hoax, Folks

Somewhere between the good and the bad that the Internet brings to society is the inane, a category into which the many Internet hoaxes fall. One Internet hoax spreading around Iraq claims that after Saddam was executed, the image of Saddam's smiling face, wearing a beret, appeared in the moon [BBC 2007] (Figure 4).
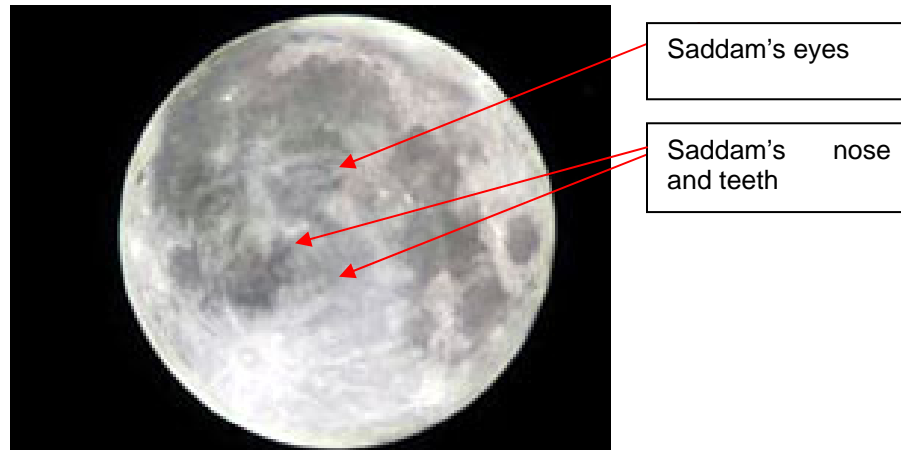

Figure 4. Doctored Image of Saddam's Face in Moon[19]

VI. CONCLUSION

While Iraq is still a long way away from the stability that will allow the full potential of widespread Internet access to be realized, progress has been made to create a future-looking technological foundation. In the short period since Saddam's fall, access to the Internet has begun to change Iraq from a technologically backwards and isolated society into a globally connected nation with great potential to grow, to the extent reconstruction efforts are successful.

In this paper, I have attempted to detail the social impact of the newfound Internet access on Iraq, from the tumultuous growth of the Internet both under Saddam and during the initial stages of reconstruction, to the terrorist exploitation of the Internet's global access. Despite the difficult circumstances in Iraq, the situation there has provided the world a chance to observe the impact of the Internet—and cellular technology—on a society challenged by war and acts of terrorism. Observations made of the unique situation in Iraq are yielding new information on how the Internet can be integrated into developing societies, even societies rebuilding from war. In Iraq, the Internet has begun a process whereby long-held norms for socialization are changing; VoIP, chat rooms, Internet dating and cell phones all contribute to this process of change. Furthermore, the unique circumstances in Iraq have given rise to new uses, both positive and negative, for Internet access, from using Internet-based satellite imagery to map escape routes for loved ones, to insurgent and jihadist use of the Internet in furthering the carnage and recruiting new terrorists. Thus, the Internet's greatest power—its ability to bring people together across geographical, geo-political and geo-religious borders—is also its greatest weakness. What facilitates socialization within and across these borders also facilitates terrorist recruitment and propaganda, endangering Iraqi society.

Terrorist threats notwithstanding, if the reconstruction of the Internet infrastructure does succeed, it will not be long before Iraqis will be able to order goods and services via the Internet, and employees of modernized businesses in major cities may have the option to "telecommute," thereby avoiding some of the dangers and other stresses inherent in venturing out of the home.

Iraq provides a useful environment for studying the impact of Internet access in times of tremendous social stress. Insights gleaned from the Iraqi context will serve to educate—for better or worse—those involved in future conflicts as to the pitfalls and benefits of Internet access. The success with which the insurgency in Iraq has exploited the Internet and the increased U.S. and coalition attention paid to the battle in cyber space illustrates the changing nature of warfare and the Internet's inextricable role for the foreseeable future. What technical, legal, or other yet-to-be crafted measures will serve as an effective counter to dangerous exploitation of Internet resources has yet to be determined.

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19 BBC, 11 Jan. 2007

Beyond the extremist exploitation of Internet access, Iraq's experience shows that Internet access can be a force for both social stability and instability. While the Internet enables individuals to stay connected to loved ones locally and internationally despite dangerous social upheavals, it can also fuel cultural shifts unpopular with segments of society. While some Iraqis use the Internet as an aid to physical and psychological survival, the rumbling of an Internet-fueled, cultural strain is evident, as seen in the Internet-dating in which Iraqis are participating, and in the threat of the corrupting influence of pornography on Iraqi youth, not to mention the murderous, vigilante Internet censorship imposed by some Islamic extremists. Perhaps a sign displayed in the Twin Towers Internet café in Iraq sums up best the social tension that this new Internet freedom has brought to Iraq: "To the brothers and dear Internet users. Please don't enter sites that contradict our religion and traditions" [Mroue 2005].

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ABOUT THE AUTHOR

Kevin W. Banks is a former Information Technology manager for a U.S. manufacturing corporation. He received a B.A. in Foreign Service from Baylor University in Waco, Texas, and an M.A. in General Theological Studies from Covenant Theological Seminary in St. Louis, Missouri. He recently completed a Master's Degree in Islamic and Middle Eastern Studies at Hebrew University in Jerusalem, Israel.