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Mobile Applications Hold Potential to Increase Productivity for USACE

ALEXANDRIA, VIRGINIA. Mobile devices and mobile applications (“apps”) offer a great potential for the U.S. Army Corps of Engineers (USACE). For this reason, the USACE Mobile Computing Project Delivery Team (PDT) is working hard to test, plan, pilot and help implement new mobile technologies that ensure security, functionality, solid policy and standard protocols. This team is led by Mr. Steven Friederich of the USACE Headquarters Corporate Enterprise and Corporate Information (CECI) team. The Mobile Computing PDT also has participation from others at USACE Headquarters, the Information Technology (ACE-IT) team, the USACE Engineer Research and Development Center (ERDC), the Defense Information System Agency (DISA), the Institute for Water Resources (IWR), and others within the Army.

Within USACE, the pioneering work by ERDC on their Mobile Information Collection Application (MICA) and the Operation Blue Roof Field Management System (Blue Roof), with cooperation from the Federal Emergency Management Agency (FEMA), clearly illustrate this potential. These apps helped improve responses to the 2011 Spring Flood in the Missouri River Valley and the 2008 Hurricane Season. In recognition of this success, general workplace trends in the U.S., and ongoing Mobile Computing PDT activities, IWR has worked in parallel with the Mobile Computing PDT to investigate the use of personal mobile devices and mobile apps to increase productivity.

This investigation has resulted in a report entitled: “A Field Guide to Mobile Applications for U.S. Army Corps of Engineers Civil Works,” which is intended as a field primer and describes some of the beneficial tools offered in the form of mobile applications (“apps”) on smartphones and tablets. The target audience for this report is USACE and those in the water resources field. This report also serves to assist the Mobile Computing PDT, and to demonstrate the immediate and potential value of these technologies for future consideration.

The report explores the range of capabilities through apps associated with four main operating systems for smartphones and tablets – BlackBerry, Windows Phone, Google Android and Apple IOS. Currently USACE and much of the Department of Defense are limited to the use of BlackBerrries as work-provided devices; however, this paper doesn’t endorse any devices. BlackBerry currently has over 100,000 mobile apps and is known as a security leader, but industry assessments have noted that the cost, quality and other factors are limiting when compared to Android and Apple systems popular in the U.S. In addition, many water resources-related apps are not available for BlackBerry. Current legacy Blackberries within USACE are blocked from downloading apps.

Given limitations in work-provided devices and factors further discussed in the report, a growing number of USACE employees are motivated to use their personal smartphone or tablet to assist them in some aspects of their work (essentially outside the official network/firewall and remaining in compliance with Army/USACE policy). This practice – known as “BYOD,” or “Bring Your Own Device” – is already being embraced within several U.S. federal agencies and many businesses. There is an increasing desire by USACE staff to do the same, given the technology advancement in these devices and apps. In fact, “this important topic represents a feasible and cost-effective way for USACE to

enhance productivity by embracing existing technologies in a responsible manner," said Laura Vicinie, one of the report's co-authors at IWR. Officially, any new government devices would be released by the Information Technology Chiefs at each USACE district or division.

Forrester Research found in 2012 that 53% of employees are using their own mobile devices for work purposes. This statistic is also reflected in a March 2013 USACE survey that found 51% of employees already use their personal devices (to some extent) for work outside of the internal USACE network. "While the Army/USACE policies do not preclude USACE staff from using personal devices for business; there are current limitations on what USACE employees can collect, transmit and interface to Army/USACE computers and networks," said Erin Rooks, a main author of the IWR report. "I strongly urge USACE employees to check with their IT office for the latest policies before using these tools on personal devices for work since policies can change as rapidly as the technology advances."

Some functions in one's future mobile "toolbox" could include:

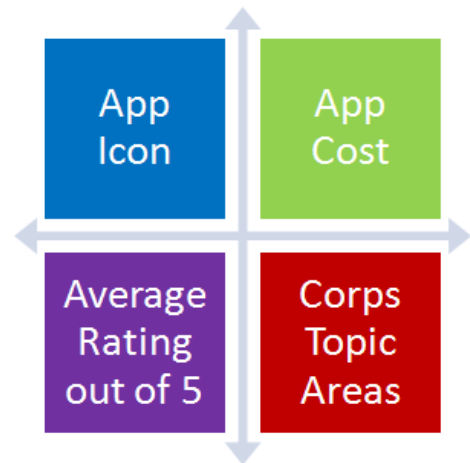
- **Photos:** Photo editing, geo-tagging, captioning and document scanning
- **Data:** Live feeds for information on stream gages, ship tracking, soil maps and housing evaluations
- **Species Information:** Tracking, guides, and counts for invasive and endangered species
- **Emergency Management:** Flood zone maps, preparedness information, hurricane tracking and social media interaction
- **Recreation:** Information on fishing, camping, kayaking and lake levels
- **General:** RSS feeds, note organization, engineering rules, photo measurement, business cards, PDF creation and audio recorder

The report includes a categorical review of more than 100 apps with additional functions. The categorical review includes app functions such as camera and photo editing, project research and investigations, team organization, flood or storm risk management planning, and basic business functions. Each category of apps is analyzed for its potential applicability to USACE work, and examples of related popular apps are given. The report also presents instructions and background information for using mobile apps. It answers basic questions such as "What is an app?" "Where can I find apps to download to my mobile device?" and "How much does an app cost?"

Several apps are considered in greater detail, providing more complete descriptions of capabilities, costs, user interfaces and user ratings. A quadrant chart like the one shown here is used in these more detailed analyses of apps to provide summary information at a glance.

As an appendix to the report, a list of over 150 mobile apps is provided. This list includes the name of each app, a short description of the app's capabilities, and the operating systems that the app is available on (e.g., Android, Apple, Windows, BlackBerry).

This report is intended for USACE employees who observe, measure and record data in the field, but it could be useful to a much broader audience. The report assumes that employees are likely to use their personal smartphones or tablets (BYOD) to assist them with some of the work they do. This assumption frees the concepts introduced in the report from ongoing policy and device changes within USACE. The report acknowledges that current Army policies do not prohibit people from using personal devices for business; however, the policies set some limits on the types of data that can be collected, transmitted and connected to Army networks.



"The U.S. Army Corps of Engineers owes its stakeholders a commitment to be as current and efficient as possible, and that is not possible unless the latest and greatest technologies are being embraced," said Brian Tobin, IWR, report co-author.

Mobile apps have the capability to help USACE employees "obtain and share up-to-date information about their project, to organize and access their files, to connect with shareholders and the public, to more easily and thoroughly complete their research in the field, to obtain and analyze data, and to stay connected with their project team," write authors Erin Rooks, Brian Tobin and Laura Vicinie in the report.

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