The Social Life of Information

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Calendar Failure...

Vast amounts of information, ...

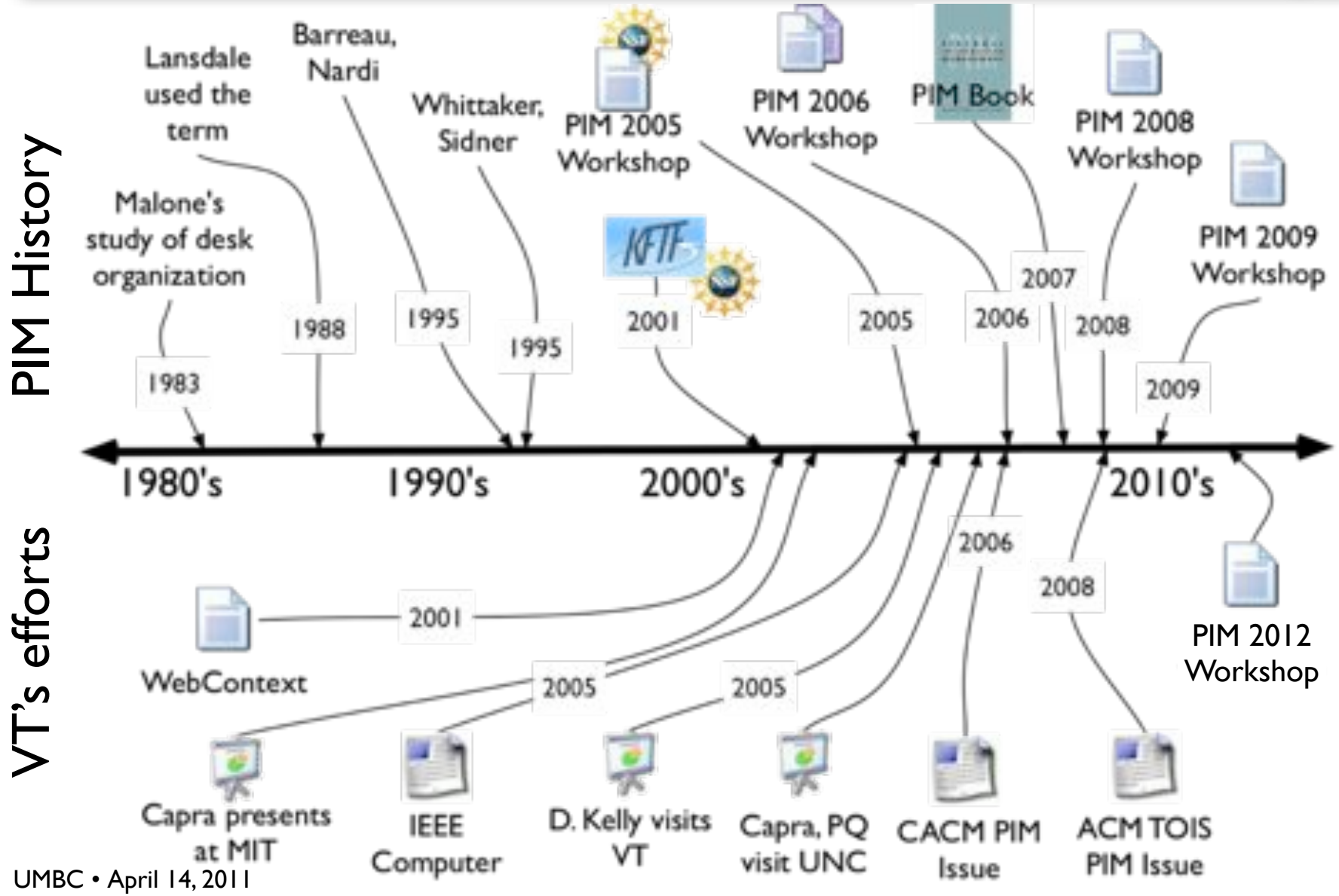
and proliferation of devices.

Personal Information Management Research

- Definition: *Study how people find, keep, organize, and refind (or reuse) information in and around their personal information space*
  - PIM Framework:
    find, keep, organize, reuse

- Why study it?
  - Information overload, information demands attention causing distraction, decrease in productivity, and for technology development

Brief PIM Research History



Why is PIM hard to study?

- Key challenge to research is including the realistic setting of PIM
  - *My files are organized different than yours*
- Users are invested in tools, strategies, collections
  - e.g. Gmail tags vs folders vs "smart folders"
  - Study them outside of that context and the study is unrealistic
- Approaches: diary studies, interviews, observations, longitudinal, and controlled lab studies

Finding Information

- Search, browse - locate information as needed
  - PIM focus on finding information for personal use or in personal store
- Encounter (serendipity) - "run" into information
- Orienteering (small, local steps) vs
  Teleporting (jumping directly to goal) [Teevan]
- There are different finding strategies for the different information collections (finding email vs files is different)
- *Information addressability*

Keeping Decision

- People encounter information in everyday activities
  - Face the decision: *do I keep this information? what possible future value might it have? what if I keep too much, how do I organize it?*
- Amount of information encountered today is huge!

What to keep?

- Keep too much and cost of refinding information goes up
- Don't keep but useful, refinding is more costly
- Post-value recall

	Keep	Don't Keep
Info is useful	success	miss
Junk	false positive	correct rejection

William Jones (2004) *Finders, keepers? The present and future perfect in support of personal information management*, First Monday v9 n3.

Organization

- Filing is cognitively demanding
  - Where do I file this information?
  - How will I reuse this information?
- Might lead to fragmentation
- Filers vs Pilers - strategies
  - Spring cleaners
  - Filing vs Tagging
- Some benefits of a structured file system: rehearsal

Organize: variety of strategies

File and organize everything

Organize nothing, and search for it

Reality: we live somewhere between the two extremes

Some strategies

- Save everything (Lifebits)
- Structure everything (Ontologies, taxonomies)
- Unify everything (Haystack)
- Search for everything (no organization)
- Tag & Search (loose organization with tags)

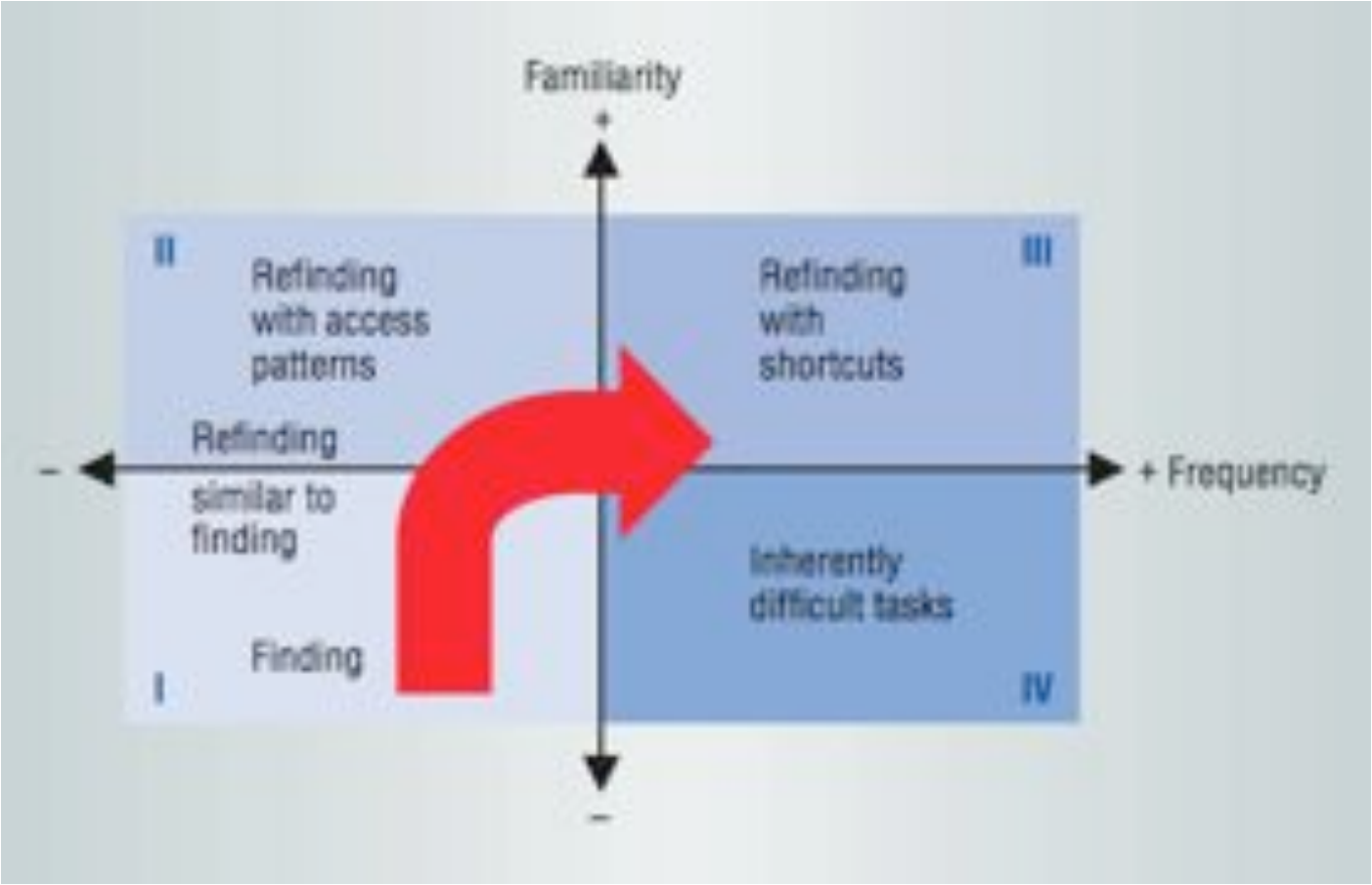
We have become our own personal librarians

Email Organizers

- Two general camps: those who tend to keep their information organized regularly, and those who tend not to but organize periodically (spring cleaners)
  - filers and pilers
  - prioritizers and archivers
  - no-filers and filers
  - cleaners and keepers

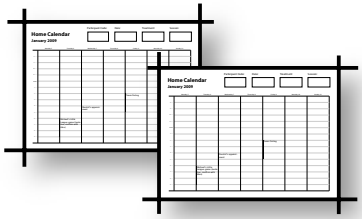
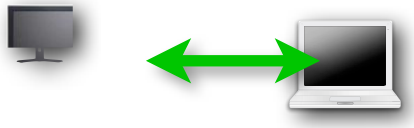
Prior Work at VT

Model of Finding/Refinding



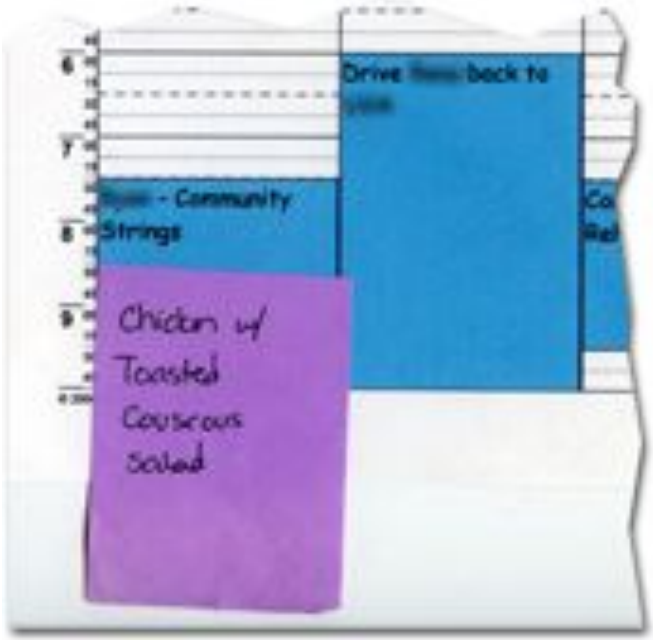
R.G. Capra-III and M.A. Pérez-Quiñones. Using web search engines to find and refind information. *IEEE Computer*, 38(10):36–42, 2005.

Measuring Work Between Devices

	Files	Calendar	Contacts
Level 0	No support for file migration	 Multiple paper calendars	No support for synchronization
Level 1	 System supports file migration	Online calendars	Devices support synchronization

Tungare, Manas. Mental Workload in Personal Information Management: Understanding PIM Practices Across Multiple Devices, PhD. Department: Computer Science. 2009-03-25. http://scholar.lib.vt.edu/theses/available/etd-04152009-191143/

Calendar Samples



Current Work at VT

The Social side of PIM

- PIM practices are typically considered in isolation (hence the P in PIM)
- Personal activity happens within the social framework of our daily lives
  - we are part of social collaboration
  - we are part of social circles and working groups
- *How do my PIM practices benefit others? or better yet... How can I benefit from the social PIM practices of others?*

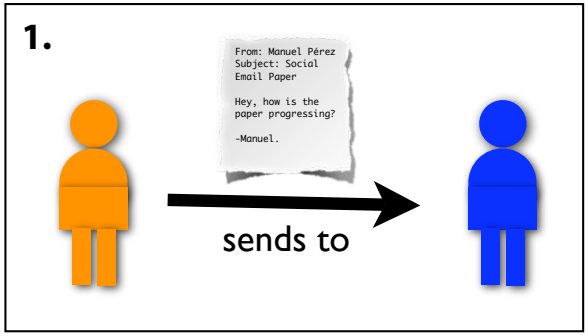
Forms of Social PIM

- **Information**: Information is shared with others, leaving social traces in the information
- **People**: social network of friends and colleagues collaborate in information communication
- **Action/Activity**: we perform activities over data that could be shared with others
- **Social settings**: we do our PIM sometimes with others, sharing a social setting

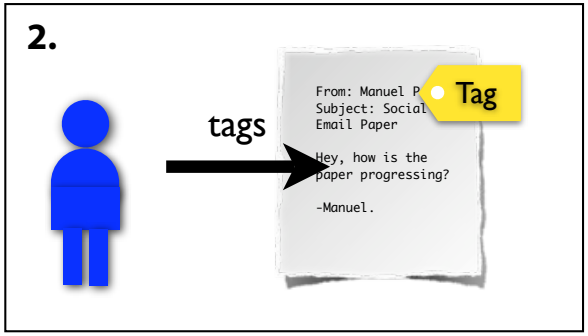
Leverage your social network

- *Implicitly*: use your social network to influence your PIM practices
  - e.g. Email providers aggregate data to identify spam, why not for organization?
- *Explicitly*: capture strategies and share them explicitly, a "best practices" of sorts
  - We can do it *automatically* (a tool handles it) or *manually* (allows community of practice to evolve)

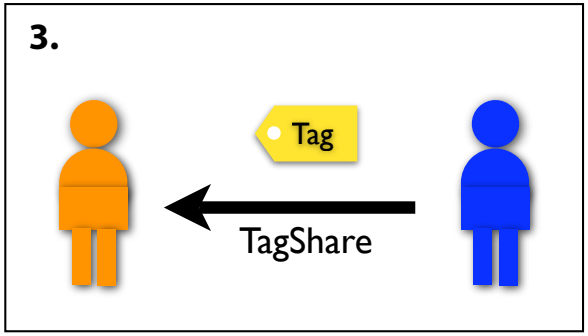
Example: TagShare



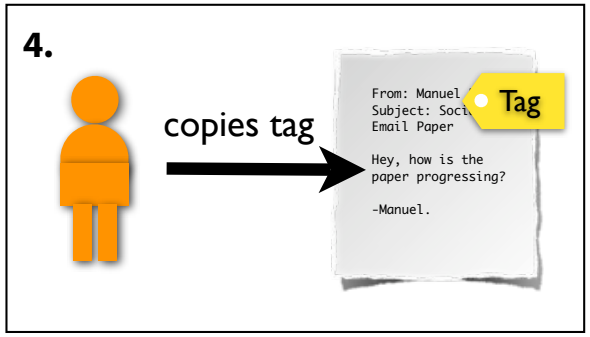
Alice sends an email to Bob



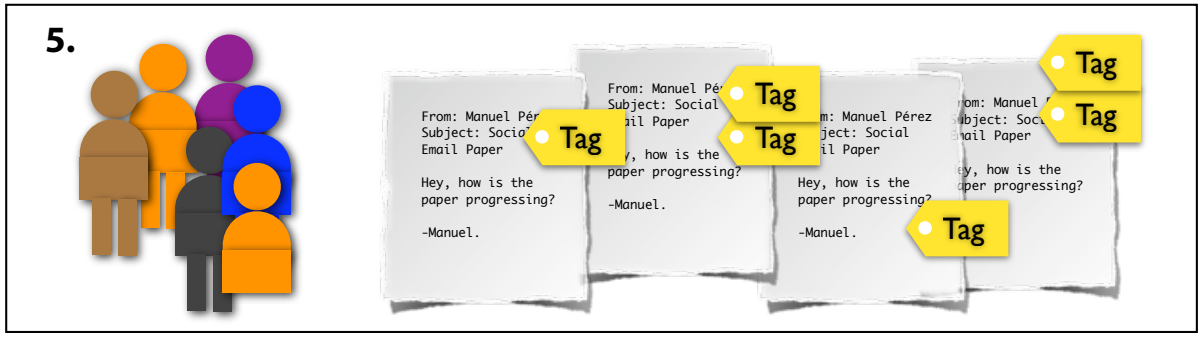
Bob tags that email



TagShare tells Alice that Bob has tagged that email as 'Project X', and asks if she wishes to tag it the same way.



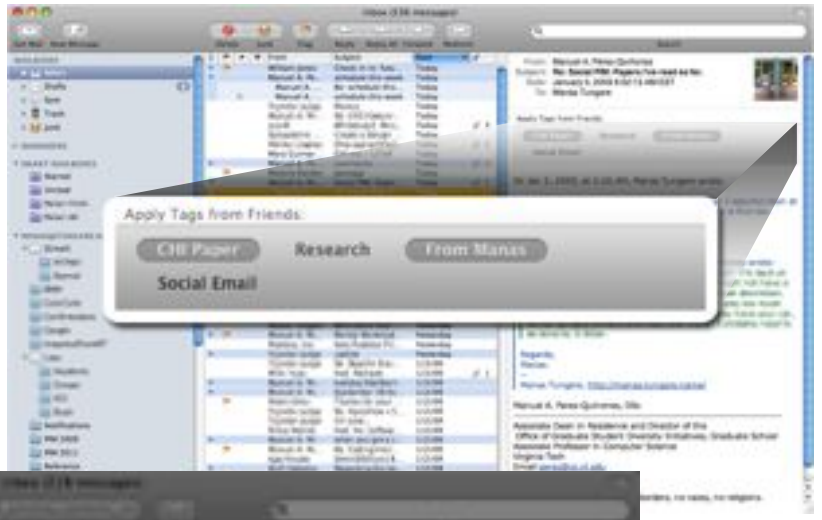
Alice copies the tag, requiring minimal extra effort

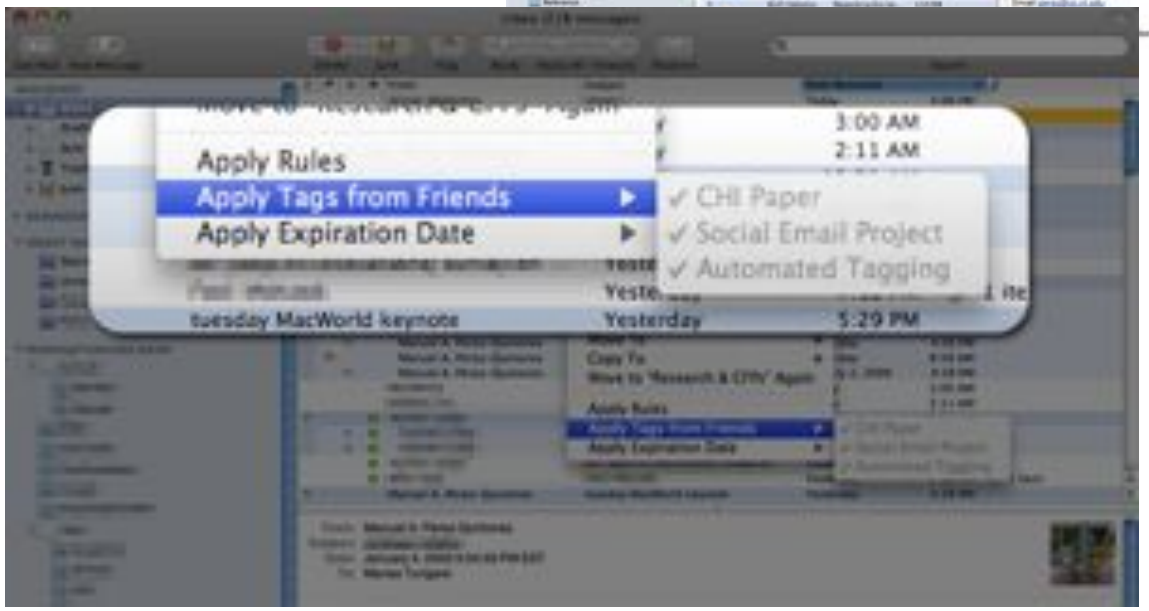


If several collaborators across an enterprise use TagShare, the burden of filing email is shared amongst all. More emails are tagged; email overload is reduced.

Social organization of email

- Why not leverage the social network to ease email organization?





Merge your contacts

- Imagine if we could capture all your social networks (work, neighborhood, life, facebook, etc.) and unify by people
  - Then apply a "friend-rank" to that network to identify relevance
- Rank email importance
- Share organizational strategies (but not content), etc.
- We have begun down this path...

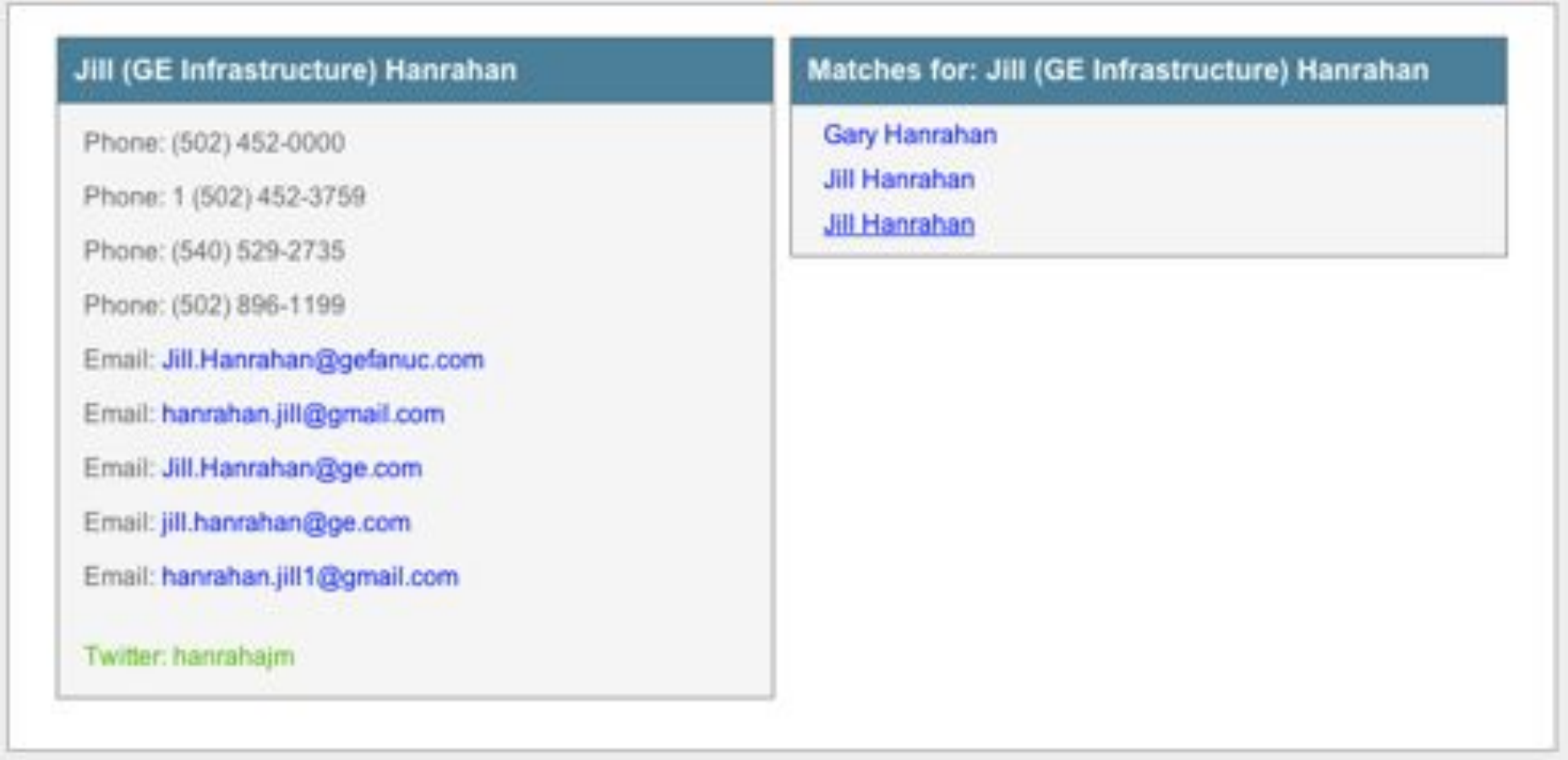
Schmoozer

- The goal is to make participating and contributing to groups less deliberate
  - Integrate individual actions with social groups

- Schmoozer brings together contact information from Google Mail, Linkedin, and Twitter profiles into one system

Ben Hanrahan's dissertation work

Schmoozer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Gary Hanrahan
Jill Hanrahan
Jill Hanrahan

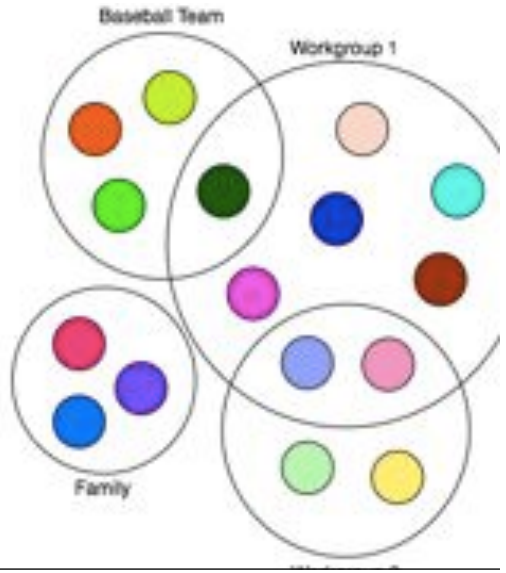
(Social) Information use in the Wild

- Conducted a diary and interview study with 20 smartphone users over a period of two weeks
  - We collected 699 diary entries of information interaction in the wild
  - 15% (106) of use were self-reported as "being prompted by a face-to-face conversation"
- Smartphones as mediators of social activity

Ricardo Quintana-Castillo's dissertation work

SocialOrb

- Explicit study of intersection of digital information and social settings
- All users in environment use a small device that signals an office when they enter
- All documents edited while users are present are tagged with user name, social circles, and collaborators
- Organization is dictated by social company and refinding of documents is as simple as searching for that user's name

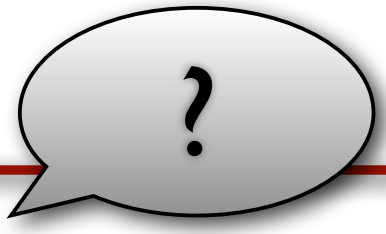


Blake Sawyer's dissertation work (committee)

Conclusions

- Information overload is here... we have become our own *personal librarians* at the expense of our (real) work
- PIM research studies how we find, keep, and reuse information to inform the design of new technology
- We are exploring how to take PIM into the social arena
  - exploring PIM practices in social settings
  - exploring how to leverage social networks for PIM
  - connecting social settings with digital information

Questions?



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Left to right: Dr. Manas Tungare (Google), Dr. PQ, Ben Hanrahan, Dr. Pardha Pyla (Bloomberg), Dr. Rob Capra (UNC), Ricardo Quintana-Castillo, Michael Stewart

Thank you for the invitation.