SÁNDOR MUNK– MIHÁLY MOLNÁR

MILITARY PORTALS
IN THE US ARMED FORCES

KATONAI PORTÁLOK
AZ EGYESÜLT ÁLLAMOK HADEREJÉBEN

A web-technológiára épülő portálok napjaink nélkülözhetetlen megoldásai a különböző forrásokból származó információk és szolgáltatások egységes, kényelmes elérésének támogatására. A portál szolgáltatások egyre növekvő jelentőségű szerepet játszanak a katonai alkalmazásban is. Az első ez irányú eredmények az ezredfordulón az Egyesült Államok haderejében jelentek meg. Jelen publikáció bemutatja az Egyesült Államok haderejének fontosabb portáljait, azok főbb jellemzőit; elemzi a portálok összefüggéseit a tudásgazdálkodással és a hálózatközpontú megközelítésekkel; végül részletesebben bemutatja a portálok funkcióit, szolgáltatásait. Kulcsszavak: szervezeti portál, katonai portál, Egyesült Államok hadereje, tudásgazdálkodás, portál funkciók.

Web-portals of our days are indispensable solutions to support uniform, seamless access of information and services available from disparate sources. Portal services play a more and more important role in military application too. First results in this field have appeared at the turn of the millennium in the US Armed Forces. Recent publication presents an overview of the main portals of the US Armed Forces; analyses the connections between these portals, and knowledge management, and network centric solutions; and finally presents the functions, services of the portals. Keywords: enterprise portal, military portal, US Armed Forces, knowledge management, portal functions

Introduction

As a result of the revolutionary development of information technologies in the 1990s, the growing quantity of information from different sources, in different formats, and information services available, accessible in different ways made extraordinarily difficult the convenient and efficient access of information and services necessary for organizational processes.

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Portals, based on web technologies have provided a solution for the above problem with one-stop personalized (tailored for an assignment) login, and access and with their services supporting access, exchange, and sharing of information necessary for personal and organizational tasks. Services of portals continually expanded, including support of collaboration, integration of working processes, and knowledge management. [1]

For their successful and efficient functioning military organizations, forces also require services of portal technology. The first results in this field have appeared in the turn of the millennium in the United States armed forces. Portals with some hundred thousand, even with some million users have evolved in the different military branches (services), and for the whole armed forces.

Portal services in the United States armed forces are strongly connected with the tasks of knowledge management (that has evolved from information management, through information resources management), and with the solutions based on network centric approaches. The previous requires knowledge components and collaboration capabilities supporting organizational activities; the later requires support for consistent, seamless access to available network based services.

The purpose of the recent publication is to summarize, present the main features, characteristics and experiences of largest portals in United States armed forces. For this reason, the publication:

— introduces the largest portals, main events of their establishment and development, and some basic characteristics;
— presents and analyses the relationships between portals and nowledge management, and portals and network centric approaches;
— finally summarizes and discusses in more detail the main functions, and services of these portals.

Large portals in the united states armed forces

In the United States armed forces the first organizational ('enterprise') portals have appeared at the end of the 1990's, and became more

powerful at the early 2000's. In the following we shortly present the appearance, development and some basic characteristics of largest portals of different military branches (services), and the armed forces in general.

The Army established his portal in 1999, named Army Knowledge Online, basically for supporting information exchange with high level military leaders. Development had begun on name Americas Army Online, but legal concerns (among others a multiplayer game with same name) made necessary to seek a new name.

The Army Knowledge Management Guidance Number 1, published in August 2001 in its 4th goal – Scale Army Knowledge Online as the Enterprise Portal – prescribed that by October 1. 2001 every soldier – active duty, Army National Guard, and Army Reserve, and Department of Army civilian must have an AKO account. It ordered that functional and major commands streamline and webify their applications, and link them to AKO by July 2002. Beside the full accounts of users mentioned above, guest accounts can be required for family members of full AKO members, contractors, members of other military branches, and foreign officers (attached to U.S. Army).

In addition to AKO in 2002 has also appeared the SIPRNET[1] version (AKO-S) capable of handling secret information. So a three-level system came into existence, where the Army homepage is an unrestricted website on the Internet with public information and services; AKO is a restricted access solution (actually an intranet) with sensitive information and services on NIPRNET[2]-en, and finally AKO-S is a highly restricted system with classified (at most secret) information on SIPRNET. [3]

Army portal provided a carrier lifetime, assignment-independent email address, Army-wide personnel locator (white pages) service, single point of entry and authentication, and access to a determined set of information. The most important services of AKO — in addition to email — were availability and handling of one's own personnel and health data, and

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[1] Secret Internet Protocol Router Network
[2] Non-secure Internet Protocol Router Network ~ earlier Non-classified or Unclassified but Sensitive Internet Protocol Router Network.

access to Army distance learning opportunities (see in more detail later). [4]

Technical background of AKO was initially Art Technology Group Dynamo platform, then Appian Enterprise portal system. Number of its users from the order of ten thousands before 2001 has grown to about 800 thousand at the end of 2001, 1.5 million in 2002, 1.8 million in 2005, and today it has about 2.2 million registered users, so it is the largest enterprise portal in the world. 350 thousand users log in and on average 12 million emails are handled every day.

Air Force Portal is the portal of U. S. Air Force that began working in 2001 by consolidating about 110 Air Force base intranets. Its purpose was to provide a single entry point access to information, services and collaboration tools necessary to official and personal tasks. The portal supported personal customization of the content, automatic selection of the user's organizational and air force base information, instant messaging, and professional support by the Air Force Knowledge Now system. The Air Force Portal is simultaneously the integrated entry point to GCSS-AF[3] combat support system. Number of its user in the summer of 2004 440 thousand, in 2007 already more than 800 thousand, so it is the second largest government portal in the United States following AKO/DKO. Its technical background based on BroadVision[4] and PlumTree portal solutions.

The Air Force Knowledge Now established in 2002 is the Air Force 'virtual community service' that designed to allow experts to communicate with each other and collaborate, share their expertise on a variety of subjects. These subjects are divided into databases and joint work spaces, called Communities of Practice (COP). In 2007 the system had nearly 200 thousand users and more than 9000 COPs. Because the system is more secure than a military email, users can even send operations manuals, training guides, but for classified information there is a more secure version that uses SIPRNET to communicate. [5]

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[3] Global Combat Support System-Air Force.

[4] InfoExchange Portal

The Navy Knowledge Online (NKO) is the Navy's knowledge portal for its active, reserve, civilian, and retired personnel. Its field test started in August of 2002, and full-scale operation began in January of 2003. The intended purpose of the portal is integrated support of Navy education, training and professional growth management, and access to information, expertise, and professional help necessary to official duties. [6]

At the background of the portal there are more than 90 professional areas with dozens of their experts who provide and maintain chat rooms, discussion boards, forums, and document-collections. Services of the portal are available through so called Communities of Practice. Among others there is such a 'community' for spouses, family members to support housekeeping, bringing up, and education of children.

The portal has a SIPRNET-based version (NKO-S) for professional communities handling classified information. From the summer of 2005 the services are also available on ships, and submarines (NKO Afloat) in a goal-oriented, restricted manner. Technical background of the portal is — similar to AKO — based on the Appian Enterprise Portal System. Number of users in 2005 were 480 thousand, in 2006 650 thousand, and in 2007 already 820 thousand.

The MarineNet is the dedicated distance learning portal for Marine Corps that was piloted in 1998, and went into full operation in 2000 with six course offerings. In the summer of 2008 the portal has more than 1600 Internet-accessible courses that are free to active and reserve Marines, their spouses and dependents, as well as other military services.

The necessity of a general Department of Defense level portal, the Defense Knowledge Online (DKO), was formulated in 2005. At this time, in the framework of Net-Centric Enterprise Services (NCES) program the Defense Information Systems Agency (DISA) had an experimental level portal as a part of service oriented architecture, to ensure the access to services. This was the Defense Online (DOL), but it was not appropriate for DKO purposes. Because of the slowness of regular acquisition, and development methods a decision was

made to use the Army portal (AKO), and its extension (AKO Forward) as a basis for DKO. [7]

The common AKO/DKO portal started at the beginning of 2008, but its future is uncertain, because its funding for 2010 is not solved. Air Force, and Navy want to use and develop their own portals, and they have long-term contracts for these portals.

Joint Knowledge Online (JKO) is the enterprise portal of the U. S. Joint Forces Command, responsible for transformation and joint, interagency, or multinational capabilities. JKO uses distributed learning technology to deliver joint courseware and learning tools that support joint training for individual warfighters involved in or preparing for integrated joint operations. JKO is integral part of Joint Knowledge Development and Distribution Capability (JKDDC) started in 2003 that is connected to AKO/DKO portal. JKO is accessible on the Internet, NIPRNET and SIPRNET. Their open courses, content of interest, and services are available for other governmental organizations, NATO and multinational partners. 2009 Courseware and Capabilities Catalog contains nearly 300 joint and multinational training courses. [8]

Defense Connect Online (DCO) portal was also developed in the framework of Net-Centric Enterprise Services program by 2009. Portal based on Adobe and Jabber COTS solutions[5] provides web-conferencing, collaboration, presentation, and instant messaging services. [9]

Knowledge Managament, Network Centricity and Portals

Appearance and spreading of portals in the United States armed forces strongly connected to formulation of network-centric knowledge based army as a vision for the XXI century. The preliminaries were visions, and

[5] Adobe Acrobat Connect, Jabber Extensible Communication Platform (XCP).

doctrinal documents[6,] published at the end of the 1990s and at the beginning of the 2000s, that focused on the concept of information superiority, and were based on the consequences of technical (first of all information technology) progress.

Goal of the transformation of armed forces that began about 2000 was the adaptation to new challenges of XXI century, and the reshaping of thinking, the way of fighting and the organization. Introduction of knowledge management was considered one of the fundamental ways of transformation. Adoption of network centric solutions played similarly fundamental role, so did the Net-Centric Enterprise Services (NCES). Portals were one of basic components of NCES.

Knowledge management and portals

Knowledge management has first appeared in the Army that formulated his objective in 2001 to become a network centric knowledge based force as a result of transformation. [2] Framework, principles and tasks of this objective were defined in Army Knowledge Management Strategic Plan [10] that was followed by an implementation plan in 2003. [11] The vision was "a transformed Army, with agile capabilities and adaptive processes, powered by world-class, network-centric access to knowledge systems and services, interoperable with the joint environment" [10]

Five overall goals of Army Knowledge Management are the following:

— adopt governance and cultural changes to become a knowledge-based organization;
— integrate knowledge management and best business practices into army processes;
— manage the infostructure at the enterprise level;
— scale Army Knowledge Online as the enterprise portal;
— harness human capital for the knowledge organization. [11, p I-3]

One of the conceptual component of knowledge-based force is Army Knowledge Enterprise (AKE) that is defined as the Army's portion of the

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[6] Joint Vision 2010. – Joint Chiefs of Staff, July 1996. Concept for Future Joint Operations. – Joint Chiefs of Staff, May 1997. Enabling the Joint Vision. – Joint Chiefs of Staff, C4 Systems Directorate, May 2000.

Global Information Grid (GIG). AKE is an overarching concept comprised of knowledge and infostructure. AKE creates an environment for universal access to trusted knowledge anywhere. The Infostructure is comprised of five components: Communications, Information Management, Computers, Enterprise Applications, and Network Operations. [11, p 1-8]

In this context by the concept of knowledge management we mean a discipline that promotes an integrated approach to identifying, retrieving, evaluating, and sharing an enterprise's tacit and explicit knowledge assets to meet mission objectives. The objective is to connect those who know with those who need to know (know-why, know-what, know-who, and know-how). The end state is to create a culture of collaboration and knowledge sharing where personalized and contextual information and knowledge is efficiently "pushed and pulled", and an organization where good ideas are valued regardless of the source, the extant knowledge base is accessible without technological and structural barriers, and knowledge sharing is recognized and rewarded.

In practical implementation of knowledge management communities with similar area of profession, or interest play a significant role. One category of these communities are communities of interest (CoI) that are groups of people who exchange ideas, or collaborate sharing a common interest. An category is communities of practice (CoP), group of people who are working on a given professional area, and in order to do their job successfully and efficiently, regularly interact and exchange information, learn from each other, build new capabilities, competencies, solve problems, and create best practices.

In contrast with many other types of collaborative communities, communities of practice cross organizational boundaries; with the help of their more efficient learning, problem solving, and competency-development enhance personal and organizational responsiveness; promote the availability of organizational expertise; contribute to faster creation and distribution of best practices. Communities of practice can be formal, and informal, and may be supported by structured professional forums, knowledge networks, and collaborative environments.

To analyze the role of enterprise portals in knowledge management first we should present the life-cycle of knowledge management, and its

fundamental tasks [see in detail in 12]. Numerous different approaches relatively uniformly include the following tasks: production, integration, formalization, sharing and use. Compared to other tools, and solutions, portals play more fundamental, essential role in knowledge creation and sharing.

During knowledge production previously non-existent knowledge components are acquired from external sources, or created within the organization. New knowledge — and in this sense not the algorithmically created information — can be generated from existing knowledge components, and practical experiences, usually by collaboration of experts of different fields. Portals can support this process as the tools enabling integration, systematization and retrieval of variety of information types (structured and unstructured), and facilitating different forms of collaboration.

Experiences have shown that production of new organizational knowledge mainly happens within the framework of informal groups, smaller or larger communities, applying the „tacit" and explicit knowledge of their members.[7] These communities typically scattered organizationally, and in case of larger organizations, including the armed forces, geographically too. Efficient collaboration, cooperation of their members is supported by asynchronous and synchronous solutions (electronic mail, forums, and instant messaging, shared workspaces, video and audioconference, etc.)

Of course, the above solutions are also available on their own, but the knowledge production activities of various cooperative communities of practice are in an integrated manner supported primarily by special types of portals, often called knowledge portals [13]. Basic functions of these portals include support of virtual communities of practice (interest).

Sharing and distribution of knowledge available in the organization, that is the organizational level exploitation of knowledge capital, perhaps the most important task of knowledge management, in which portals — according to their fundamental purposes, supporting the personalized information access — play an outstanding role. Portals were originally

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[7] Of course this of course does not question the role, and significance of formal organizations, organizational units established with special research and methodological functions.

developed just for provide information through a single place for some people, or for organizations to support decisions and staff work.

Portals first exceeded the traditional information access, retrieval possibilities with handling of unstructured information (typically text and images, etc.). Concept of content management (more than document management), closely related to portals, covers all the information important for the organization and all the media carrying these information. Without them we cannot speak of overall knowledge sharing, since knowledge is available not only, even primarily not in structured formats.

Portals can support knowledge sharing not only by making available explicit knowledge components (recorded in some form). A significant part of organizational knowledge is available in the minds of organization's members, experts in "tacit" form. Consequently knowledge sharing includes access to these experts, direct and indirect acquirement of their experiences, consultations, cooperative tasks and problem solving, mentoring/tutoring help for preliminary preparations, and many other ways that now are supported by a lot of portals (perhaps with use, or integration of specific systems, applications).

Network centric ideas and portals

Network centric approaches first appeared in 1998 in the United States armed forces in the form of the concept of network centric warfare [14, 15]. This was followed by similar approaches (British and NATO Network Enabled Capability, Swedish Network Based Defence). Network centric warfare „an information superiority-enabled concept of operations that generates increased combat power by networking sensors, decision makers, and shooters to achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability, and a degree of self-synchronization. In essence, NCW translates information superiority into combat power by effectively linking knowledgeable entities in the battlespace." [15, p 2]

The main features of a network centric force are the following: geographically dispersed; knowledgeable (with advanced information capabilities), and effectively linked (networked). As a consequence of

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technological progress, development of communication, mobility, and execution capabilities, combat power has been increasingly freed from the location of battlefield components, assets. Components with advanced information capabilities, having a shared, common knowledge of the situation and commanders' intent are able to self-synchronize, operate with a smaller footprint, and be more effective when operating autonomously. Fundamental condition of effective linking is a robust, high-performance information infrastructure, or infostructure.

In the U. S. armed forces the vision of network centric information infrastructure today is outlined by the Defense Information Enterprise Architecture [16] and DoD Global Information Grid Architectural Vision [17]. Two fundamental components of these visions are task (mission) oriented applications, services and information, and infrastructure components, as can be seen on. the next figure

Figure 1: Vision of the GIG architecture[8]

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[8] Source: [17, Figure 6, p 15]

This IT vision is based on the nowadays generally accepted solution of Service Oriented Architecture (SOA). Its infrastructural components can be classified into five groups: communications infrastructure, computing infrastructure, core enterprise services infrastructure, information assurance, and network operations infrastructures.

From the point of view of our topic core enterprise services deserve special attention. These include services for wide range, or all of users provided by the (according to previous wording) general purpose applications. To implement some part of these services a stand-alone development program was started.

Net-Centric Enterprise Services (NCES) [18] purpose is to support users and information systems:

— discovery and access of relevant information;
— sharing and distribution of information for others;
— better cooperation, collaboration;
— transmission of information to the forward areas;
— to increase the reliability and performance of data access;
— utilization of the organizational infrastructure for conversion of DoD systems to a service-oriented architecture.

The NCES program provides four product lines: enterprise service-oriented architecture foundation, support of collaboration, content discovery and delivery, and user access (portal function). This obviously shows that portals play an emergent role in network centric ideas of the U. S. armed forces.

According to the referenced vision document the role of portals in the network centric architecture is to „provide a personalized, user-defined, Web-based presentation that enables secure access to various enterprise services (including information retrieval and posting), collaboration tools, instant messaging (IM), and working groups". [18, p 3] Solutions based on service-oriented architectures quasi require the use of portal-technology for implementation of user access.

From the IT point of view one of the basic characteristics of network centric solutions is the possibility of access of information and services anywhere, anytime, and (almost) with any device. Successful, efficient, and sustainable realization of this capability is practically possible only using web-based user interface (with the help of browsers) which makes

almost unnecessary the installation, management, and update of user level software components. With the help of middleware (interface) components, web-based access can also be provided to traditional systems, applications, as we can see a lot of examples both in civilian, and in military application.

Other essential characteristic of network centric solutions is that users can exploit available information, and services (as components) in a task-oriented, dynamically changing way, and these information, services are provided by various, disparate sources. For this it is necessary to aggregate, integrate, connect different information, service and provide them in a uniform format, which is essentially the basic purpose of portal-services. So portals provide a uniform — personalized, and task-oriented — user interface, and a single sign-on (authentication) function to the heterogeneous resources and services „located behind them". At the same time portals assist in offering (publishing), searching (subscribing), and use of services.

Portlets are essential components of portals (pluggable components) which present a definite content (information, or service) for use as part of a portal page. A portlet can be a standalone application, or an interface component to an external/background application. In the future military network centric solutions, similar to civilian application, will gradually shift towards web services which are based in widely used open standards[9]. Application of these web services can be ensured by portals implementing the Web Services for Remote Portlets (WSRP) protocol. WSRP protocol provides a standardized way for cooperation between a web service and a portlet of any technology, but "knowing' WSRP protocol.

In summary it can be stated that knowledge management and network centric approaches playing an important role in US military IT application use, even explicitly require services and solutions of portal technology.

Portal functions, services

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[9] Hyper-Text Transfer Protocol (HTTP), eXtensible Markup Language (XML), Simple Object Access Protocol (SOAP), Web Services Description Language (WSDL).

Functions, and services of portals introduces in the previous points, similar to IT applications, can be classified into general purpose, and task (mission) oriented services. The former type includes those services that are used by vast majority of users while the services of later type are used by given user groups. From the point of view of knowledge management, services to support functioning of professional communities, as well as training, self- and further education, play important role. In the following we briefly present the main functions, services of the portals mentioned before.

Support of career management, education, and training

Services supporting career management, education, and training are basic services of all of the military portals of branches of armed forces. Moreover the objective of Joint Knowledge Online portal is – as we already presented – directly to provide distance learning services for warfighters involved in or preparing for joint operations.

Army portal provides access to different education and training services. These include: Army e-learning Program, Army Learning Management System, Army Correspondence Course Program, and Army Reserve Virtual University.

Army e-Learning Program — that was born to solve information technology training problems — provides more than 4300 free courses in information technology (Microsoft Office, information security, systems management, application development, web site management, etc.), business (accounting, administrative support, human resources management, etc.), leadership (project management, team building, etc.), and professional skills (efficient communication, time management, etc.) topics. In addition nearly 30 foreign language courses are available in the framework of Rosetta Stone project. Different experts are available 24x7, chat rooms and white boards can be used for connections with other students. [19]

Army Learning Management System is a web-enabled distance learning service that ensures the following: registration and enrollment of students; monitoring students progress; distribution, delivery of

educational materials; maintaining training or education records; collecting and evaluation of feedbacks; and maintenance of a database of educational products and resources. So the system enables: soldiers to take distributed learning and manage their training records; training managers to schedule and commit available training resources; and developers of training materials to assess course quality. [20]

Educational and training support program of Air Force is Air Force Automated Education Management System (AFAEMS) of which main services can be accessed through the Air Force Portal. Air Force Virtual Education Center (AFVEC) is the student's portal of AFAEMS that supports higher education related user needs. The provided services are: search of educational opportunities; track and monitor Community College of Air Force (CCAF) degree programs progress; checking civilian course equivalence; requesting different transcripts; access to distance learning options of CCAF; managing online student education records; and notifications of actual educational tasks. The system has nearly 200 thousand registered users and it is one of the two most popular services of Air Force Portal. [21]

My Enlisted Development Plan (MyEDP) is another service available through Air Force Portal. It is designed to guide Airmen through their own career, and provides: a library section with documents and information pertaining specifically to career field; support to transmit materials between mentors/tutors and their students; advices for career management, training, and promotion requirements, paths; personal educational and training information. [22]

The distance learning system of Navy is Navy e-Learning[10] was migrated to Navy Knowledge Online portal in 2004. This service launches, tracks, and manages more than 4000 courses in IT, business, and military professional topics. In addition it contains about 300 foreign language and culture courses developed for the Defense Language Institute. Students can search the Navy E-Learning catalog by identifying skills or occupations of interest; they can identify personal skills they want to improve; assess their level of proficiency; track improvements;

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[10] Formerly Navy Learning Network.

and the system logs the results into the Sailor's electronic training jacket. [23]

The Electronic Training Jacket (ETJ) service integrates data from a host of Navy databases to provide active-duty or reserve personnel a complete history of the knowledge, skills and abilities they offer to the U.S. Navy. Moreover validation and update of personal educational data is the responsibility of individual sailors. [24]

To support planning of individual careers Navy provides 5 Vector Model. The model handles five areas of career development (professional development, personal development, leadership, certifications and qualifications, performance) and also five levels of career progression (entry, skilled, journeyman, master, senior executive). The service available through Navy portal supports to plan goals, steps, and tasks of personal career management. [25]

In summary it should be stated that the basic services of presented portals include support of career management, education and training; distance learning solutions practically anywhere, even from changing places; support of mentor/tutor-student connections; and comprehensive management of personal education, training, qualification records. These opportunities are used by wide and constantly expanding range of users, and they are among the most popular, most extensively used services of individual portals.

Support of professional communities

Community support provided by US armed forces portals strongly connected with idea of community of practice (mentioned earlier)[11]. By communities of practice we mean groups that form to share what they know and to learn from one another regarding some aspect of their work. [26, p 2] These communities transform local knowledge (know-how) into collective knowledge available to the organization at large. In technical sense they are practically web-based virtual collaboration workspaces.

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[11] The concept was introduced in 1991 as part of the theory of 'situated learning', a learning that takes place in the same context, in which it is applied.

Communities of practice can be self-organizing, or sponsored. Sponsored CoPs are initiated, chartered, and supported by management to reach an organizational goal. Self-organizing CoPs are established voluntarily, but later they can also evolve into a formal, sponsored format. Both formats characterized by high level of independence, and inner development of knowledge. This is a basic difference with so called knowledge networks, where knowledge providers (e.g. academic organizations) develop, and make available some knowledge.

Basic purpose of learning in communities of practices is to fill the space between the output of formal school systems and the knowledge requirements of the everyday field work. This has greater significance in case of the 'just in time/just in case'-oriented military education, and a military practice characterized by rapidly changing knowledge requirements, when to turn newly discovered practice into educational materials requires years.

On the different portals the available functions of community support — due to the portal systems providing similar services — are basically similar. This include the following:

— to enhance communication between community members, within and across organizations;
— to facilitate collaboration between community members;
— to provide place for content creation and management;
— to support learning by providing opportunities for member interaction;
— to provide for personal workspaces and places to meet in shared workspaces;
— to offer structure for social networks. [27, p 92]

In technical manner the support of functions mentioned above can be done with e-mail, audio and videoconference, instant messaging (chat), document repositories solutions, shared workspaces, wikis, blogs, discussion forums, newsgroups, yellow pages of experts, e-learning applications, online instructions (like FAQs). Moreover it is necessary to support creation of new CoPs, administration of existing CoPs, and possibilities to search CoPs users are interested in.

On the introduced portals a lot of — in case of some portals even some hundred — communities of practice can be found. According to the

literature some of these communities are very active and prosperous, others practically does not operate at all.

Other task oriented and general purpose services

In addition to services introduced above military portals integrate and make available a lot of other task (mission) oriented services on web based interfaces all over the world.

Army's Interactive Personnel Electronic Records Management System (iPERMS) is now available only through AKO portal. The system provides secure, encrypted access to official military personnel documents and allows the user to see, use, and if necessary, change their own data anytime, anywhere. With the help of MyMedical function of AKO portal personal health information (medical records, annual medical test data, results of the last physical exams), and with MyPay function different financial information (leave and earning statements, allowance for housing and subsistence) are available.

It should be noted that — despite migration plans — other „heavyweight" mission oriented systems, applications still are really not integrated into portals perhaps mainly because of the high development costs, and the limitations of the web interface.

In addition to e-mail, general purpose services most used on these military portals usually include instant messaging. Almost all the portals provide such services to support a more secure connection between users than ordinary COTS solutions can guarantee.

One of these is the Air Force Instant Messaging (AFIM) that can be used for official and unofficial communication enhancing the quality of life of users on and off duty. For guest users the Friends & Family Instant Messaging service is available. The entirely web-based software tailored to the Air Force's specific needs is also in use by the Army, the Navy, and the Department of Defense.

An other instant messaging service is the DCO portal's service that is based on Jabber's highly programmable presence and messaging platform that includes a robust set of features for secure, enterprise instant messaging, including user-friendly and easy-to-administer desktop and

web clients. The platform enables organizations to interact with other IM clients and servers, regardless of protocol. [28]

The use of such special, but similar to appropriate COTS services are necessary because the related protocols are usually blocked by intranet (NIPRNET, SIPRNET) firewalls.

Summary, conclusions

This publication summarized some basic facts and events about large – at least branch of armed forces level – portals in the United States armed forces. The main reason was to show the experiences because these portals were the first that appeared in military application. Obviously some experiences can not be adapted because of the differences of the armed forces' role, mission, and size, but there are a lot of results, directions, and solutions worth to be considered in the Hungarian military IT.

The portals presented in the publication belong to the group of so called enterprise portals that enable organizations to unlock internally and externally stored information, and provide users a single gateway to personalized information needed to do their job, and make informed decisions. The large military portals in the US armed forces have appeared at the end of the 1990s, and became more powerful at the early 2000s. All the branches implemented their own portals and a Department of Defense level portal was started too.

Users of portals are active, reserve, retired members, and contractors of the given organization, families of the members, and other 'guest' users sponsored by a full member. Number of users are on hundred thousand, even million scale (Army 2.2 million, Air Force and Navy about 800 thousand) so they are among the largest enterprise portals on the world. In accordance with their security requirements, the portal services are available on the unclassified but sensitive NIPRNET, and/or the secret SIPRNET intranets. Some services are also accessible through the public Internet.

The main reason of development, and use of such large enterprise portals was to support the implementation of a network-centric knowledge based armed forces formulated in visions, and doctrinal documents published from the end of the 1990s. Transformation

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approaches that began about 2000 wanted to cope with the challenges of XXI century, and plan to reshape of thinking, way of fighting and the organization. Portals were one of the basic components of the so called Network Centric Enterprise Services.

In addition to support of network centric approaches enabling of knowledge management was the other main goal. The vision was an environment for universal access to trusted knowledge anywhere. In this environment those who know are connected with those who need to know, personalized and contextual information and knowledge is efficiently „pushed and pulled", knowledge base is accessible without technological and structural barriers, and knowledge sharing is recognized and rewarded. Portals can play a significant role in knowledge production, and in knowledge sharing and distribution.

The main functions and services of large US military portals include: support of professional communities; support of training, self- and further education; and some other task oriented and general purpose services. The support of professional communities (so called communities of practice) practically means support of communication, exchange of information, to provide virtual collaboration services, and finally support of learning based member interactions. In technical manner this was based on usual solutions used in civilian application too. The support of education and training includes: support of career management, education and training; distance learning solutions; support of mentor/tutor-student connections; and management of personal education, training, qualification records. In addition some services support of handling official personal information.

At last it should be noted that a lot of the plans about large military portals — first of all migration, or integration of valuable mission oriented systems, and applications — up now were not realized. New developments, and results in information technology continually reshape the available directions, options, and solutions, and as a consequence the role, functions, and implementation of portals is also under transformation. It is likely that future systems, and services will be based on service oriented architectures, and so portals will keep their role in military application too, but this requires additional research, and experimental works.

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