Assessing the Business Value of MITRE's Partner-Facing Social Business Networking Platform

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The MITRE Corporation

Babson CIMS: Enhancing Enterprise Performance Using Social Software
Babson College, March 28, 2012

MITRE

Outline

- **Background**
- **Overview of Handshake**
- **Metrics & Evaluation**
- **Case Study Interviews**
- **Value Survey**
- **Authors' Picks: Interesting Use**

BACKGROUND

MITRE

The MITRE Corporation

- **MITRE is a private, not-for-profit organization chartered to work in the public interest**

- **Founded in 1958 to provide engineering and technical services to the U.S. Air Force**

- **Currently manages 5 Federally Funded Research and Development Centers**
  - Department of Defense
  - Federal Aviation Administration
  - Internal Revenue Service/Department of Veterans Affairs
  - Department of Homeland Security
  - Federal Judiciary – U.S. Courts

- **Supports a broad and diverse set of sponsors within the U.S. government, as well as internationally**
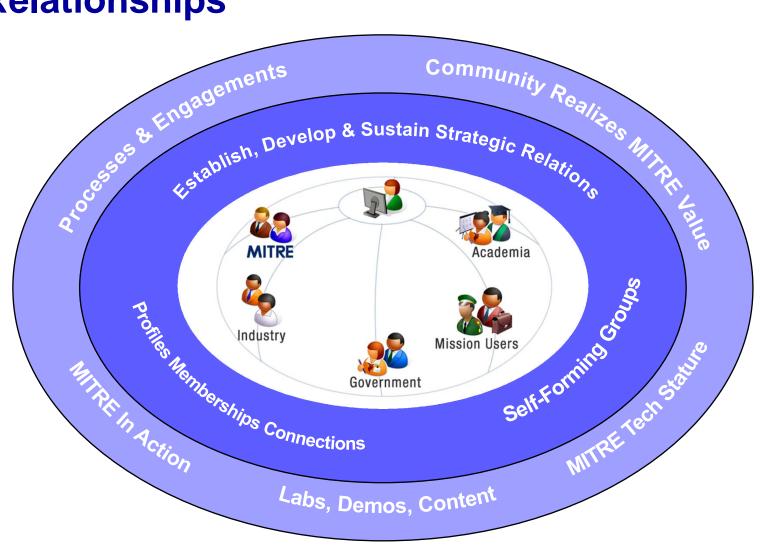
Bedford, Mass.

McLean, Va.

7,000+ employees worldwide

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Social Networking to Support Strategic Relationships

MITRE

What Should the Partner Experience Be?

Our partners are changing…

Sponsors

Academics

Military Users

Early Responders

IRS Workers

Health Care Professionals

Easy Access

- **Simple & Trusted Access**
- **Single identity with MITRE ID or CAC**
- **Relationship-based Privileges**
- **Location & Device Independent**
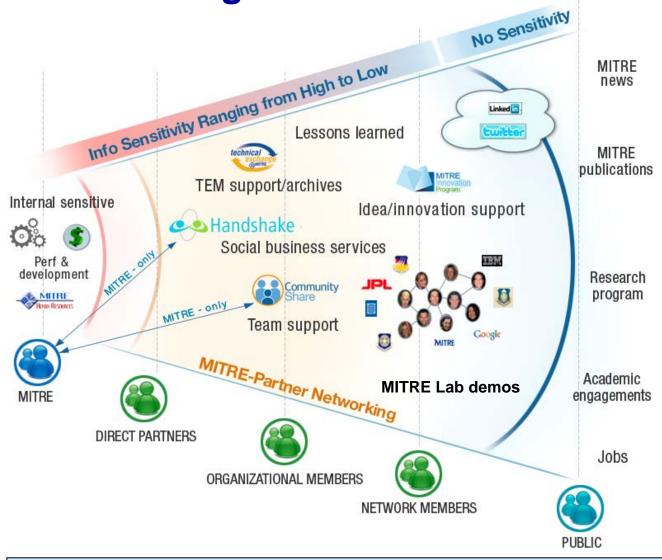
Simple and Integrated

- **Well-designed experience**
- **Flexible & extensible**
- **Point of entry to services**
- **Easy team collaboration**

Engaging Content

- **Engaging, differentiating, interesting**
- **Browse and join COPs**
- **Beyond documents to lab demos, data sets, real time feedback**

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Drives New Paradigms

Flexible and Secure Architecture

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Research Objectives

- **Deploy:**
  - **Trusted business networking platform** to enable networking and collaboration both within the enterprise and across customer and partner organizations

- **Address:**
  - Security
  - Information sharing policy
  - User management strategies
  - Relationship management
  - Organizational scaling
  - Business functional requirements

- **Assess:**
  - Enterprise value
  - New business models

Solution Criteria

✓ **Low cost**
- – **Inexpensive to explore for research**
- – **No licensing costs, unlimited users**

✓ **Customizable**
- – **Fully extensible, integrate-able, measurable, MITRE-izable**
- – **Single platform for internal and external use**

✓ **Easy to use**
- – **No training/similar to commercial soc net applications**
- – **Flexible yet understandable**

✓ **Trusted environment**
- – **Host on MITRE's servers**
- – **Fine-grained access control & invitation model**
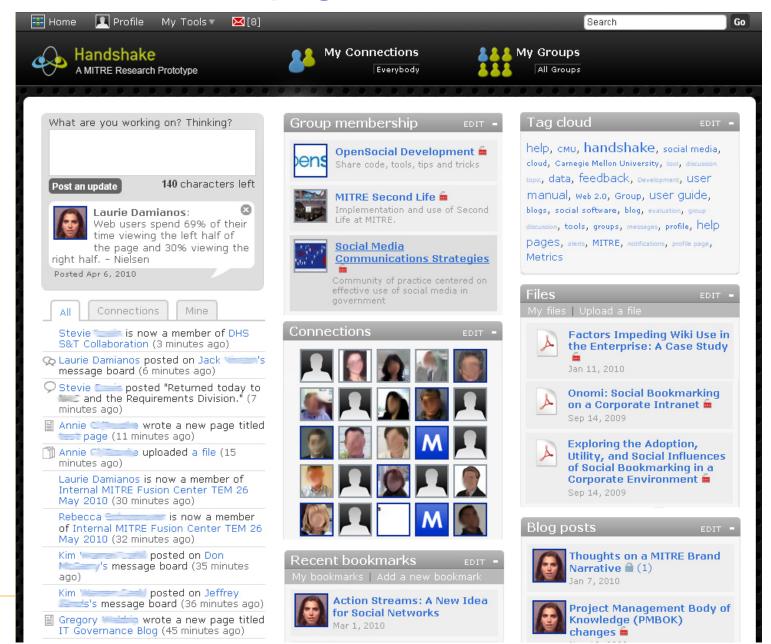
Selected Elgg, an open source platform. Deployed in 2009.

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HANDSHAKE OVERVIEW

MITRE

Handshake Homepage

Handshake
A MITRE Research Prototype

My Connections
Everybody

My Groups
All Groups

All Things Agile
has non-MITRE members

Edit group
Leave group
Add new members

Group discussion
Group files
Group pages
Group blog
Group albums

Subscribe to feed
Bookmark to Handshake
Report potentially inappropriate content

All Things Agile

2-4 WEEKS

Owner(s): Donna Cuomo
Matt F———
Bill D————

Description:

For project development teams interested in using and sharing knowledge of agile development methodologies. A currently "hot" agile development topic is the Scrum agile software development framework which many teams at MITRE are exploring. The use of this development framework plus other agile methodologies are appropriate for sharing through this group.

Interests: program management, Scrum, agile development, Software Development

Website: http://en.wikipedia.org/wiki/Scrum_(development)

all Handshake members

Edit

Group members

See all members (69

Message board

Post

Latest discussion

Group discussion | Add a topic

Agile with Remote Team Members (7)
Apr 21, 2010 by Matt F———

What does a Manager do in Scrum or any Agile process (4)
Apr 16, 2010 by Bill D————

Is it "Agile" or "agile" ?!?! (8)
Mar 26, 2010 by Carlton M————

Waterfall Manifesto - April Fools! (3)
Apr 1, 2010 by Kathleen M————

Group blog

Group blog | Write a group blog post

[1] [2] [Next »]

Thu, Apr 8th Bedford: One-Hour Experiential Introduction to Agile (1)
Mar 19, 2010 by David S————

Group activity

Patrick S———— is now a member of All Things Agile (Apr 21, 2010)

James B———— has posted a new comment on a discussion topic titled Agile with Remote Team Members (Apr 21, 2010)

James B———— has posted a new comment on a discussion topic titled Agile with Remote Team Members (Apr 21, 2010)

Ryan ———— has posted a new comment on a discussion topic titled Agile with Remote Team Members (Apr 21, 2010)

Group files

Group files | Upload a file

Simple High level Tracking for Agile Teams (2)

Group pages

Group pages | Create a new page

Handshake Data Capture Analysis
Dec 16, 2009 by Laurie D————

Current Known Constrain

MITRE

Profile pages let you share with others

Handshake
A MITRE Research Prototype

My Connections — Everybody

My Groups — All Groups

Search [Go]

Donna Cuomo - MITRE   Edit profile

"doing a handshake demo" (posted Mar 19, 2010)

Organizational affiliation: MITRE

Job title: Chief Information Architect in the Center for Information and Technology

Location: Bedford, MA

Contact email: dcuomo@mitre.org

Telephone:

Website: http://www.linkedin.com /

Personal interests: golf, cross country skiing

Professional interests: innovation, social networking, social and collaboration tools, enterprise information architecture, knowledge management, strategy

Education: State University of New York at Buffalo, Industrial Engineering/Human Computer Interaction, PhD, MS

Remove connection
Profile

About me

I am presently the Chief Information Architect in CI&T, working on social networking and media, defining the strategy for our next intranet, collaboration, and knowledge management processes and tools. I am currently deploying a social networking prototype to support cross-organizational collaboration and the capture of MITRE staff's professional relationships. I have been employed at MITRE for over 20 years. I worked in the MITRE Air Force Center for 12 years before joining MITRE's information technology organization.

Message board   EDIT

[Post]

Jen ███████ Mar 31, 2010

I am indeed! I was just in another meeting and remembered that I wanted to email you to tell you!!!!

Reply on Jen ███████'s message board

Marie ███████ Feb 12, 2010

Donna
You might want to join the Social Media Communications Strategies Group

Reply on Marie ███████'s message board

Patrick ██████ Jan 14, 2010

Donna, that is great. Who do I contact if I want to submit a module? I am not sure I am that ambitious but I would like to explore the possibility...
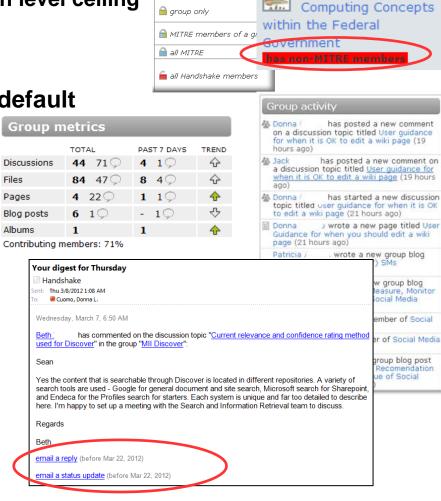
Re:
Pat, Handshake is based on open source code so we can build, enhance, or add any funtionality we want to it, such as image files where

Each profile field is access controlled

You choose what you share with whom

MITRE

MITRE Customizations

- **MITRE identity model with single sign on**
- **"Box Model" for group permissions**
  - **Restricts contents to group permission level ceiling**
- **Visualized permissions & access**
- **Improved search**
- **Connect vs follow; follow groups by default**
- **Group activity river**
- **Group metrics**
- **Respond via email**
- **Colleague recommender**
- **Gadget on intranet homepage**

access level
- only me
- access list
- connections only
- group only
- MITRE members of a gr
- all MITRE
- all Handshake members

Leveraging Cloud Computing Concepts within the Federal Government
has non-MITRE members

Group activity

Donna has posted a new comment on a discussion topic titled User guidance for when it is OK to edit a wiki page (19 hours ago)

Jack has posted a new comment on a discussion topic titled User guidance for when it is OK to edit a wiki page (19 hours ago)

Donna has started a new discussion topic titled User guidance for when it is OK to edit a wiki page (21 hours ago)

Donna wrote a new page titled User Guidance for when you should edit a wiki page (21 hours ago)

Patricia wrote a new group blog

Group metrics

	TOTAL		PAST 7 DAYS		TREND
Discussions	44	71 💬	4	1 💬	⇧
Files	84	47 💬	8	4 💬	⇧
Pages	4	22 💬	1	1 💬	⬆
Blog posts	6	1 💬	-	1 💬	⬇
Albums	1		1		⬆

Contributing members: 71%

Your digest for Thursday

Handshake

Sent: Thu 3/8/2012 1:08 AM
To: Cuomo, Donna L.

Wednesday, March 7, 6:50 AM

Beth : has commented on the discussion topic "Current relevance and confidence rating method used for Discover" in the group "MII Discover":

Sean

Yes the content that is searchable through Discover is located in different repositories. A variety of search tools are used - Google for general document and site search, Microsoft search for Sharepoint, and Endeca for the Profiles search for starters. Each system is unique and far too detailed to describe here. I'm happy to set up a meeting with the Search and Information Retrieval team to discuss.

Regards

Beth

email a reply (before Mar 22, 2012)

email a status update (before Mar 22, 2012)

Recommended Contacts

All
1 2 3 4 ... 45 46 47 48

Daniel ★★★★★
Abigail ★★★★★
Patricia ★★★★★
Christopher ★★★★★
Cheryl ★★★★★
David ★★★★★

Recommended Contact Details

Daniel
@mitre.org
★★★★★

Friend of a Friend ★★★★★
You have 4 friends in common
Last updated 11 hours ago
[Details]

Listserv ★★★★★
You have 4 mailing list memberships in common.
Last updated 11 hours ago
[Details]

Friend of ★★★★★
Daniel lists you as a friend.
Last updated 11 hours ago
[Details]

Onomi Tags ★★★★★
You have 40 onomi tags in common.
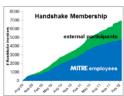Last updated 11 hours ago
[Details]

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Longitudinal Evaluation Methodology

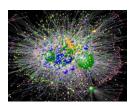2010   … 2011 …   2012 ….

- **Instrument the platform for activity and social demographics over time**

- **Usage metrics reporting**

- **Handshake value survey – internal (baseline) and external users (in progress)**

- **Social and intellectual capital survey baseline**

- **Use case studies, over time**

- **Anecdotal stories from end users**

- **Visualization of key networks over time**

Hypothesized that business networking tool use:
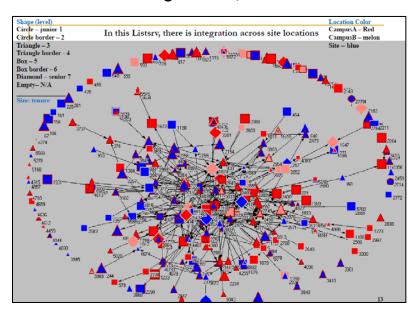
- ■ *Social capital*
  - – *Reinforces* existing business connections
  - – *Fosters* development of new business connections (enhancing innovative behavior)
  - – *Expands* access to technical/domain expertise (internally and externally)

- ■ *Intellectual capital*
  - – *Increases* staff's awareness of emerging technology and new industry trends
  - – *Exposes* staff to new and innovative ideas

- ■ *Ability to collaborate* more effectively
  - – Across distributed project teams – span distances
  - – With MITRE's partners and other stakeholders

- ■ *Crowd sourcing*

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Leveraged Research

**Bowling Online
IBM/Michigan State, 2009**

**MITRE-Babson study finding that personal
innovation is correlated with the number of
UNIQUE nodes in your network,
The Value of Social Collaboration IT Tools, CIMS, 2009**

Affinity Distance
Cultural distance
Social distance
Relationship distance
Interdependence distance

Virtual Distance

Physical Distance
Geographic distance
Temporal distance
Organizational distance

Operational Distance
Communications distance
Multitasking
Readiness distance
Distribution asymmetry
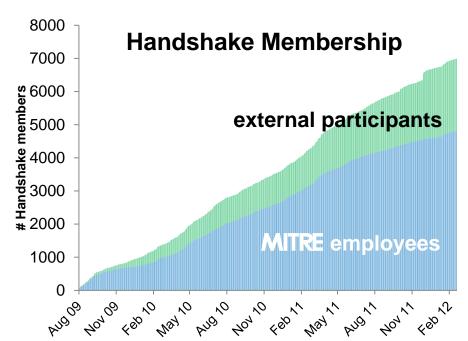
When Virtual Distance is High:

- Innovative behavior declines by 93%

- Trust falls off by 83%

- Job satisfaction decreases by 80%

- Role and goal clarity drop by 62%

- Project results – on time/on
budget/customer satisfaction dive by 50%

- Leader effectiveness declines by over 50%

- Organizational citizenship declines by 47%
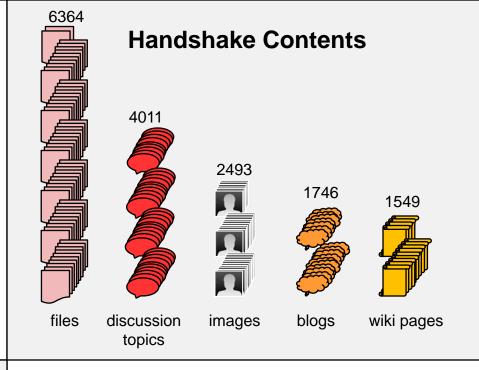(key to innovation)

**Karen Lojeski, Stony Brook
Leading the Virtual Workforce
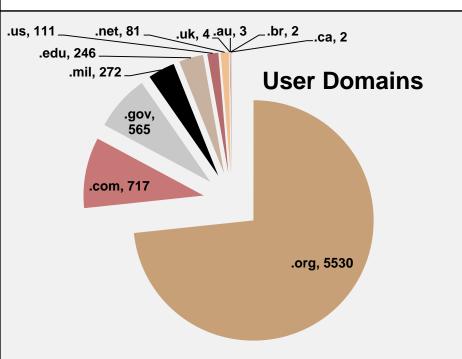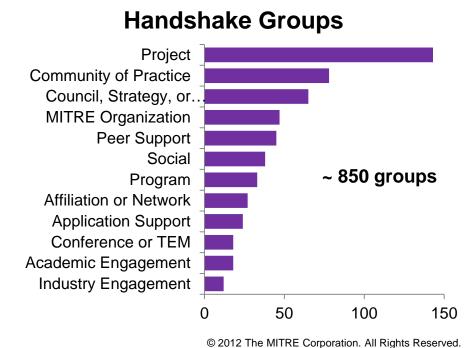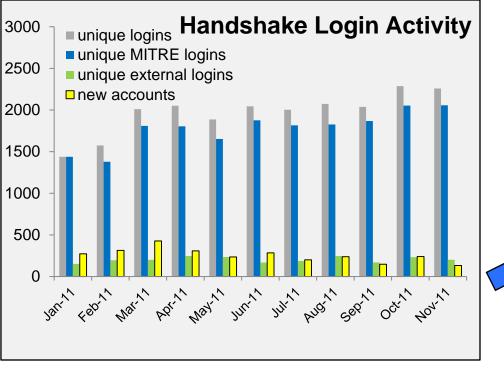Uniting the Virtual Workforce**

METRICS & EVALUATION

MITRE

Handshake Membership

external participants

MITRE employees

Handshake members

8000
7000
6000
5000
4000
3000
2000
1000
0

Aug 09, Nov 09, Feb 10, May 10, Aug 10, Nov 10, Feb 11, May 11, Aug 11, Nov 11, Feb 12

Handshake Contents

6364 — files
4011 — discussion topics
2493 — images
1746 — blogs
1549 — wiki pages

User Domains

.us, 111
.net, 81
.uk, 4
.au, 3
.br, 2
.ca, 2
.edu, 246
.mil, 272
.gov, 565
.com, 717
.org, 5530

Handshake Groups

Project
Community of Practice
Council, Strategy, or…
MITRE Organization
Peer Support
Social
Program
Affiliation or Network
Application Support
Conference or TEM
Academic Engagement
Industry Engagement

~ 850 groups

0   50   100   150

Handshake Login Activity

- unique logins
- unique MITRE logins
- unique external logins
- new accounts

(chart y-axis: 0, 500, 1000, 1500, 2000, 2500, 3000)
(x-axis: Jan-11, Feb-11, Mar-11, Apr-11, May-11, Jun-11, Jul-11, Aug-11, Sep-11, Oct-11, Nov-11)

From: Handshake <no-reply@handshake.mitre.org> Sent: Thu 3/8/2012 9:51 AM
To: Damianos, Laurie E.
Cc:
Subject: [Project X] File: System Design Document (version 0.3)

Laurie Damianos has uploaded a new file to the group "Project X":

System Design Document (version 0.3)

I have modified section 2.1 based on input from our last working meeting. Please review and reply with feedback, comments, etc.

email a reply (before Mar 23, 2012)

email a status update (before Mar 23, 2012)

email a file to this group (before Mar 23, 2012)

You can adjust your notification options: choose between instant alerts or a daily digest - or opt out by group.

HANDSHAKE NOTIFICATIONS

Working from customer site this afternoon
update
Posted just now

Bryn ▓▓▓ has started a new discussion topic titled 5 Myths of Working Women (2 minutes ago)

Laurie Damianos uploaded a file System Design Document (version 0.3) to the group Project X (4 minutes ago)

Marc ▓▓▓▓▓ has posted a new comment on a discussion topic titled CATLab Inventory (an hour ago)

Gregory ▓▓▓▓▓ has posted a new comment on a discussion topic titled Evacuation of the metro DC area in an emergency.. (an hour ago)

Collin ▓▓▓▓ is now a member of MITRE Innovation Program (MIP) (2 hours ago)

Michael ▓▓▓ has started a new discussion topic titled Elgg Camp SF (17 hours ago)
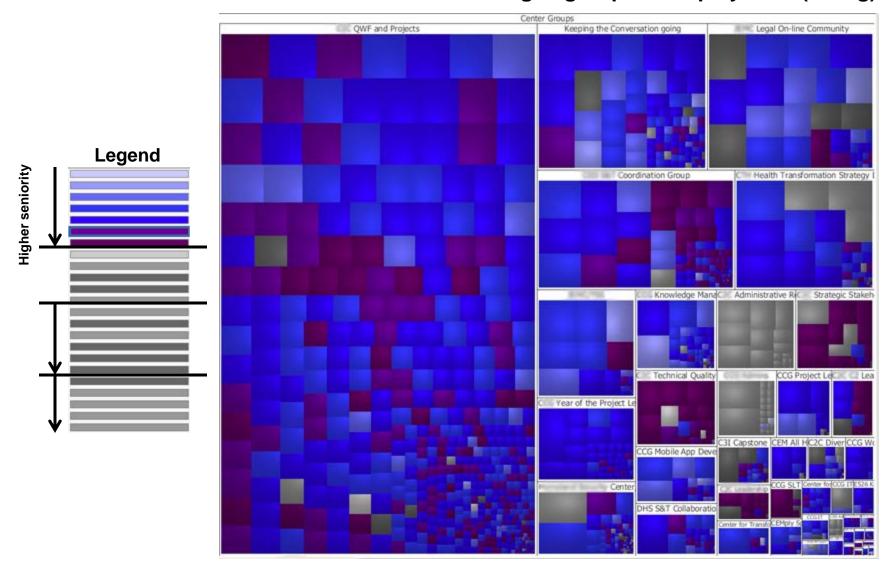
■ Confounding Factors

- **Email Notifications/Digests**
  - ■ All users receive email of activity & some content

- **Reply by Email**
  - ■ MITRE users comment on threads and content directly from email (**37%** use email over browser)

- **MyMII Gadget**
  - ■ MITRE users follow activity from intranet

MITRE

© 2...

Exploration of Social Graph Data

Bridging virtual gaps:

...in location

Examining interactions across organizations

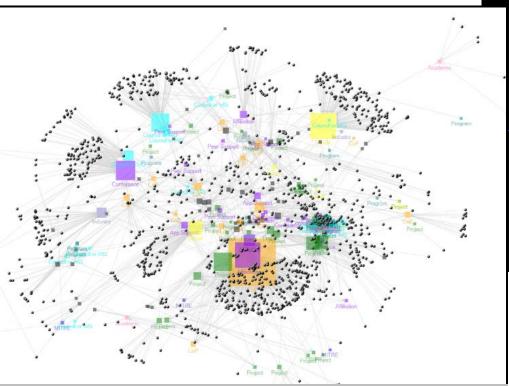
...in company hierarchy

Exploration of Group Makeup

Looking at group makeup by level (or org)

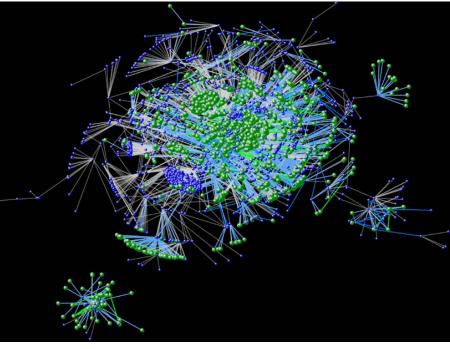# Visualizing the Network

Types of groups external users are joining

External users and how they are connected to other external users and **MITRE users**

CASE STUDY INTERVIEWS

MITRE

Interview Methodology

- **Conducted 63 interviews with members of Handshake groups, MITRE and external**

- **Interviewees were selected based on groups they belonged to**

- **Interviews were conducted face-to-face or on phone, with Handshake on computer**

- **Interviewers followed loose script to engage participants in open-ended questioning**

- **Focus of interview was on perceived benefits from participating in Handshake groups**

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Interview Results: Perceived Benefits

- **Enhances cross-organizational participation**
- **Helps strengthen business relationships**
- **Improves awareness of critical project information**
- **Enables crowd-sourcing new features for MITRE applications**
- **Consolidates multiple types of information in one place**

MITRE

Interview Results: Perceived Benefits

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  - *The customer has instant access to deliverables. They have better insight into the program.* – Project Leader

  - *It definitely improved the quality of the products because you have instant feedback* [about a design feature]. – Customer team member

  - *Handshake helped reduce the number of iterations we had to go through to get to the final product. It would have taken much longer, many more iterations without it.* – MITRE member of cross organizational project

MITRE

Interview Results: Perceived Benefits

- Enhances cross-organizational participation
- **Helps strengthen business relationships**
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  – *There is something about seeing the photos that makes you feel closer to the group… it motivates you* [to contribute] *if you see the pictures. –* Senior MITRE Manager

  – *The relationship building that Handshake permits seems to be richer than what you find on ListServ… helping solidify relationships… Now at a conference, we recognize each other and can talk. –* External participant

Interview Results: Perceived Benefits

- Enhances cross-organizational participation
- Helps strengthen business relationships
- **Improves awareness of critical project information**
- Enables crowd-sourcing new features for MITRE applications
- Consolidates multiple types of information in one place

  - *Handshake gives me better insight into anything that needs more attention or needs to be brought to the attention of a program manager.* – Project Leader

  - *Handshake saved me lots of time because, at any given time, I knew what was going on in the project.* – Customer Program Manager

Interview Results: Perceived Benefits

- Enhances cross-organizational participation
- Helps strengthen business relationships
- Improves awareness of critical project information
- **Enables crowd-sourcing new features for MITRE applications**
- Consolidates multiple types of information in one place

  – *Having* [application users] *talk to each other has value to the product team.* [It] *helps develop more polished software faster and better.* – Application Developer

  – *These types of discussions opened up team members' minds to alternative designs and solutions, improving the product and changing their thinking.* – Application Developer

Interview Results: Perceived Benefits

- Enhances cross-organizational participation
- Helps strengthen business relationships
- Improves awareness of critical project information
- Enables crowd-sourcing new features for MITRE applications
- **Consolidates multiple types of information in one place**

  - [Handshake] *is an essential repository for storing thoughts, discussions, and anything of value* [to the project] *to record for a later date. Everything is consolidated. –* ???

  - [Handshake] *is easier than email for managing information. All the discussion is in one place. Instead of having to open an old email to get an attachment, the files are all here. It worked quite well. –* ???

  - [Handshake] *is a group website / blog / file sharing mechanism that gives us an informal, persistent store for all the things we are doing on a project. –* ???

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HANDSHAKE VALUE SURVEY

MITRE

Handshake Value Survey

- **Survey was designed based on input from interviews**

- **Survey was sent to all 4600 MITRE Handshake members**

- **Survey construct**

  - **18 Likert-scale statements on Handshake usefulness in:**

    - **Supporting collaboration**

    - **Strengthening social connections**

    - **Fostering situation awareness**

    - **Facilitating management of knowledge assets**

    - **Enhancing productivity**

  - **4 open-ended questions pertaining to:**

    - **Overall value of Handshake to their work**

    - **Value of specific Handshake groups**

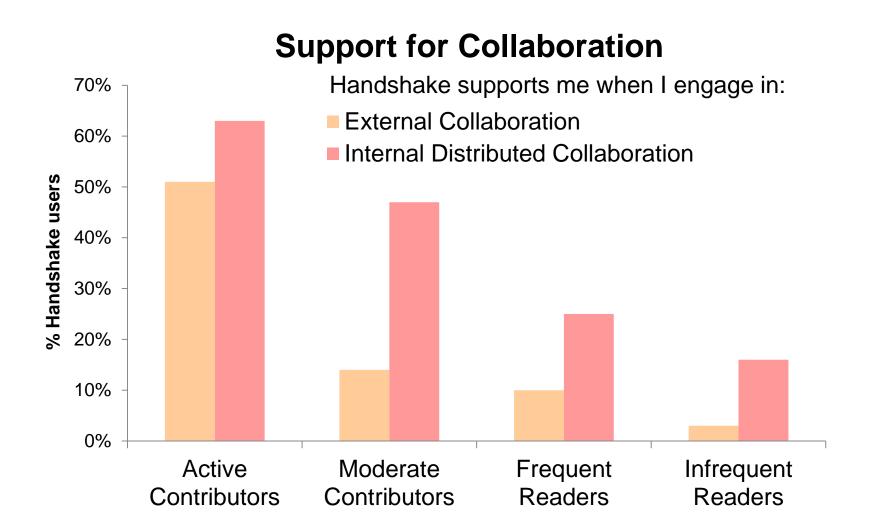   - **Barriers to Handshake adoption**

    - **Suggested improvements**

MITRE

354 respondents

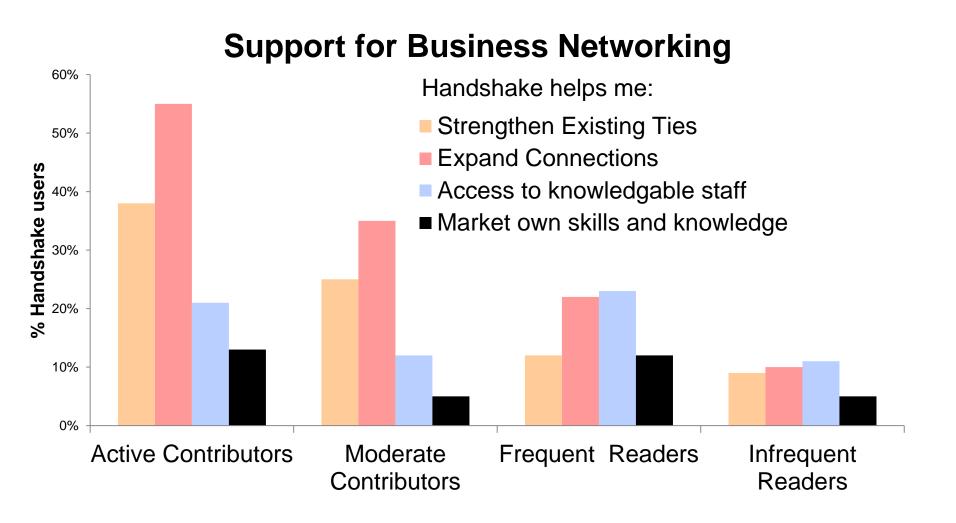|	Criteria	% users	Response rate	% belonging to 4+ groups
Active Contributor	20+ posts in Handshake groups	6%	36%	93%
Moderate Contributor	1 – 19 posts in Handshake users	17%	14%	62%
Frequent Reader	Logs into Handshake at least weekly (0 posts)	20%	10%	38%
Infrequent Reader	Logs into Handshake less than weekly (0 posts)	57%	5%	16%

MITRE

Support for Collaboration

Support for Business Networking

MITRE

Support for Situation Awareness
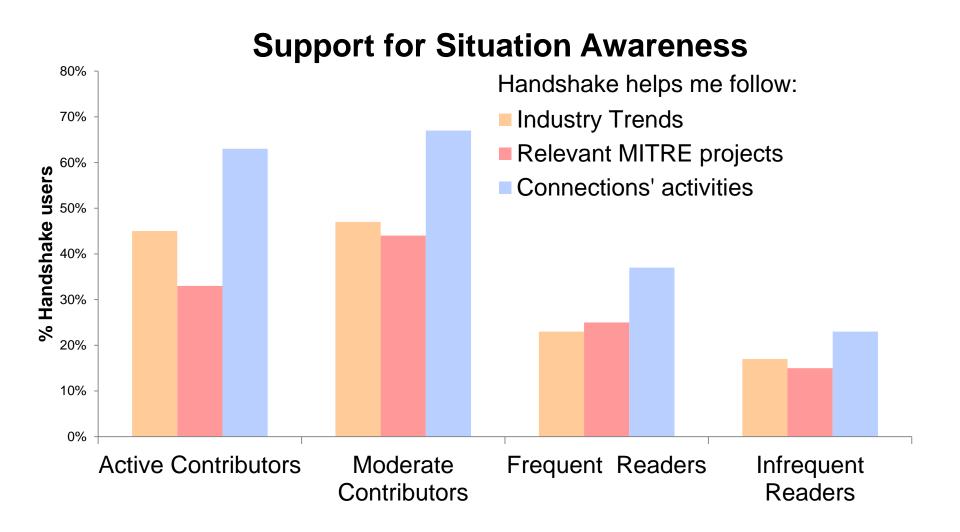
Survey Summary

- **Contributors** are much more likely to experience the benefits of Handshake than Handshake **readers**

- The **level of contribution** users make to Handshake groups affects the likelihood they will benefit from Handshake usage

Fostering greater levels of active participation in a social business platform is likely to increase the benefits users gain from its use

MITRE

Summary of benefits active users experience

- **Improved support for collaboration by providing users easy access to multiple types of information in a single location**

- **Situation awareness of ongoing relevant activities within a user's project team, across the company, and within the industry**

- **A greater sense of personal connection between group members than would occur when individuals were simply known by names or email addresses**

- **Improved cross-organizational communication and collaboration**

- **Discoverable content, communities, and members**

- **Crowd-sourced support**

Approved for Public Release: 12-1301 Distribution Unlimited.

Interesting Uses of Handshake

AUTHORS' PICKS

MITRE

Sample Handshake Group Types Identified

Projects

Academic Engagement

Social

Application Support

Event
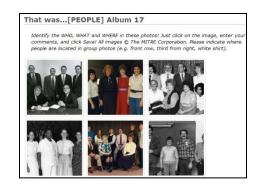

Affiliation or Network

Communities of Practice

Peer Support

Interesting Uses of Handshake (authors' picks)

MITRE Alumni

Crowd sourcing identification of people in old photos →

That was...[PEOPLE] Album 17

Identify the WHO, WHAT and WHERE in these photos! Just click on the image, enter your comments, and click Save! All images © The MITRE Corporation. Please indicate where people are located in group photos (e.g. front row, third from right, white shirt).

MITRE3.0

Discussion leads to a grass-roots organized science fair! →

PUSH 2 LOC

Group with mission users in field

Less than 24 hr turn around time for mods to mobile apps. →

MITRE

Interesting Uses of Handshake (authors' picks)

Social Media

Request for take aways from Enteprise 2.0 leads to high-level sponsor commenting on briefing; people we didn't know were at conference join in!

→

Participants are self-identified

Several hallway conversations suggested that the vendors and pa[rtners?] the wide range of disciplines and resources available to / needed implementations. I can't help but think about the same aspect of management.

Excellent presentation...very interesting.

MITRE/Customer Team

Distributed team

Dynamic staffing

Aggressive timeline for deliverables

Constant communication/sharing

→

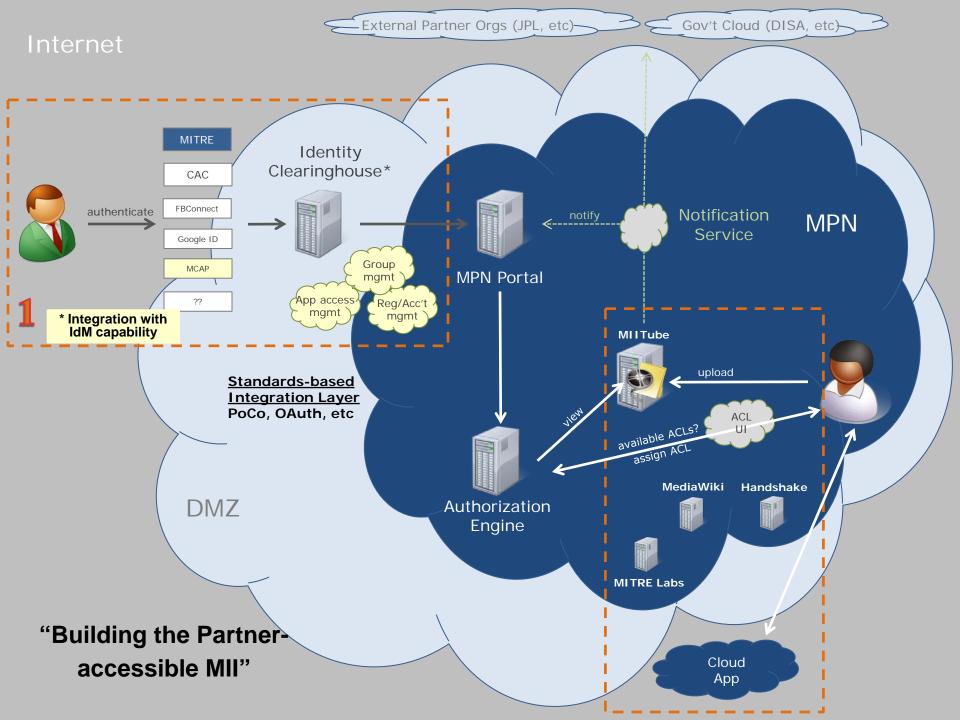"At any given time, I knew what each member of the group was thinking, planning, or doing."

"Handshake was extremely effective in resolving issues as they occurred, disseminating information, and meeting deliverable deadlines. The importance of Handshake's capabilities was magnified under the aggressive schedule and tight time constraints of the project."

Self-Joining Groups

Communities of Practice

Affiliations

Peer Support

Social Groups

→

"I find it refreshingly open in the sense that people are asking questions and posting ideas."

"I really like the inclusiveness of it. I like the different perspectives. Each company comes with different culture as well as individuals."

Internet

MITRE

CAC

FBConnect

Google ID

MCAP

??

authenticate

Identity Clearinghouse*

Group mgmt

App access mgmt

Reg/Acc't mgmt

1

* Integration with IdM capability

External Partner Orgs (JPL, etc)

Gov't Cloud (DISA, etc)

MPN Portal

notify

Notification Service

MPN

<u>Standards-based Integration Layer</u> **PoCo, OAuth, etc**

DMZ

MIITube

upload

view

ACL UI

available ACLs?

assign ACL

Authorization Engine

MediaWiki

Handshake

MITRE Labs

"Building the Partner-accessible MII"

Cloud App

Questions?

More information available at:

https://www.mitre.org/capabilities/advanced-technologies/information-systems/social-software-and-collaboration

Contact us

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