Secretary of Defense Corporate Fellows Program

FINAL REPORT

Time Warner/CNNMoney

New York, New York

Lieutenant Colonel Rey Q. Masinsin
U.S. Marine Corps

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NATIONAL DEFENSE UNIVERSITY / MARINE CORPS UNIVERSITY

FINAL REPORT

TIME WARNER / CNNMONEY

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U.S. Marine Corps

Submitted to the SECDEF Corporate Fellows Program

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Commandant of the Marine Corps Fellows Program

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New York, New York

DISCLAIMER

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Preface and Acknowledgments

This paper is a compendium of observations during the academic year I spent as a Secretary of Defense Corporate Fellow at Time Warner in New York, NY. In lieu of a research paper, this body of work summarizes key trends, developments, and observations in the media and entertainment industry and relates them to potential utility, application, and adoption throughout the Department of Defense.

I would like to take this opportunity to express my gratitude to the many professionals at Time Warner, especially the many great people at the *Fortune/Money Group* and *CNNMoney* who openly welcomed me as one of their own during my short tenure with the company. All displayed superhuman patience in "getting me up to speed" and integrated into their everyday routine. I am especially grateful to Mr. Vivek Shah, President of the Fortune/Money Group, Mr. Jonathan Shar and Chris Peacock, *CNNMoney's* General Manager and Editor respectively, for the invaluable access and learning opportunities they afforded me throughout the academic year. The trust and confidence they bestowed allowed me to take a "deep dive" into several projects that gave me an unprecedented view of the company and an

outstanding vehicle to participate in its business processes and practices.

I am equally grateful to Ms. Abigail Bassett, Senior Video Producer and Mr. Jason Schaeffer, Vice President of Business Development as my co-sponsors for the year. Their understanding of my Fellowship's goals and objectives, coupled with their genuine desire to make me successful in this endeavor enhanced my experience with the company. There are too many more people to mention for whom I am grateful. Suffice to say that everyone I came in contact with at Time Warner were top notch and supportive. They made this year a resounding success for and a complete pleasure.

Finally, a special thank you to Mr. Steven E. Briggs and Mr. Michael G. Cooper for the arduous duty as my Program mentors at the National Defense University and Marine Corps University respectively. Both spent countless hours coordinating and facilitating the many diverse activities I participated in throughout the academic year. Without them, none of this would be possible.

Introduction

The media and entertainment industry is in a state of expansion; the market is in transition as digital distribution of content grows rapidly and plays an increasingly important role. Digital communication disrupts the industry by creating new distribution channels and media for content. Computers and wireless hand held devices are fast becoming sophisticated multi-media tools, and consumer spending related to digital content through these devices is growing at a very fast pace. According to Price Waterhouse Coopers' *Global Entertainment and Media Outlook: 2007-2011*, "more than 40 percent of total entertainment and media growth during the next five years will be generated through online and wireless technologies facilitated by the expansion of these universes."[1]

Facilitating the revolution in the media and entertainment domain are the rise of Social Media (Social Computing) and the advent of its enabler, Web 2.0. Simply stated, Social Computing is a concept that advances the idea that the Internet can be more than just a collection of static web sites; instead, "it is a full-fledged, interactive computing platform that offers a host of functionality for the user."[2] The result is a platform that eliminates traditional desktop applications and favors network-based applications.[3] Behind this concept is the critical,

but often overlooked idea that "users add value to the internet and its platform role by adding collective intelligence" to the sites they visit.[4]   An Internet site like *Wikipedia,* Figure 1, exemplifies the general concept of collective intelligence.

Figure 1. Wikipedia entry on the Department of Defense

Enabling the rise of Social Computing is the advent of Web 2.0 tools. The term Web 2.0 was coined by O'Reilly Media in 2004 and generally refers to the "second generation of internet-based services that emphasize online collaboration and sharing among users."[5]   Tim O'Reilly summarizes Web 2.0 as the "business revolution in the computer industry caused by the move to the Internet as a platform, and an attempt to understand the rules for success in that platform."[6]   As a result, a central premise emerged: "Build applications that harness network effects to get more people to use them."[7]   Collaboration and information

sharing, in turn, became the foundation and value proposition for Social Computing.

Web 2.0's most dramatic impact in industry is in the area of Enterprise Social Computing. Within Fortune 500 Companies, office use of Web 2.0 tools and applications such as blogs, wikis, RSS (Real Simple Syndication), IM (instant messaging), and social media features such as those in *Flickr*, *Twitter*, *MySpace*, and *Facebook* are on the rise. Figure 2 illustrates a fraction of the universe of social media tools available today.

Figure 2. Partial collection of Social Media tools and sites

In increasing instances, these tools and applications are used in lieu of traditional business communications tools such as letters, memorandums, face-to-face meetings, and telephone calls. The trend toward business adoption of social computing is so pervasive that it affects companies and corporations in a fundamental way. Organizations that disregard the power and utility of Social Computing and Web 2.0 tools risk losing competitive advantage and therefore do so at their peril.

This paper identifies trends, explores developments, and discusses my observations in Social Computing and Web 2.0 and relates them to potential application and adoption throughout the Department of Defense Enterprise. To provide context and background before substantive discussion, the following is a summary of the Secretary of Defense Corporate Fellows Program (SDCFP) and my assignment at *CNNMoney*; it is through this lens that I viewed the media and entertainment industry and drew conclusions offered in this paper.

During my Fellowship at Time Warner, I was exposed and participated in the integration of many Web 2.0 and Social Computing tools for *CNNMoney* as a way to expand its audience reach. *CNNMoney,* Figure 3, is a leading business and finance portal and is a joint venture between Turner Broadcasting and Time Incorporated. The website leverages the global reach and

scale of Cable News Network (CNN) and the power of the industry's highly regarded business information content of *Fortune, Money, and Fortune Small Business* magazines.

Figure 3. *CNNMoney* Home Page

In addition to observation of and participation in the day-to-day operations at *CNNMoney*, "Company Days," events designed to extend the Fellows' exposure to business practices and

processes to the other companies participating in the SDCFP, validated my conclusion that Social Computing and Web 2.0 tools and applications are rapidly becoming ubiquitous business tools in industry.[8] At the forefront of this wave are Cisco and Oracle, two companies that pioneered the development and deployment of Web 2.0 tools for business and Enterprise use. Cisco and Oracle went beyond development of the tools; both companies are committed to the implementation of these tools in their own Enterprises. "Cisco on Cisco" is the term coined by company executives which describes Cisco's use of its own Web 2.0 and Social Computing tools within the company. Similarly, "eating our own dog food" is a common phrase at Google that reminds employees that the company is equally committed to employing these tools internally as much as developing them.[9]

As a result of the proliferation of Web 2.0 tools in the business mainstream, the impact of traditional communications channels is waning as corporations continue to migrate to Social Computing technologies for collaboration and information sharing. Social Computing is rapidly becoming more than just a channel for personal social networking and keeping tabs with friends and family; an increasing number of corporations use social media strategies to "collaborate, understand, and engage audiences more deeply and often with demonstrable positive strategic and economic results."[10]

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The following are the trends and enablers that drive
widespread adoption of social computing and Web 2.0 today. As
in industry, these drivers are equally applicable to the
Department of Defense and serves as my framework for relating
concepts and ideas pervasive in industry today for potential
application to the Department of Defense.

- <u>Social Computing is mainstream</u>. Within the last few years,
  "Social Computing crossed the threshold from techno-
  curiosity to a social trend." Consumers today use these
  powerful communications tools to post opinions, share
  experiences, and join online conversations and
  communities.[11]

<u>Social Media's new communications forms are inherently
  collaborative</u>. Communications has always been the
  fundamental value proposition of the Internet for users.
  The fundamental shift, however, is that social computing
  applications allow collaboration among users and enable the
  creation of "collective intelligence." In this way,
  collaboration connects new sources of knowledge and
  information and inherently elevates individual, team, and
  organizational performance to a higher level. Moreover,
  Web 2.0 tools such as wikis, blogs, and mashups take
  disparate pieces of information and aggregate them for
  deeper understanding.[12]

<u>Web 2.0-powered communications accelerate the speed of
  information flow</u>. From the earliest implementation of
  "newsgroups" and "usenets," to today's Web 2.0 tools and
  social computing programs, each innovation in Internet
  communications increases the flow of information vertically
  and laterally. Social computing applications increase the
  user's reach and influence and allow asynchronous, one to
  many, near real time communications through blogs and RSS.
  In addition, synchronous, many-to-many, near real time
  communications are also possible today through webinars,
  video and instant messaging.[13]

<u>Social Computing naturally transforms communications into
  content</u>. Web 2.0 tools and social computing applications
  blur the lines between communications and content. The

collaborative nature of social computing naturally stimulates feedback and conversation. The interplay often results in a dialogue of different perspectives and opinions; the product of such dialogue can be tagged, archived, and searched for future reference. Such interplay produces a body of knowledge that is much richer, relevant, and takes advantage of collective intelligence. Wikis and blogs allow for continuous refinement and update of content. Social Computing allows ordinary users to be publishers, movie producers, song writers, and story tellers; it allows ordinary people to co-create content alongside traditional media companies.[14]

- Users customize their on-line experience. The advent of Web 2.0 and social computing transitioned websites from silos to interlinked computing platforms. Tools such as blogs, wikis, RSS, widgets, and social applications add a "participatory" element over static websites. In essence, this communications revolution allows users to do more than just retrieve information from the web.[15]

- Users personalize information. As a result of the explosion in the amount of information on the web, users no longer read but instead skim content. The rapid growth of information results in scarcity of attention; gaining distracted consumers' attention make up what publishers, marketers, and advertisers call the "attention economy." Winners in the new attention economy use data aggregation and personalization capabilities in Web 2.0 and Social Computing to deliver value to consumers. Therefore, customer responsiveness is the "killer application" of the future.[16]

SECTION 1

SECRETARY OF DEFENSE CORPORATE FELLOWS PROGRAM

For the academic year 2007 – 2008, I was selected to participate in the SDCFP for my Senior Service School requirement. SDCFP is a program within the National Defense University that selects two senior Officers per Service (Marines, Air Force, Navy, and Army) and assigns them to selected companies to observe and participate in industry best practices. The aim of the program is for the military Fellow to learn as much about the sponsoring company especially in the areas of "insightful long-range planning, organizational and management innovation, human resources, and implementation of competitive business and information technology solutions."[17] For this year, the SDCFP assigned Fellows to the following companies: Oracle, Cisco, Time Warner/*CNNMoney*, Amgen, 3M, Boeing, Lockheed Martin, CACI, and SRA International. The Corporate Fellows were assigned to their respective companies for approximately one year.

Program Background

The program charter states: "The Secretary of Defense Corporate Fellows Program was established by the Secretary of Defense in 1994 to become a long-term investment in transforming our forces and capabilities and, as such, is a key part of the Department of Defense strategy to achieve its transformational goals. Officers from each military service are selected to receive their military senior service college credit by training with sponsoring institutions, i.e., corporations, companies, commercial enterprises, etc., who have earned a reputation for insightful long-range planning, organizational and management innovation, and implementation of new information and other technologies. SDCFP Fellows form a cadre of future leaders knowledgeable in the organizational and operational opportunities made possible by their training throughout the year. Fellows have been assigned to such diverse and innovative businesses as Amgen, Boeing, CNN, Caterpillar, Cisco, Citicorp, DuPont, FedEx, General Dynamics, Honeywell, Hewlett-Packard, IBM, Lockheed Martin, McKinsey, Merck, Microsoft, Northrop Grumman, Oracle, Pfizer, Raytheon, Sears, Southern Company, Sun, 3M, United Technologies, and others."[18]

The method of the program is to embed and expose the military Fellows to "businesses reshaping organizational structures and

methods of operations to provide innovative and competitive advantages."[19]   The aim is for the student "to glean the best of change, innovation, and leading edge business practices that could be implemented to transform" the DoD.[20] The SDCFP website states, "SDCFP alumni form a cadre of future Service leaders more knowledgeable in the organizational and operational opportunities" and able to "conceive compelling operational and organizational innovations, and options that derive from these revolutionary changes in information and other technologies."[21] The SDCFP ultimately aims for the participants to "bring back knowledge of today's corporate realities, such as change management, adaptive and collaborative structures, knowledge management, virtual workplace, and how to leverage the best of new technologies and human intellect. They will apply this knowledge in a myriad of ways throughout their military careers."[22]

Preparation for the Program

Department of Defense Directive 1322.23 (DoDD 1322.23) charged the Director, SDCFP, under the Director, Net Assessment to manage the program and include a preparatory training program that prepared us to do the following:

- Operate and learn in a civilian business environment.
- Understand DoD challenges that may have solutions derived from this environment.

- Complete the program at an education level on par with their Military Service Senior Fellowship program contemporaries and fulfill the Service requirements necessary to warrant Senior Service School credit.[23]

To this end, we received a month of general and specific training to acquaint us with the strategic issues and other factors facing the Department of Defense. The training included lectures by subject matter experts on current political and military issues and leading edge technologies.[24] The training involved several meetings with senior DoD officials, business executives, Members of Congress, the press, and former SDCFP officers. The training culminated with an executive graduate level business education at the University of Virginia's Darden Graduate School of Business in Charlottesville, VA. Appendix A outlines the preparatory training we received for this academic year.

SECTION 2

COMPANY BACKGROUND: TIME WARNER INC.

Time Warner is a leading media and entertainment company whose businesses include interactive services, cable systems, filmed entertainment, television networks, and publishing. Figure 4 depicts Time Warner's business units. The company classifies its businesses into the following five reporting segments:

- Interactive services (AOL, Time Inc, and Turner)

- Cable, consisting principally of interests in cable systems providing video, high-speed data and voice services (Time Warner Cable)

- Filmed Entertainment, consisting principally of feature film, television and home video production and distribution (New Line Cinema and HBO)

- Networks, consisting principally of cable television networks (Turner Broadcasting)

- Publishing, consisting principally of magazine publishing (Time, Inc.)[25]

AOL
22000 AOL Way
Dulles, VA 20166-9302
Phone 703.265.1000

HBO
1100 Avenue of the Americas
New York, NY 10036-6712
Phone 212.512.1000

Time Warner Cable
One Time Warner Center,
North Tower
New York, NY 10019
Phone 212.364.8200

Turner Broadcasting System
1 CNN Center
Atlanta, GA 30303
Phone 404.827.1700

Time Inc.
1271 Avenue of the Americas
New York, NY 10020-1393
Phone 212.522.1212

Warner Bros. Entertainment
4000 Warner Blvd.
Burbank, CA 91522
Phone 818.954.6000

Figure 4. Time Warner Businesses

Filmed Entertainment Business

The Company's Filmed Entertainment businesses produce and distribute theatrical motion pictures, television shows, animation, and other programming. Time Warner also distributes home video product and license rights to feature films,

television programming, and characters. Warner Brothers Entertainment Incorporated and New Line Cinema Corporation manage the company's filmed entertainment businesses.

Warner Brothers is one of the world's leading suppliers of television programming, distributing programming in more than 200 countries and 45 different languages. Warner Brothers develops and produces new television series, made-for-television movies, mini-series, reality-based entertainment shows and animation programs and licenses programming from the Warner Brothers library for exhibition on media all over the world. Theatrical films are produced and distributed by New Line Cinema, a leading independent producer and distributor of theatrical motion pictures.[26]

Network Business

Time Warner's Networks business consists principally of domestic and international basic cable networks and pay television programming services. The basic cable network, owned by Turner Broadcasting System, constitutes Time Warner's basic network business. Pay television programming consists of the multi-channel HBO and Cinemax pay television programming services operated by Home Box Office, Inc. The programming of the Turner Networks and the Home Box Office is distributed via cable, satellite and other technologies. Turner Networks include

two general entertainment venues: TBS which reaches approximately 91.5 million U.S. households and TNT with approximately 92.0 million households. Turner Classic Movies, a commercial-free network presenting classic films reached approximately 76.1 million households in the U.S. this year.

For its sports programming, Turner licensed programming rights from the National Basketball Association to televise regular season and playoff games on TNT. Turner also secured rights to televise certain NASCAR Nextel Cup races from 2007 through 2014. TBS televises Atlanta Braves baseball games secured rights from Major League Baseball to televise regular season and playoff games on TBS beginning with the 2007 playoffs and continuing through the 2013 season. Through a wholly owned subsidiary, Turner owns the Atlanta Braves of Major League Baseball but has a non-binding letter of intent to sell the team and has submitted documents relating to the proposed transfer of the Atlanta Braves franchise to Major League Baseball.

Turner's CNN and Headline News networks, 24-hour per day cable television news services, reached approximately 92.0 million households and 91.3 million households in the U.S., respectively. Together with *CNN International*, *CNN* reached more than 200 countries and territories. *CNN* operates 36 news bureaus, 10 of which are located in the U.S. and 26 located around the world. *CNN Headline News* is distributed in the Asia

Pacific region and Latin America; *CNN en Español* is a separate Spanish language all-news network distributed in Latin America; and *CNNj* is an all-news network in Japan. In a number of regions, Turner has launched local-language versions of its channels through joint ventures with local partners.

In addition to its cable networks, Turner manages various Internet sites. *CNN* has multiple sites, including *CNN.com* and several localized editions that operate in Turner's international markets. *CNN* also operates CNN*Money*.com as a joint venture with Time Inc.'s *Money* Magazine. Turner also operates the NASCAR website, *NASCAR.com*, and the PGA's and PGA Tour's websites, *PGA.com* and *PGATour.com*, and along with several interactive websites.

Finally, Turner also introduced GameTap, a direct-to-consumer broadband subscription based gaming service offering access to over 700 classic and contemporary video games.[27]

Publishing Business

Time Warner's magazine publishing business is overseen primarily by Time Inc., a wholly owned subsidiary of the company. As of year's end, Time Inc. published over 145 magazines worldwide, with over 40 in the U.S. and over 100 worldwide. These magazines appeal to the broad consumer market and include *People, Sports Illustrated, In Style, Southern*

Living, Real Simple, Entertainment Weekly, Time, Cooking Light, Fortune and *What's On TV*.

In addition, Time Inc. websites, such as *CNNMoney*.com, *SI*.com and *People*.com, reached approximately 18 million unique users on average each month last year. Time Inc. expands its magazine businesses generally through the development of product extensions, new magazines and licensed international editions. Product extensions are generally managed by the individual magazines and involve, new magazines launches, specialized editions aimed at particular audiences, and the development of new editorial content for different media, such as the Internet, books and television. Many of Time Inc.'s magazine brands have developed websites to publish content new to Internet audiences as well as content from the magazines.

Advertising carried in Time Inc.'s U.S. magazines is predominantly consumer advertising, including toiletries and cosmetics, food, domestic and foreign automobiles, pharmaceuticals, retail and department stores, media and movies, direct response, financial services, apparel and computers and technology. Last year, Time Inc. magazines accounted for 22.6% of the total U.S. advertising revenue in consumer magazines. *People, Time* and *Sports Illustrated* were ranked 1, 3 and 4, respectively, by revenue, and Time Inc. had 7 of the 25 leading magazines in terms of advertising dollars. Through the sale of

magazines to consumers, circulation generates significant revenues for Time Inc.

Most of Time Inc.'s U.S. magazines are sold primarily by subscription and delivered to subscribers through the mail. Subscriptions are sold primarily through direct mail and online solicitation, subscription sales agents, marketing agreements with other companies and insert cards in Time Inc. magazines and other publications.[28]

Cable Business

Time Warner's cable business, Time Warner Cable Inc., and its subsidiaries, is the second-largest cable operator in the U.S. and is an industry leader in developing and launching innovative video, data and voice services. As of last year, Time Warner Cable's systems were in approximately 26 million U.S. Approximately 85% of these homes was located in one of five principal geographic areas: New York state, the Carolinas, Ohio, southern California and Texas. As of February 1, 2007, Time Warner Cable was the largest cable system operator in a number of large cities, including New York City and Los Angeles.

Time Warner Cable offers a variety of services over its broadband cable systems, including video, high-speed data and voice services. Time Warner Cable markets its services both separately and as "bundled" packages of multiple services and

features. Increasingly, its customers subscribe to more than one service for a single price reflected on a single consolidated monthly bill. Nearly all of the Legacy Systems had bandwidth capacity of 750MHz or greater and were capable of delivering all of Time Warner Cable's advanced digital video, high-speed data and Digital Phone services.

Time Warner Cable offered high-speed data services to nearly 99% of its homes. Within the last year, Time Warner Cable had approximately 6.6 million residential high-speed data subscribers and approximately 245,000 commercial accounts. Time Warner Cable offers commercial customers a variety of high-speed data services, including Internet access, website hosting and managed security. These services are offered to a broad range of businesses and are marketed under the "Time Warner Cable Business Class" brand.

Digital Phone is the newest of Time Warner Cable's core services, having been launched broadly across its network in 2004. With the Digital Phone service, Time Warner Cable can offer customers a combined, easy-to-use package of video, high-speed data and voice services and compete effectively against similarly bundled products offered by its competitors.[29]

Interactive Services Business

AOL provides interactive services for Time Warner. In the U.S. and internationally, AOL and its subsidiaries operate a leading network of web brands, offer free client software and services to users who have their own Internet connection. AOL also provides services to advertisers on the Internet. In addition, AOL operates one of the largest Internet access subscription services in the U.S. AOL offers a variety of websites, portals such as *AOL.com* and related applications and services. AOL's audience includes AOL members and Internet users who visit the AOL Network. AOL attracts highly engaged users and retains users on the AOL Network by offering compelling free content, features and tools.

AOL earns revenue by offering advertisers a range of online marketing and promotional opportunities both on the AOL Network and on third-party websites primarily through *Advertising.com*. Online advertising arrangements generally involve payments by advertisers on either a fixed-fee basis or on a pay-for-performance basis, where the advertiser pays based on the "click" or customer transaction resulting from the advertisement. AOL also offers advertisers a variety of customized programs, including premier placement, video advertising, rich media advertising, sponsorship of content, local and classified advertising, audience targeting

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opportunities, search engine management and lead generation services.   Advertising revenue is also generated through its relationship with Google, which sells advertising that appears on AOL search sites and shares the resulting revenues with AOL.[30]

SECTION 3

FELLOWSHIP ASSIGNMENT

Following completion of the program's preparatory training, professional military education, and executive business training in Washington, DC and Charlottesville, VA, I reported to Time Warner in New York, NY. My initial assignment with the company placed me at *CNNMoney*.[31] *CNNMoney* is a web portal that provides interactive, dynamic, and relevant business and finance information to its users.

My first assignment was in the newsroom, depicted in Figure 5, at the Time Warner Center in New York City. While in the *CNNMoney* newsroom, I had the opportunity to observe and participate in business news reporting at the ground level. I shadowed my sponsor, a senior video producer, and intimately learned the processes and procedures for planning, editing, and uploading video segments for the web site. I had hands-on introduction to the Anystream® video coder/encoder and the Turner Content Management System (CMS).

Figure 5. *CNNMoney* Newsroom

CNNMoney used the Turner CMS as the tool to automate the function of digital publishing. The Turner CMS provides templates and automates formatting of text, video, and gallery stories and content. The tool allows writers and editors to quickly and efficiently post stories from the CMS directly to the website by automatically converting text, graphics, and videos into hyper-text markup language (HTML).

In a fleeting, dynamically changing environment such as the battlefield, a system similar to Turner's CMS can provide the tools necessary to rapidly post time-sensitive material to the military's operational websites. The ability to rapidly write, update, and publish a product (such as intelligence reports or fragmentary orders) to an operational website is paramount to achieving tempo, rapid and accurate information exchange, and an ability to migrate to knowledge-based decision making. The DoD should investigate using a tool similar to Turner's CMS to standardize and automate web publishing for operational use.

Also in the newsroom, I had the opportunity to "grab," edit, and post text stories from the Associated Press and Reuter's news services to the web site. Under license, *CNNMoney* occasionally used stories published by these wire services to augment and supplement organic reporting. In addition, I also experienced posting articles from *Money* magazine to the website. In this process, the subtle but distinct requirements of print versus digital media became apparent to me. Slight modifications to the formatting of print articles were required to make the article effective and suitable for the digital publishing. Most challenging to me was to generate a "header" and "deck," the headline and accompanying amplifying sub-headline for news articles that were compelling and attention grabbing yet succinct to fit in less than 20 characters.

Writing effective, witty, and succinct attention grabbing headlines and sub-headlines is an art; it is second nature to the many professional writers and editors whom I interacted with daily in the *CNNMoney* newsroom.

During my time in the newsroom, I had the opportunity to observe and interact with corporate Time Warner executives. I met with company executives within Time Warner's Business Resource Group (BRG) and Diversity Program. Through this interaction, I had a glimpse into the company's planning, resources, leadership goals, and intent regarding workplace diversity. Time Warner's corporate culture of "inclusiveness" was driven from the top down; former Chairman and CEO, Dick Parsons, was the primary champion and architect of the company's robust Diversity Programs. Diversity Program examples include a Women's Group and various ethnic groups that serve to recognize and support the contributions of these groups to the company's successes.

I also met and interacted with the company's Business Continuity Program (BCP). Time Warner's BCP is synonymous to the military COOP, or Continuity of Operations.[33] BCP prepares contingency plans of action in the event of a severe disruption to operations as a result of natural disaster or criminal/terrorist action. Time Warner's BCP stipulates the ability to broadcast 24/7 news and information worldwide within

minutes of an "event." The technologies, business practices, and temporary command centers I observed in Time Warner's BCP are directly relevant and useful for defining DoD's COOP requirements.[34]

While at Turner Broadcasting, I met with the Director of Turner's New Product Group (NPG). This group is charged with the responsibility of spearheading innovation within the company. The group was newly chartered and responsible for identifying fresh opportunities and ideas to establish a culture that avoided what Kaplan and Turner described in their book *Creative Destruction* as "cultural lock in."[35] Example initiatives within the Turner NPG include work with *Kaneva* that unified the normally 2-D aspect of the web into a 3-dimensional experience for users. Moreover, this initiative seeks to integrate social networking, shared media, and collaborative online communities into a modern day, immersive 3-D environment. Obvious application of these technologies for Defense includes modeling an simulation, planning, and mission rehearsals. My work with Turner's NPG also included opportunities to observe the Strategic Planning Group, Mergers & Acquisition Group, Product R&D Group, and the Internet Technology Group. The observations and lessons I gleaned from these interactions are interwoven in my observations and recommendations contained in the later sections of this paper.

The second half of my Fellowship year was spent on the business side of *CNNMoney*. As a joint venture, the business administration of *CNNMoney* was conducted under the Fortune/Money Group at the Time, Inc. My assignment was in the Business Development Division of *CNNMoney* where I was assigned as the Project Manager for the redesign and re-launch of *CNNMoney's* mobile web site. As the Project Manager, I led company's efforts to provide digital content to mobile devices.

Industry trends and studies indicate the explosive growth of audience and demand for digital content on devices such as PDAs and mobile phones.[36] The underlying technology and techniques in optimizing digital content on bandwidth-limited devices revealed technologies useful for "pushing" information to the lowest echelon of command. I was exposed to technologies such as compression, Wireless Markup Language (WML), and Wireless Application Protocol (WAP) that are useful and practical for improving C2 in emerging warfighting concepts such as "Enhanced Company Operations" and "Distributed Operations." Figure 6 shows information on how to access the *CNNMoney* mobile site. A more thorough discussion of the applicability of mobile technology for Defense applications in warfighting follows in Section 5.
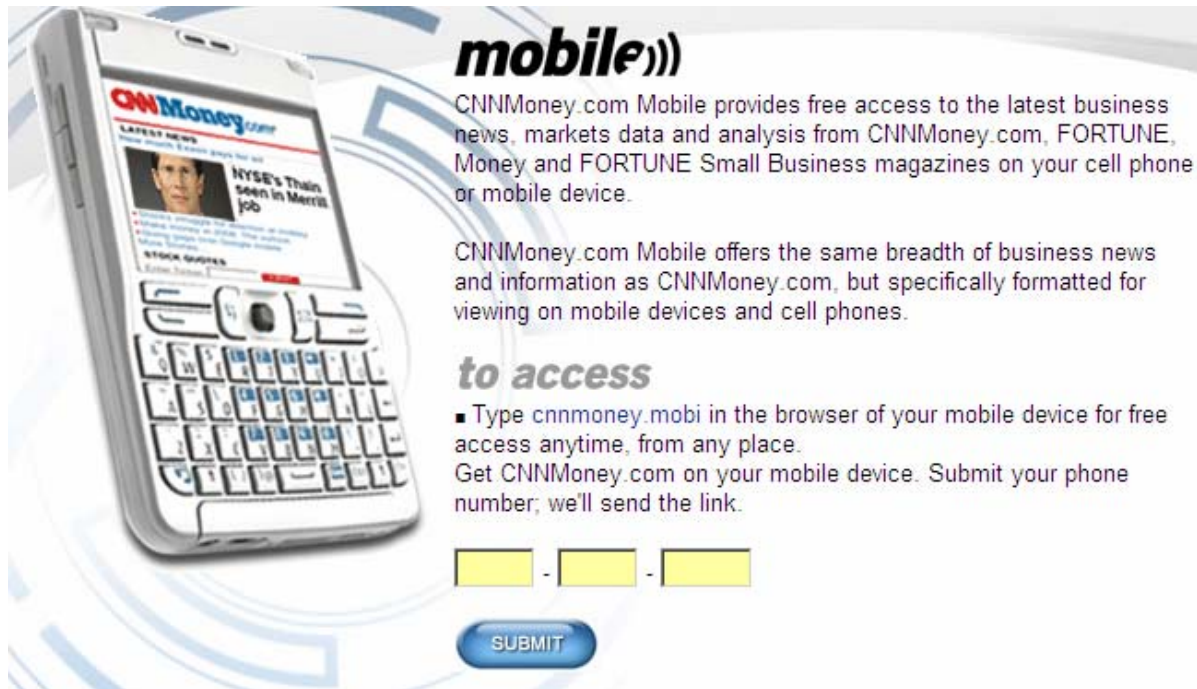
Figure 6. *CNNMoney* **Mobile site splash page**

In addition to my duty as the Mobile Project Manager, I was also a member of the Business Development Team charged with new product development and expanding the audience reach and scope of *CNNMoney* on the Internet. In this endeavor, I participated in several product development activities including development of "web widgets," expanding and revamping the website's Real Simple Syndication (RSS) offering, and improving on-line video. I was exposed to many Social Computing and Web 2.0 developments as they related to product development. Concepts such as Search Engine Optimization (SEO), Search Engine Marketing (SEM), web blogs, and on-line communities, were examined as pathways to expand the audience reach of *CNNMoney*.[37] Observations and lessons

I learned from this experience and exposure are encapsulated in the discussion on the applicability of social media and Web 2.0 in the DoD in a later section.

Still another project I participated in is the creation of the *Fortune.com* newsroom. For this project, I was assigned as the Project Manager for planning and executing the creation of a dedicated *Fortune.com* newsroom at the Time and Life Building. Creating the newsroom is similar to creating a military operations center; requirements for communications, display, and network connection for the newsroom paralleled those required in a military command post or operational facility. While the physical construction of the newsroom was relatively straightforward, the most challenging aspect of the project was coordinating the permissions and access for the writers and editors to Turner and Time, Inc's firewalls and networks. Both Turner and Time, Inc. fall under the Time Warner corporate structure; however, both businesses retained two distinct networks that were not seamlessly linked for collaboration. The result was the elevation of this issue that had to be resolved by the CIO. In a way, it reminded me of the stove-piped, vertically siloed networks that command, control, and coordinate the hierarchies in DoD today.

Similar to my experience at Turner Broadcasting and the Time Warner Center, I met and interacted with several executives and

leaders at Time, Inc. I met with the President of Time Interactive, an organization within the company responsible for crafting and executing its digital strategy. I met and worked with subject matter experts in all areas encompassing social media and Web 2.0 on a frequent basis. While at Time, Inc., I also met with the Business Research and Insights (BRI) Group. The BRI is responsible for research and analysis of trends affecting Time, Inc.'s businesses. The Group focused on audience behavior studies and reported their findings to corporate executives and business leaders on how to optimize or change strategies according to the business climate. The BRI shared their "Millennial Study" results with me outlining the preferences and behaviors of Gen-X and Gen-Y with respect to media and entertainment.[38] The study resonated with and validated the thoughts of several warfighting strategists regarding the dependency of this generation to technology in all aspect of their existence. Social Computing was very much in the fabric of Gen-X and Gen-Y's being; not only were they comfortable with this technology at home, they expected to use Social Computing tools at work.

Finally, my assignment involved peer learning from my colleagues and extended learning from the company days I participated in throughout this year. The Fellows visited each sponsoring company and were afforded unprecedented access to top

Figure 7. AY 07-08 Fellows at CNN's *American Morning* studio

top executives of this nation's leading businesses. Access to the "C-suite" was invaluable in gaining insight into the culture, processes, and business practices of leading American corporations.[39]

Company days were an integral part of our experience during the year. As a group, we had the opportunity to sit in small group seminars to listen and interact with champions of industry such as George Buckley of 3M, John Chambers of Cisco, Ann Moore of Time, Inc., and many others. Graduate students at this

nation's most prestigious business schools aspire for this opportunity; we realized it many times over this academic year.

SECTION 4

WEB 2.0: SOCIAL COMPUTING, BLOGS, RSS, WIDGETS, AND WIKIS TOO

Web 2.0 is at the center of a "communications revolution that is dramatically changing the way businesses and corporations exploit the current generation of Internet technologies."[40] This section examines aspects of Web 2.0 relevant to the corporate world and relates those aspects to possible applications within DoD. This section serves as a "scene setter" by examining some of the principal business and technical drivers behind Web 2.0 and identifies the challenges and opportunities Web 2.0 presents to the of DoD Enterprise.

Today's high interest in Web 2.0 results from the convergence of several economic and technology trends. Together, trends in these sectors lay the foundation for the social and technical convergence that drive Web 2.0 and Social Computing technologies as viable sources of business innovation. From a high level, these trends include:

- An <u>increased awareness and focus</u> on corporations on innovative ways to improve performance. The involvement of

employees beyond just the executive level to seek new ways for improving performance accelerates this trend

- The <u>high pace of use and the increasing reach, penetration, and participation of users in rich media</u>. Fueling this trend is an inherently pervasive, collaborative, and full-featured rich media. A large segment of users contribute content and interact with each other socially and economically rather than using the Web as a static, "pull" only source of information.

- <u>Changes in attitudes to technology and the media</u> for communication, consumption, and work especially for the rising population of Gen-X and Gen-Y in the workforce. Time, Inc.'s "Millennial Study" surfaced the trend that rich media on the Internet is not new to this segment of workers; they have grown up with the technology and are comfortable using the technology for social interaction and demand it for work.

- The <u>rise of personalization and demand for customized products</u>. In his book *Mass Customization: The New Frontier in Business Competition*, B. Joseph Pine II posits "that the era of mass production is evolving into the era of mass personalization; anything from shoes to devices to automobiles can be customized or personalized at its normal price point, rather than requiring expensive bespoke design or production at a premium."[41]

Thus the nature of Web 2.0 and social computing is customized and personalized information. In the preface, I alluded to my observation that media winners in today's "attention economy" are the ones that allow personalization and customization. Clearly, Social Computing, enabled by Web 2.0 tools, attacks this fundamental issue.

Enabling Participation and Information Sharing: Wikis, Blogs, and Social Computing

Rapid maturity of Internet technology is driving the evolution of new communications media in which users, regardless of knowledge of computing technology, participate."[42] Personal profiles, blogs, and wikis provide simple tools that allow people to communicate without understanding the daunting technical underpinnings of the Web and web browser technologies. Through blogs, users share their interests and expertise; through wikis, they create collaborative content. By using social bookmarking, users connect content, links, and services making it easier to find each other. Through tagging and rating, sites and links are scored according to the preferences and interests of the user. The result is a "richer, better-connected Internet in which individuals meet and communicate with each other on topics of common interest more easily than before the emergence of these tools."[43]

The term "blog" is derived from the term "Web Log" and refers to a website that hosts a compilation of user-generated content. Entries in a blog are typically listed with the most recent entry first and in journal style; the successful blogs on the Internet provide commentary, news or insight on a particular subject. A common practice for bloggers is to combine text, images, video, audio and links to other blogs, web pages, and

other content related to their core topics thus propagating the viral quality of blog sites.

Figure 8. *CNN's* **most active blogs**

The open exchange of content through blogging "often translates to a robust and lively discussion of a particular topic."[44]   Moreover, since blog posts are less invasive and threatening means of reaching a potential customer, it is "attractive to marketers, advertisers, and political campaigns particularly during the discovery process when prospective users are only gathering information."[45]   Figure 8 lists examples of blog offerings at *CNN.com*.   Because blogs are not restricted by

"brick and mortar" call center constraints such as "call volumes, staff levels, and time zones differences, users often access critical information without consuming expensive resources; additionally, they have access to information at a time and place of their own choosing."[46]

While blogs serve as interactive publishing platforms, wikis provide the foundation for the collaboration platform. Wikis – Hawaiian for "quick" – refers to websites that allow users to easily add, delete and edit website content.[47]
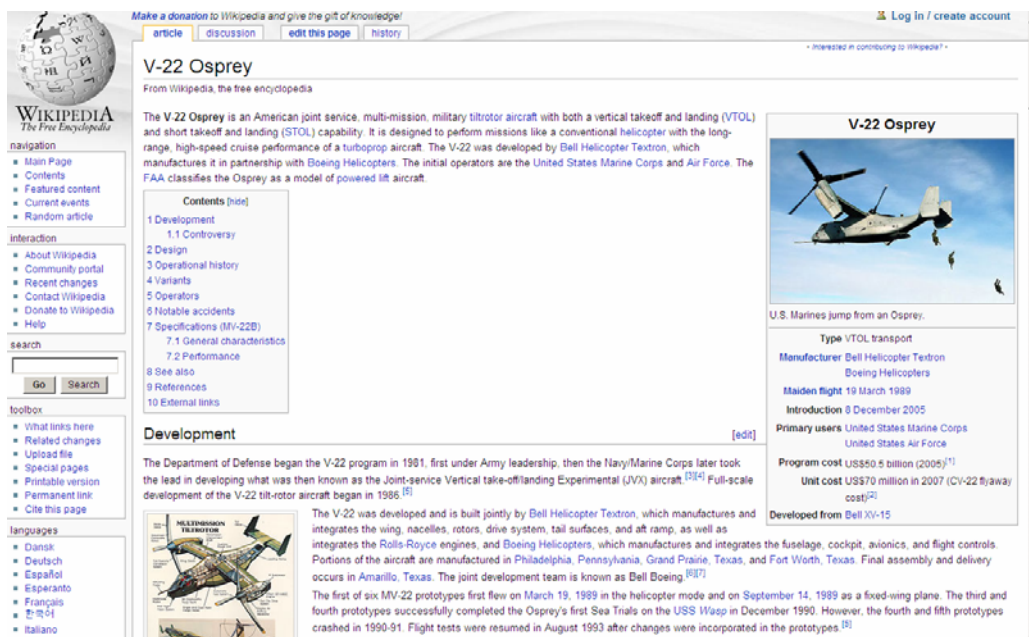
Figure 9. V-22 entry on *Wikipedia*

The ease of access, intuitive interface, and single repository, all of which contribute to the "living document" nature of wikis, make wikis an efficient and effective tool of mass collaboration. Figure 9 is the *Wikipedia* entry for the V-22 Osprey aircraft. The Wikipedia phenomenon drives a great deal

of interest in applying "wiki" technology to meet the collaboration and information sharing needs of businesses. Increasingly, "companies that considered themselves 'technology early adopters' were applying wikis to non-encyclopedic content such as product information, company profiles, documentation, and user guides."[48]

Instead of explicit document versioning, wikis simplifies the approach to content collaboration by maintaining a single product version that any user can review, change, edit or annotate. Consistent with Web 2.0 concepts, wikis encourage participation, contribution, and information sharing, which in turn, generate more valuable and relevant content for all users.

Information sharing among Governmental agencies was the most vexing problem during relief efforts in the aftermath of Hurricane Katrina. The Congressional report stated that part of the problem was that the "DoD lacked an information sharing protocol that would have enhanced Joint situational awareness and communications between all military components."[49] Social Computing and Web 2.0 tools are potential commercial-off-the-shelf solutions to address this problem.

***Enabling Information Syndication and Reuse: Feeds,
Widgets, and Gadgets***

A set of technologies have emerged over the last decade
that augment and support the applications described in the
previous section. Syndicated feeds, streams of information
formatted in Extensive Markup Language (XML) are pervasive and
enable aggregator sites to carry a vast array of content and
allow users to personalize data and content.

An integral component of Web 2.0 is the ability to
syndicate content for mass distribution. Software programs
known as "Feed Readers" or "Aggregators" routinely check a
user's "subscribed feeds" to see if any pre-defined feeds have
new content such as news or updated blogs. If there are new or
updated content, the content is automatically retrieved and
"delivered" to the user. For example, *CNNMoney* provides its
readers with the ability to set up RSS feeds for the various
sections of the website. Figure 10 is the CNNMoney page where
users can request RSS feeds. Web-based feed readers and news
aggregators such as *Feedburner or Pheedo* require no software
installation and makes the user's pre-defined feeds available on
any computer with Internet access. Recently, some aggregators
took existing web feeds and combined them into a new feed that
was a combination of multiple feeds, blogs, or podcasts
regarding a specific topic.

Figure 10. *CNNMoney's* **RSS Page**

The benefits of RSS are numerous. At the macro level, RSS makes information more timely and tailored. Specific benefits include the following:

- Frequent updates to fast changing information are possible by setting feed readers to check websites at regular intervals for updates.

- Less time spent "surfing" the web. Content comes to the user. As a result, more content can be consumed in less time.

- Avoids extra information on the source website that is not relevant.

- Users subscribe to the feeds and therefore "opted in" to receive the content. This method of delivery avoided the "spam" and unwanted information.

- "Push" type of delivery allows the user to receive the content even when the user is not at the website.

Syndication allows for delivery of perishable information to the user with minimum delay.

Feeds are an example of services "created according to "*RESTful principles*," a set of design and implementation parameters that aim create services that are scalable and easy to use as the Internet as a whole."[50] Many Web sites make their content as RESTful services to enable easy integration to other Web applications. Technologies such as Asynchronous JavaScript + XML (AJAX) "provides rich media features and more responsive interfaces with the browser."[51] The result is rich, interactive data feeds and interfaces that are compelling and useful to the user.

Widgets are tiny applications that bring in multiple data (such as weather, headlines, videos) simultaneously from the Web to the user's desktop without having the user open multiple browser instances. Figure 11 shows examples of web widgets from the *NBA.com* site. However, early widgets were not useful and only tended to clutter the desktop until the user was forced to shut it down. More useful types of widgets are the ones that let the user take data from one website and embed them into another. These types of widgets are also called "web badges" or "snippets." These applications allow the user to tailor the web to one's liking by adding, for example, a customized search box to a blog, *YouTube* video to a *MySpace* page, or create a whole
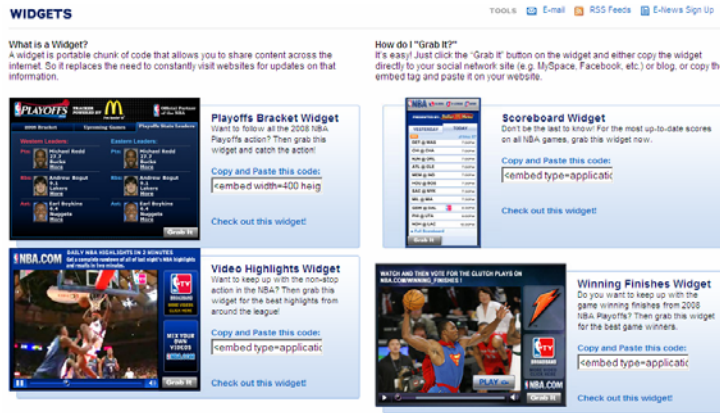
Figure 11. Examples of widgets from NBA.com

page of widgets on *myGoogle* by pulling in RSS feeds and videos from around the Web.

The main reason web widgets were becoming increasing relevant is because they are "the most concrete manifestation of something that is happening in the digital space today – the Web is splintering."[52]   Web page aggregators such as *Google* and *Yahoo* filter the constantly changing Web for the user efficiently. However, as an alternative, a user can personalize the web experience themselves with a few well chosen widgets to bring relevant content to the user's corner of the Web.

Military utility of widgets and similar applications are relevant in the C2 arena where operations require tailored, timely, and relevant information on demand. As more and more of the military's tactical command and control apparatus migrate to web-based applications, widgets can provide a mechanism for users to simultaneously monitor several web sites without having

to switch between browsers. This capability reduces operator workload and enables the user to easily monitor several websites.

Enabling Information Agility: Web Mashups

Mashups are web applications that combine data from more than one source into a single integrated tool. In simple terms, an example of mashup is the use of cartographic data from *Google Maps* to add location information to real estate data from a Realtor website "resulting in a new and distinct web service or product that were not originally provided by either source."[53] Mashup applications put constructive power in the hands of end users to combine function and content from many sources into new applications.
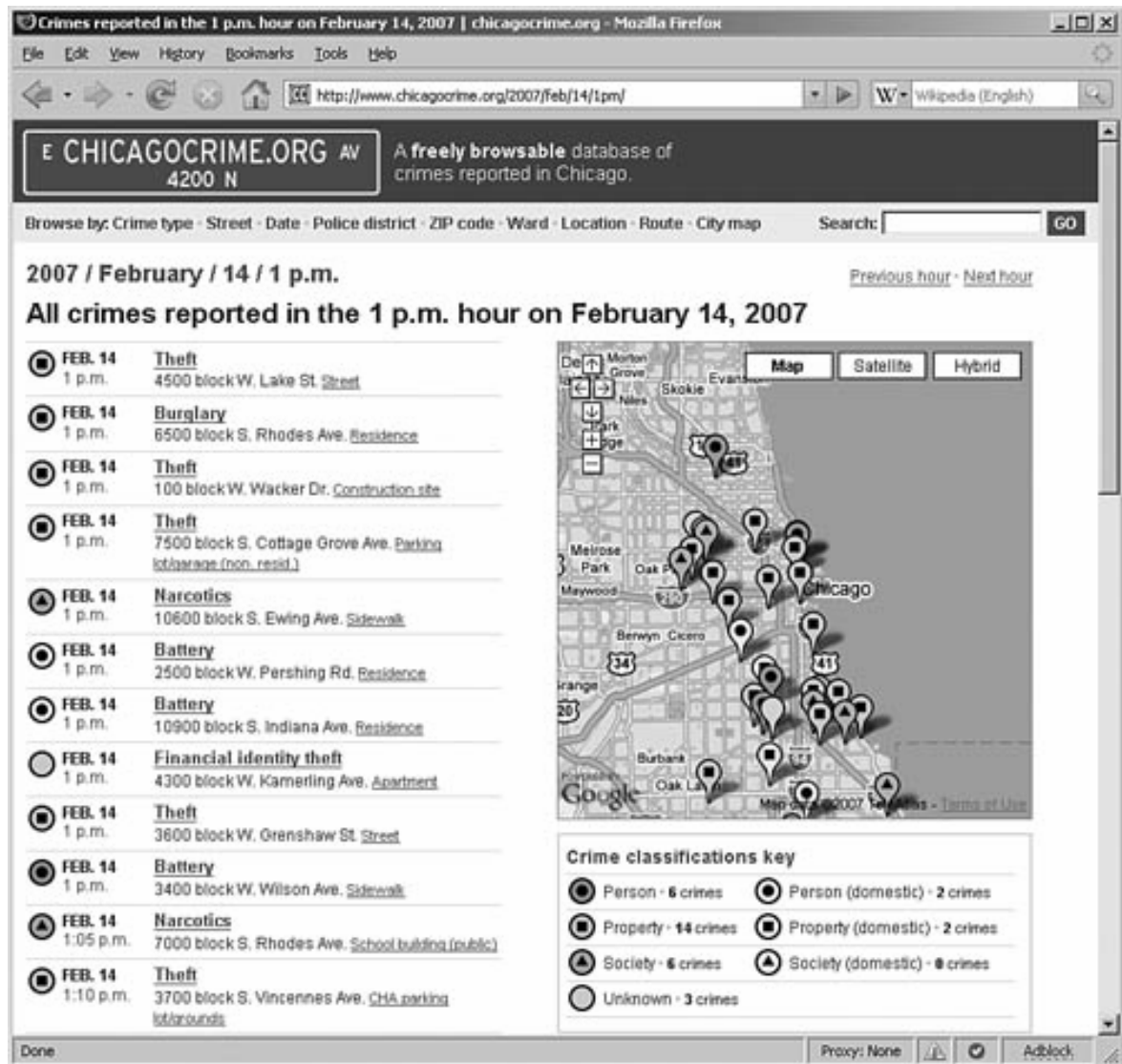
Figure 12. *ChicagoCrime.org* **mashup**

Such applications may mix operational data with news and events, financial information, weather, or other user-desired information. Figure 12 is a mashup of Chicago Police crime data and Google maps.

Wikipedia defines mashups as "*a website or application that combines content from more than one source into an integrated experience.*"[54] While this is a useful definition, there is a

more complete definition and more applicable to business enterprises: "A mashup is a user-driven micro-integration of Web-accessible data."[55] While short, this definition contains a number of important points worth examining:

- <u>User-driven</u> – Mashups are executed for the user, not the by black-box, back-end integration systems. In this sense, a mashup must be completed by the users themselves. Without this guiding principle, the tool is merely sending the users back to legacy IT applications.

- <u>Micro-integration</u> – While workers were good at how to combine data, they are often frustrated with the time and effort it took to accomplish this manual task. As users typically deal with small amounts of knowledge-oriented information, the process becomes "micro-integrations". There are five key micro-integration patterns, with examples, worth noting:

  - Data merging: Merging multiple RSS feeds into a single feed.

  - Data feeding: Feeding a customer list in Salesforce.com into an Oracle ERP order system to see pending orders from that customer.

  - Data joining: Joining the top consumer electronic stock gainers with market data to identify stock fluctuations according to product sales.

  - Data filtering: Getting a list of customers who have offices in a specific zip code.

  - Data annotations: Adding latitude/longitude to a customer list to plot main offices on a map.

- <u>Web-accessible</u> – Returning to the concept of RIA/AJAX and SOA, mashups are built on data that can be displayed quickly in a web browser or data that does not require too much manipulation for the user to make sense of it.[56]

The utility of mashups is as diverse as the number of tasks that can be accomplished with the new mashup tools. Whether the user is a Military Order of Battle Analyst performing threat analysis or an Imagery Analyst studying downloaded Unmanned Aerial System's imagery, the possibilities are numerous. The way a user interacts with a mashup makes it distinct from legacy IT-centric tools. In mashups, users dynamically create and interact with the content and data thereby eliminating the middle man.

Some argue that the concept of Mashups has been around for years; DoD's combat systems have been "mashing up" data from disparate systems and sources by combining them to produce a more comprehensive product. While this is true in part, the "new and exciting advances in mashup technology are the proliferation and availability of applications that conduct automated mashups. Today, mashups are generally done through editors that automate the process compared to the old and cumbersome way through SFTP/FTP, scripts, and other manual mechanisms."[57] For military application, operational data feeds could be mashed with intelligence information and mapping tools to deliver better information visualization for enhanced situational awareness. Mashups can also be used as the presentation layer to create a common operational picture such

as the Single Integrated Air Picture (SIAP). SIAP may be attained through the mashup of mapping data from National Geospatial Agency, parametric and kinematic data from sensors, and track classification and identification based on published Rules of Engagement and identification criteria.

In a recent article on the utility of web mashup for military intelligence, Nelson King described the problems with processing Military Intelligence like this: "Start with a large federal agency that gathers and analyzes data across the military services. Much of the work is accomplished by many highly skilled data and analytical specialists whose IT needs are extremely complex and sensitive."[58] The Defense Intelligence Agency (DIA) decided to use web mashup as solution to this vexing problem. However, the use of web mashups in the DIA was not met without objection initially; what moved the project forward was the demonstration "to the analysts that they were in charge of the presentation; they could capture the data the way they wanted to."[59] Thus, the concept of data transparency is the key for success for Social Computing. The true power of Social Computing for Military Intelligence is its ability to take "data from a variety of sources and provide it to a group of savvy users so they can easily choose the data they need and manner they want to present it. In essence, it's a new way to

deliver information to decision makers."[60]   The advent of the Internet and Social Computing changed "the game for some very old problems," King concluded.[61]

SECTION 5

THE MOBILE WEB: EXTENDING CAPABILITIES

The convergence of several key technology events in the mobile phone industry set the stage for the wireless web to offer users the type of content, reach, and presence that make investment worthwhile. Several key milestones point to these trends to include "significant increase in consumer awareness, faster connectivity speeds and 3G Networks, introduction of the next generation of Wireless Application Protocol (enabling more robust graphics and a better user experience), and better handset functionality that enables more data services."[62]

Similarly, the advances in the quality and quantity of data services for mobile technology sent it to the tipping point for mass adoption. Data services available on mobile handsets today include the wireless web, video, text messaging, game downloads, instant messaging and email that are transforming the mobile phone into an always with you, always on, communication, information, and entertainment device. Clearly, the mobile web

is extending the communications revolution occurring on the Internet today to users away from computer desktops and laptops.

The wireless industry is established and growing

According to Forrester Research, "169 million U.S. consumers own or have access to a mobile phone. This number increased to over of 200 million this year. Of those 200 million, it was projected that 84 million will be data subscribers, up from 26 million in 2002."[62]

While it is still too early for a "killer application" to emerge in mobile services, browsing mobile site content (wireless web content such as entertainment, sports, news and more) "is up from 11 percent of all data subscribers who actively used data services to 35 percent in 2004 – a notable number that is sure to have implications for mainstream brands and content providers searching for new venues to connect with their customers."[63]

WAP 2.0: Bringing Wireless Closer to the Internet

The Wireless Application Protocol (WAP) is the standard for mobile Internet applications; its primary objective is to provide an open standard for optimized access via a mobile device to the Internet. However, WAP and WAP-based services did not completely facilitate complete transformation of the mobile

domain; limitations of devices and networks today such as small
screens, limited device memory, less powerful CPUs, limited
bandwidth availability, unreliable connections, and high data
latency continue to present engineering problems to overcome.

WAP: Basic Architecture
Network view
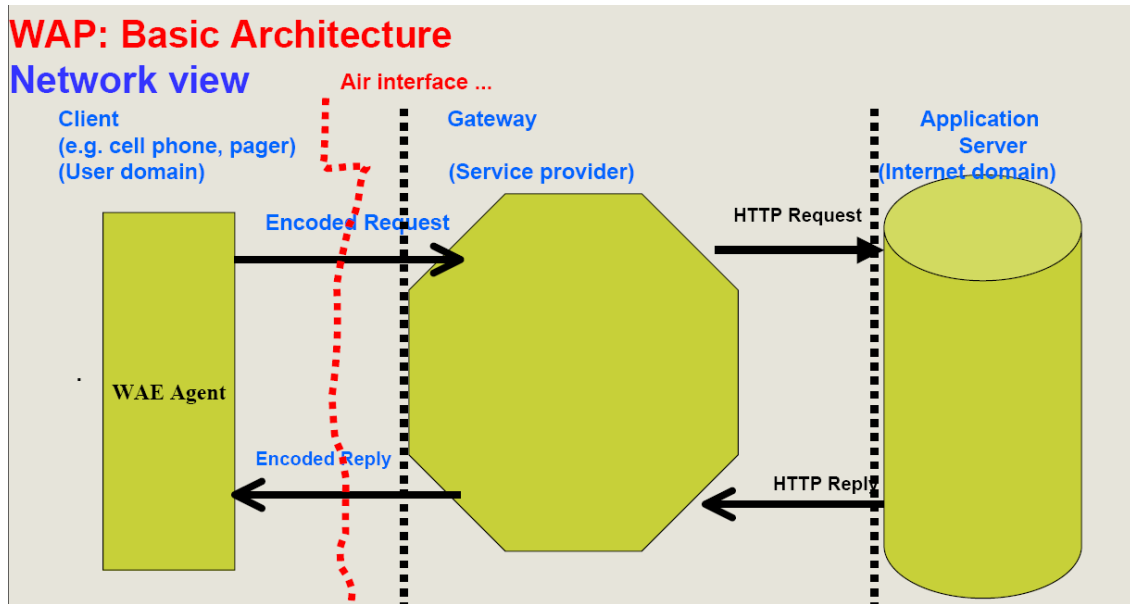
Figure 13. The basic WAP architecture

    WAP bridges the gap between the mobile world and the
Internet and offers the ability to deliver a wide range of
mobile services to subscribers independent of their network and
device. As a result, mobile subscribers can now access the same
information from a pocket-sized device as they can from the
desktop. Figure 13 illustrates how WAP bridges the internet and
the mobile world.

Wireless Application use for Defense

Although it is difficult to neatly describe the entire realm of mobile internet applications for military use, four applications in industry may be applicable to the DoD. These applications include communications and personal information management (PIM), internet, enterprise, and telemetry applications.

- Communications and PIM. Communications applications such as messaging, email, and notification comprise the main wireless data applications in industry that may be directly transferable to the military environment. Moreover, industry, mobile providers also use PIM applications such as scheduling and calendar services to differentiate their offerings among competitors. Although text-based communications applications are becoming increasingly important, it should not be assumed that they will completely replace voice-based communications. One of the major user-interface challenges currently facing mobile developers is the integration of voice and text interfaces to provide a seamless communication experience.

- Internet. Internet applications are directed at a broad "consumer" audience and receive the majority of media attention. Mobile commerce or "m-commerce," services - such as ticketing, banking, and other purchases - are currently the focus of much attention. Financial institutions are at the forefront of m-commerce as a result of the huge cost-savings that can be realized over traditional service delivery. Portal services (including news, weather, and stock updates) are available within a new class of Internet portal: the mobile portal. Due to the limited display and entry capabilities of mobile devices, portal connections are extremely important in the wireless world. My view of this technology is an immediate and directly transferable capability to distribute relevant, timely, and tailored combat information and intelligence to the lowest echelon of command and away from single channel radio coverage.

- Enterprise. Enterprise specific mobile services are often overlooked, but are becoming increasingly critical to success in industry. Since up to 40 percent of the workforce spends a significant amount of their workday away from their desks, the ability to extend the office into the field is an enormous benefit. Mobile access is already a reality in areas such as sales, transportation, and field service where the benefits of automation are readily apparent. Mobile enterprise connectivity provides a value proposition to military users as we begin to understand the advantages of a virtual command center that will provide a commander with situational awareness and the ability to command and control forces even when detached from the command post.

- Telemetry. Telemetry applications use mobile communications to send messages from either one embedded device to another or to a central server. Remote installations that require monitoring (such as storage tanks, pipelines, etc) are common applications in industry. It is possible to use the same technology for in-transit visibility for logistics tracking or blue force tracking for operational situational awareness.

- Other Military Utilities. In addition to the applications listed above, the wireless Web enables entirely new classes of applications. Location-aware services take advantage of the user's mobility to offer applications that are tailored to the user's current position. Location information can be provided by the user in the form of a postal code or address, or the information may be automatically available from the client device via Global Positioning System (GPS) or cellular network triangulation. Add push technology and time-aware services to this mix, and the military utility is readily apparent. Applications can initiate an interface with the mobile user making possible highly personalized location and time-specific services for deployed forces.

SECTION 6

PUTTING IT ALL TOGETHER: THE VALUE PROPOSITION OF SOCIAL COMPUTING, WEB 2.0, AND MOBILE WEB FOR DEFENSE

Increasingly, Web 2.0 and social computing continue to improve business processes and their adoption has resulted in increased personal and team productivity. In the past, information technology and knowledge management technicians installed desktop applications to meet specific business requirements. Today, however, Web 2.0 tools and social computing applications are "increasingly morphing into a collection of usable, familiar, and effective platforms that deliver a combination of messaging, collaboration, and communications for the Enterprise."[64]   The same value this capability provides the business enterprise is equally applicable to the Defense Department Enterprise.

The issues driving corporate America to embrace the emerging capabilities provided by Web 2.0 and Social Computing are the same issues and realities facing the DoD today. Specifically, these drivers include:

- Globalization requires collaboration worldwide and in many time zones.

- Outsourcing of low value work requires collaboration with partner companies and contractors

- Increasing mobility of the workforce and the growing popularity of flexible work policies (for the Defense Department, the increasing amounts of deployments and distributed operations as well).

- Failed business models (or ailing business processes for the DoD such as certain acquisition processes).

- Changing competitive landscape (Constantly evolving Strategic landscape for the Defense Department)

- Rapid advances in communication and collaboration technology (especially in the areas of unified communications, telepresence, and social computing)

- An infusion of new generation of tech-savvy workers (Millennials) entering the workforce

Value Proposition for Defense: Collaboration

Whether for the Enterprise or operational use, the greatest value of social computing for the military is improved collaboration and information sharing.

Colonel Joe Moore, a SECDEF Fellow assigned to SRA International this academic year framed the essence of the value of collaboration by asking this question: How does the organization "leverage the intellectual capital of the force, the approximately 2.5 million competent and experienced, yet disconnected service members and civilian employees and contractors?"[65] DoD exists as an organization to solve complex problems beyond the capacity of single individuals. Colonel

Moore posited that web-based social computing "could provide [the] DoD a mechanism for unleashing the flow of valuable information through collaboration."[66]   For all the power of technology to make individuals more efficient and more effective, the greater value lays in developing a capability to harness the power of computing to support complex collective activity (for example, war planning) to solve complex problems (such as warfare) using collective intelligence (via natural collaboration).

In his final briefing for the SECDEF Program to DoD Officials at the Pentagon, Colonel Moore presented several examples of how social media, enabled by Web 2.0 tools provide value for DoD.   The scenarios below serve to capture hypothetical instances where advances in Social Computing provide the capabilities to achieve the desired end result.

- *"I want knowledge, I want it now, and I want to communicate with people possessing that knowledge."* This scenario acknowledges that subject matter experts within the Department are dispersed all over the world. Moreover, there is no clear way to identify who is an expert. Social computing tools can provide a way for experts to be tagged and searched. In addition, social computing tools allow users to "rate" and "rank" content based on usability and utility. In this manner, true experts can be identified and vetted the consumers of the content. The cream rises to the top while irrelevant, self proclaimed experts are marginalized.

- *"I want to share my knowledge"* – In this situation, a subject matter expert possesses the knowledge and needs to share it with others. Blogs and web posts are optimized social computing tools that can get the information exposed

and discovered. Also, a case may exist where an individual is an expert about a subject but did not even know it. Blog postings can expose the question to the collective workforce and allow responders, some perhaps not officially recognized as experts, to respond.

- *"If you really want to know what is going on, ask someone in the field"* – in this scenario, the ability to "reach out and touch" someone anywhere in the world speeds up the flow of information. The network "flattens" the communications hierarchy and makes the right people available at the right time.

Colonel Moore went on to say in his briefing that "uninhibited collaboration connected new sources of knowledge and information."[67] It does so with a broad and informal peer review of ideas so experts are exposed.

Value Proposition for Defense: Better Knowledge Capture

L. Gordon Crovitz of the *Wall Street Journal* recently published an article titled *From Wikinomics to Government 2.0*. In the article, he states that "online tools under the rubric of Web 2.0 are changing how information flows, with social networks letting people communicate directly with one another."[68] He goes on to say that these tools are "reversing the top-down, one-way approach to communicate...challenging everything from how bosses tried to manage to how consumers make or break products within instant mass feedback."[69]

Web 2.0 tools provide value for the Enterprise by allowing users new ways to engage with one another. The same technology also makes it easier to publish and capture information that used to be inaccessible. Crovitz also stated that Social Computing tells users "we want your knowledge, not your agency seal."[70] The use of wikis for example, allows military users to post information and expand on it until a consensus was achieved. As such, the current methodology of the Joint Staff writing drafts of Joint Doctrine, then meticulously and serially staffing the drafts through the various departments and offices is time consuming, inefficient, and painfully slow. Using Social Computing tools, such as a wiki, can dramatically increase the speed of the process and allow input from experts that may otherwise not be included in the staffing process. The end result is streamlined process, controlled document versions, and faster consensus.

Finally, the ability to tag, search, and syndicate content also improve knowledge capture through Social Computing. In this way, information seeks the user – not the other way around. By subscribing to syndication feeds, or downloading "widgets" and "gadgets," a user can specify to be alerted or the information delivered directly.

As social computing rapidly becomes ubiquitous in industry, the major benefit is more natural collaboration. As companies continue to look for better tools to allow collaboration, knowledge capture, and visibility into data and processes, Social Computing tools proved to be a valuable piece of the overall strategy. Figure 14 is an example of an adaptation of a wiki for intelligence use by the Defense Intelligence Agency.
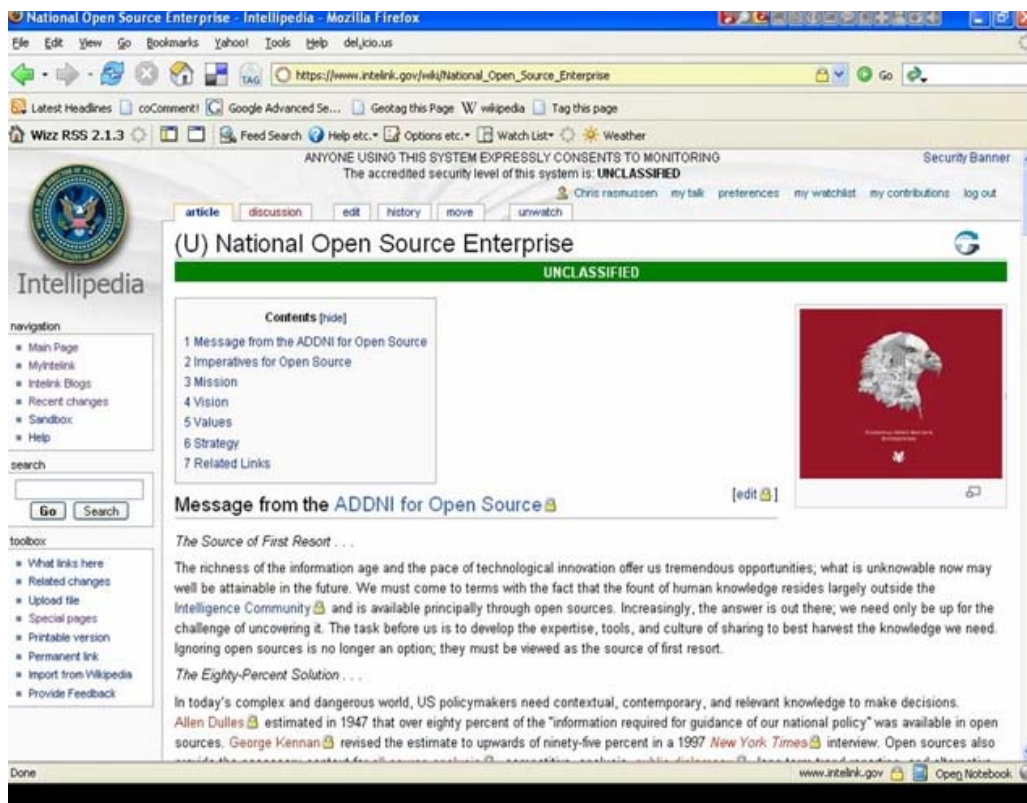
Figure 14. Intellipedia

However, there is a fine distinction between the social tools used by most consumers today versus the type of tools that business enterprises seek. When these technologies are

adopted for enterprise use, their purpose and requirements change; they are adopted to solve business problems. Similarly, there is a distinction between the social media tools I posit the DoD adopts; social media must be deployed to solve Enterprise and operational problems within the Department.

SECTION 7

SUMMARY

As one can see from the discussion on the previous sections, the DoD is neither unique nor immune from the issues challenging Corporate America today. In the past, innovation and change for the marketplace were driven by Government research and development. Common consumer products today, such as space blankets, dehydrated meals, shelf stable food, and many others, grew out of Government research programs; Government-led innovation was the impetus for change. The U.S. military played prominently during this era, championing and spearheading innovation and advancement in areas such as communications, navigation, logistics, and others.

Today, however, the tables have turned. Innovation from industry is clearly outpacing innovation in the Government and the DoD. The lag in innovation is most apparent in the field of digital communications and the Internet. In part, the information technology revolution at the turn of the century set in motion the changes that caused the military to lag industry

in adopting new and innovative communications tools. The advent of Web 2.0 tools and social computing applications, viewed initially as non-productive, non-value adding "time wasters" were largely ignored by the DoD for adoption. In fact, Services' IT policies today still do not allow widespread use of social networking tools and applications inside DoD network domains. While the concerns of IT professionals and the Services' Chief Information Officers regarding security threats to the network are valid, the slow adoption of these emergent tools and applications as useful, powerful, and naturally collaborative tools clearly set the military behind industry in using Web 2.0 tools to propel innovative processes.

The Secretary of Defense Corporate Fellows Program seeks to place senior military Officers in industry to observe and participate in innovative business practices and processes and looks for the Officer to return the best ideas and lessons back to the DoD for potential implementation. It is through this type of program - a partnership between the military and industry - that we can regain some ground by observing and understanding industry best practices and selectively adopting the effective processes, techniques, and procedures for the DoD. The DoD certainly does not have a proprietary lock on good ideas; industry and corporate America have a lot to offer the military. The SDCFP is a valuable conduit for the natural

partnership between the military and industry.   The SDCFP
Commemorative Coin contains a phrase that is appropriate to
close this paper. One side of the coin displays the seal of the
Office of the Secretary of Defense; the obverse displays the
Services' logos and the slogan, "Department of Defense and
Corporate America, Partners in Freedom."[70] Indeed, we are.

Notes

[1] Price Waterhouse Coopers, *Global Entertainment and Media Outlook: 2007-2011, Forecast and Economic Analysis of 14 Industry Segments*, 7.

[2] http://web2.socialcomputingmagazine.com/social_media (accessed May 15, 2008).

[3] Matelski, John, *Middleware's Business Value*, Oracle Profit, Volume 13, Number 1, February 2008.

[4] Segaran, Toby, *Programming Collective Intelligence: Building Smart Web 2.0 Applications*, (O'Reilly, 2007), 42.

[5] http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30 (Accessed April 23, 2008).

[6] Ibid.

[7] Ibid.

[8] Company Day visit and Cisco and attendance at the Oracle CIO Summit validated my observation that Web 2.0 tools adopted for Enterprise use are fast becoming ubiquitous tools for corporate communications and innovation.

[9] When I visited Google in New York City, I asked an employee if they used Web Tools that the company developed for internal use. The employee answered me by pointing to a slogan on the company intranet where it said "Dog Food." He promptly said, "we eat our own dog food" here at Google.

[10] Kelleher, Kevin, *Social Networks Grow Up*, Wired, Apr 2008.

[11] http://smoothspan.wordpress.com/2007/05/28/understanding-web-20-and-soa-its-about-collaboration (accessed April 23, 2008).

[12] Ibid.

[13] Ibid.

[14] Ibid.

[15] Ibid.

[16] Ibid.

[17] http://www.ndu.edu/sdcfp (accessed May 1, 2008).

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[23] U.S. Department of Defense, *Secretary of Defense Corporate Fellows Program (SDCFP)*, Directive 1322.23, February 22, 2005, 2.

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[26] Bewkes, Jeffrey L., *2007 Annual Report*, New York: Time Warner, 2007.

[27] Ibid.

[28] Ibid.

[29] Ibid.

[30] Ibid.

[31] *CNNMoney* is a joint venture between Turner Broadcasting and Time, Incorporated.

[32] My personal experience in the Marine Corps Tactical Air Command Center (TACC), the senior air command and control agency for Marine Corps, showed me how cumbersome the process of updating information on web portals manually. An automated system like Turner Broadcasting's Content Management System would increase the speed and accuracy of information posted on theTACC website.

[33] Continuity of Operations Planning is the function allocated to ensuring that a military activity continues to function after a catastrophic event.

[34] Time Warner's Business Continuity Program plans for the ability of its business units to continue operations after a catastrophic event. The ability to shift news production from New York to Atlanta seamlessly is similar to the requirements for a military command post to shift operations in the event of a casualty.

[35] Foster, Richard and Sarah Kaplan, *Creative Destruction*, (New York, Doubleday, 2001), 23.

[36] http://www.imediaconnection.com/content/13863.asp (accessed March 24, 2008).

[37] *CNNMoney's* Business Development Division used Search Engine Optimization to expand its audience base. SEO seeks to place the web site higher on search engine query results on topics related to business and finance.

[38] Millenial Study, Time Incorporated Intranet (New York: Time, Incorporated), 1 (accessed April 15, 2008).

[39] The "C-suite" refers to company top executives such as the the Chief Executive Officer, Chief Operations Officer, Chief Information Officer, etc.

[40] Young, Oliver G., *Topic Overview: Web 2.0*, (Cambridge, Forrester Research, 2007), 5.

[41] http://www.micropersuasion.com/2007/12/charting-2007s.html (accessed January 18, 2008).

[42] Slacke, T.E., *Social Computing: Maximizing the power of Web 2.0*, IBM Developer Works, 2.

[43] Ibid.

[44] Powers, Shelly and Cory Doctrow, *Essential Blogging: Selecting and Using Weblog Tools*, (Cambridge, O'Rielly, 2002), 12.

[45] Ibid.

[46] Ibid.

[47] Ibid.

[48] Broughton, John, *Wikipedia: The Missing Manual*, (Cambridge, O'Reilly, 2008), 25.

[49] Congressional Report, *H. Rpt, 109-377 – A Failure of Initiative: Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*, Executive Summary of Findings, 4.

[50] http://www.google.com/support/feedburner/bin/answer.py (accessed May 23, 2008).

[51] Ibid.

[52] http://shinymedia.headshift.com/techscape/2007/01 (accessed 3 March 2008).

[53] http://www.programmableweb.com (accessed 25 Feb 2008).

[54] Ibid.

[55] Ibid.

[56] Ibid.

[57] Ibid.

[58] King, Nelson, *A Mashup Gives New Meaning to 'Military Intelligence*,' Intelligent Enterprise, May 12, 2008 (accessed April 5, 2008).

[59] Ibid.

[60] Ibid.

[61] Ibid.

[62] Jaokar, Ajit and Tony Fish, *Mobile 2.0: The Innovator's Guide to Developing and Marketing Next Generation Wireless/Mobile Applications*, (Future Text, 2007), 25.

[63] Ibid.

[64] Ibid.

65 Colonel Joe Moore is a SECDEF Fellow assigned to SRA International in Fairfax, VA. The focus of his final briefing for the Program centered on collaboration and its utility to the Department of Defense. The ideas herein were discussed during coordination for the SDCFP final briefing.

[66] Ibid.

[67] Ibid.

[68] Crovitz, L. Gordon, *From Wikinomics to Government 2.0*, The Wall Street Journal, May 12, 2008, A13.

[69] Ibid.

[70] Ibid.

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APPENDIX A

SDCFP AY 2007-2008 ORIENTATION & TRAINING

AGENDA

25 June

| 0900 | Welcome Aboard | CSBA Conf Rm |

| 1115 | Staff Ride Pre-brief | CSBA Conf Rm |

Dr. Thomas Keaney
Foreign Policy Institute
Johns Hopkins University

| 1230 | Break | |

| 1300 | Lunch with former Corporate Fellow | CSBA Conf Rm |

Brig Gen Paul Schafer, USAF

| 1400 | Break | |

| 1415 | Future Security Environment & US Grand Strategy | CSBA Conf Rm |

Dr. Andrew Krepinevich
Center for Strategic and Budgetary Assessments

| 1600 | End | |

26 June

| 0800 | Understanding the Private Sector | CSBA Conf Rm |

Col James Slife, USAF
Office of the Secretary of Defense

| 1030 | Break/Lunch | |

| 1145 | Future Military Leadership | CSBA Conf Rm |

LTG David Barno (USA, Ret)
National Defense University

| 1315 | Break/Travel | |

1430	Call on Andrew Marshall Office of the Secretary of Defense	Pentagon, 3E1074
1530	Call on Bradley Berkson Office of the Secretary of Defense	Pentagon, 3D846
1600	End	

27 June

0830	Cannons of Management - Staff Ride Dr. Thomas Keaney Foreign Policy Institute	Antietam National Battlefield, MD

28 June

1415	Political Perspectives on Defense Policy Making Hon. Mac Thornberry (R-TX) United States Representative	2457 Rayburn HOB
1530	Capitol Tour	US Capitol Building
1030	Travel/Lunch	
1730	Political Perspectives on Defense Policy Making Hon. Joseph Lieberman (I-CT) United States Senator	706 Hart SOB
1830	End	

29 June

0900	Iran and Nuclear Proliferation Salameh Nematt *Al-Hayat* International Arab Daily	CSBA Conf Rm
1030	Break/Lunch	
1315	Homeland Security Dr. Ken Staley Homeland Security Council	CSBA Conf Rm
1445	Break	

1500	Media and the Military	CSBA Conf Rm

1500 Media and the Military   CSBA Conf Rm
      John Barry
      Newsweek Magazine
      Neil King
      The Wall Street Journal

1630 End

2 July

0900 The Second Nuclear Regime   CSBA Conf Rm
      Dr. Fred Iklé
      Center for Strategic & International Studies (CSIS)

1030 Break

1100 Darden School Pre-brief   CSBA Conf Rm
      Dr. June West
      Darden Graduate School of Business

1200 Lunch with former Corporate Fellow   CSBA Conf Rm
      COL Dennis Slagter, USA

1300 Break/Travel

1430 Call on Dean Popps   Pentagon, 2E532
      Department of the Army

3 July

0900 Transforming American Security Partners in   CSBA Conf Rm
      the Global War on Terror
      Dr. Wade Hinkle
      Institute for Defense Analyses (IDA)

1030 Break

1045 Advances in Robotics   CSBA Conf Rm
      Dr. Lynne Parker
      University of Tennessee

1215 Lunch

1315	Biotech/Biowar Dr. Amy Smithson Center for Nonproliferation Studies	CSBA Conf Rm
1445	Break	
1500	Resetting the Force LTG Stephen Speakes Headquarters, United States Army	CSBA Conf Rm
1630	End	

4 July

Fourth of July Holiday

5 July

0900	Special Operations and Interdependent Capabilities Michael Vickers Office of the Secretary of Defense	CSBA Conf Rm
1045	Energy Security and the Long War of the 21st Century Dr. Daniel Yergin Cambridge Energy Research Associates	CSBA Conf Rm
1215	Lunch	
1315	Militant Islam Steven Coll *The New Yorker* Magazine	CSBA Conf Rm
1445	Break	
1500	Understanding Islamic Religion & Sects Harold Rhode Office of Net Assessment	CSBA Conf Rm
1630	End	

6 July

0900	Standards of Conduct	Pentagon, 3B648A
	Eric Rishel	
	Office of the General Counsel	

1030	Break	

1100	Call on Paul Brinkley	Pentagon, 3D136
	Office of the Secretary of Defense	

1130	Lunch/Travel	

1300	Information Technology in Business	CSBA Conf Rm
	Dr. Loren Hitt	
	The Wharton School	

1430	Break/Travel	

1530	Call on Thomas Kelly III	Pentagon, 5D556
	Michael Kirby	
	Department of the Army	

1615	End	

9 July

0915	Call on Dr. David Chu	Pentagon Rm 3E788
	Office of the Secretary of Defense	

0945	Break	

1130	Call on John Thackrah	Pentagon, 5C547
	Department of the Navy	

1200	Break/travel	

1400	The Challenge of China	CSBA Conf Room
	Dr. Arthur Waldron	
	University of Pennsylvania	

1545	Break	

1600	Strategic Listening	CSBA Conf Rm
	Richard O'Neill	
	The Highlands Group	

1730   End

10 July

0900   DoD's Role in Homeland Security   BAH, Edwin Rm
        ADM James Loy (USCG, Ret)
        The Cohen Group

11 July

0800   Overview of DARPA   BAH, Edwin Rm
        Robert Leheny
        Defense Advanced Research Projects Agency (DARPA)

0930   Break

1000   Counterterrorism and the Financial Network of Terror   BAH, Edwin Rm
        Douglas Farah
        International Assessment and Strategy Center

1130   Lunch

1300   IARPA Projects Update   BAH, Edwin Rm
        Steve Nixon
        Intelligence Advanced Research Projects Agency (IARPA)

1430   Break

1500   DoD Management Problems   BAH, Edwin Rm
        Ashton Carter
        Harvard University

1630   End

12 July

0800   Historical Perspective on DOD Budgetary Challenges   BAH, Edwin Rm
        Dr. Dov Zakheim
        Booz Allen Hamilton

0930	Break	
1000	What Has Acquisition Reform Wrought?	BAH, Edwin Rm
	Thomas Christie, former Director, Operational Test and Evaluation	
	Office of the Secretary of Defense	
1130	Lunch	
1300	Transition to the Business World	BAH, Edwin Rm
	CDR Charlie Zuhoski (USN, Ret)	
	Booz Allen Hamilton	
	Innovation and ADVENT Jet Engine Technology	BAH, Edwin Rm
	Brig Gen Buck Adams (USAF, Ret)	
	Booz Allen Hamilton	
1430	Break	
1445	*The Business of Paradigms*	BAH, Edwin Rm
1545	End	

13 July

0800	Defense Travel System	NDU, Rm 110
	Rick Appia	
	National Defense University	
1100	Call on LtGen Frances Wilson	NDU, McNair Room
	National Defense University	
1130	Lunch	
1300	Computer Issue	NDU, Rm 170
1400	ICAF Industry Studies Program	NDU, McNair Room
	COL Harry Dorsey (USA, Ret)	
	Industrial College of the Armed Forces (ICAF)	
1500	The War in Iraq	NDU, McNair Room
	GEN Jack Keane	
	former Acting Chief and Vice Chief of Staff	
	United States Army	
1630	End	

1800	Welcome Aboard Dinner	Darden Abbott Center

16 July

0800	Introduction to *Back to Business* Dr. Ken Eades, Gerry Yemen Darden Graduate School of Business	Darden Classroom 20
0815	Profit or Just Plain Greed? Gerry Yemen	Darden Classroom 20
0915	Break	
0930	Financial Policies Dr. Ken Eades	Darden Classroom 20
1200	Lunch	Darden Abbott Center
1330	Financial Statement Analysis I Dr. Mark Haskins Darden Graduate School of Business	Darden Classroom 20
1500	Break	
1515	Competitive Strategy: Industry Analysis Dr. Marian Moore Darden Graduate School of Business	Darden Classroom 20
1630	End	

17 July

0800	Financial Statement Analysis II Dr. Mark Haskins	Darden Classroom 20
1000	Break	
1015	Competitive Strategy: Creating Competitive Advantage Dr. Marian Moore	Darden Classroom 20
1200	Lunch Roundtable: *The Wall Street Journal* Dr. Ken Eades	Darden Classroom 20

1300	Internet Research Methods Gerry Yemen	Darden Library
1430	Break	
1445	UVA Tour Gerry Yemen	UVA Grounds
1700	End	

18 July

0800	Financial Statement Analysis III Dr. Ken Eades	Darden Classroom 20
0930	Break	
0945	Individual Industry and Company Analysis Gerry Yemen	Darden Library
1200	Lunch	Darden Abbott Center
1300	EVA and Balanced Scorecard Dr. Mark Haskins	Darden Classroom 20
1445	Break	
1500	Six Sigma George Byrne Deloitte Services LP	Darden Classroom 20
1630	End	

19 July

0800	Time Value of Money/Capital Investment Dr. Ken Eades	Darden Classroom 20
0945	Break	
1000	Individual Industry and Company Analysis Gerry Yemen	Darden Library

1200	Lunch Roundtable Discussion: Sarbanes/Oxley Dr. Robert Sack Darden Graduate School of Business	Darden Classroom 20
1330	Characteristics of High Performing Organizations/Leaders Dr. June West	Darden Classroom 20
1600	End	

20 July

0800	Analyst Reports Dr. Ken Eades	Darden Classroom 20
0930	Break	
0945	Telling the Company Story to "The Street" Dr. June West Darden Graduate School of Business	Darden Classroom 20
1100	Roundtable Discussion: Individual Corporate Briefings	Darden Classroom 20
1300	Lunch/Wrap-up	Darden Abbott Center
1430	End	