Supporting collaborative decision making

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Agenda

• After 50 years at last a paradigm shift!
• The challenge of networked working practices
• Search as a decision support application
• Supporting collaborative decision making
• Research topics in collaborative information seeking
• Information retrieval and enterprise search
In the beginning......

Charles Bourne 1963

Gerard Salton 1965

Michael Pliner 1988

John Mashey 1997

Dialog

Big Data ...
and the Next Wave of infraStress
John R. Mashey
Chief Scientist, SGI
Technology Waves:
NOT technology for technology’s sake
IT’S WHAT YOU DO WITH IT
But if you don’t understand the trends
IT’S WHAT IT WILL DO TO YOU

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Networked work
Knowledge sharing through virtual teams across borders and boundaries
Olli-Pekka Kauppila, Risto Rajala and Annukka Jyrämä
Management Learning 2011 42: 395 originally published online 31 March 2011

Analysis of the social network: all ties within a new product line worknet
Identification of individual knowledge activists: tie strength within the worknet
http://www.autodeskresearch.com/projects/orgorgchart
Collaboration personas: A framework for understanding & designing collaborative workplace tools

Tara Matthews, Steve Whittaker, Thomas Moran, Meng Yang
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San Jose, California, USA
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Lifespan of the group is (i.e., time to accomplish objective)...
short-lived
lightweight to setup
limited structure, simple access controls
long-lived
customizable organization, advanced features for finding content, ways to share knowledge / history of work

For long-lived teams, what stays constant is...
team
ability to manage multiple projects over time
objective
ability to on-board new team members

Created because of a shared...
interest
discussion, info sharing
objective
task tracking, scheduling, meeting support, info sharing

Size of the team is...
small (3)
can share more detail about daily work, more likely to collaborate in shared space (e.g., writing docs v. just storing docs)
large (100s)
visualize team, create sub-groups, fewer topics of interest to large group may want to partition members' work

Management of the team is...
self-managed
equal access/privileges
designated leader
manager may want to track members' status, manager likely to be in charge of maintaining team space

Degree of dependency among members...
interdependent
sharing detailed daily work is likely useful
independent
sharing general info, lessons learned, best practices

Existence of sub-groups...
no sub-groups
all info visible to all members
many sub-groups
ability to partition sub-groups' work, hide content from other sub-groups report status & outcomes to larger group

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Making good decisions
Rethinking the Decision Factory

by Roger L. Martin
Decision Making is a Recursive Process

A critical factor that decision theorists sometimes neglect to emphasize is that in spite of the way the process is presented on paper, decision making is a nonlinear, recursive process. That is, most decisions are made by moving back and forth between the choice of criteria (the characteristics we want our choice to meet) and the identification of alternatives (the possibilities we can choose from among). The alternatives available influence the criteria we apply to them, and similarly the criteria we establish influence the alternatives we will consider. Let’s look at an example to clarify this.

Key point, then, is that the characteristics of the alternatives we discover will often revise the criteria we have previously identified.
<table>
<thead>
<tr>
<th>Role</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Originator</td>
<td>Identifies the problem or the opportunity and starts the framing process</td>
</tr>
<tr>
<td>Facilitator</td>
<td>Co-ordinates the interactions of other actors through the process of making the decision. Often, but not always, the originator</td>
</tr>
<tr>
<td>Adjudicator</td>
<td>Has responsibility for making the call and will be accountable for it, often as the result of budget responsibility. Shared in a consensus, but not necessarily in collaborative decisions. If the group is formed by a committee then the adjudicator will be the chair</td>
</tr>
<tr>
<td>Analyst</td>
<td>Provides explicit information to help frame the decision or inform the alternatives</td>
</tr>
<tr>
<td>Contributor</td>
<td>Trusted contributors provide tacit knowledge, creative input or contrary views with the sole purpose of improving decision quality</td>
</tr>
<tr>
<td>Consultee</td>
<td>Consulted because they are affected by the decision. Implementors will typically be consultees</td>
</tr>
<tr>
<td>Approver</td>
<td>Where formal approval is required. Executives with legal or regulatory compliance responsibility</td>
</tr>
<tr>
<td>Implementer</td>
<td>Implements the decision. Inclusive decision making assumes that the implementers are also consultees, so that decisions are arrived at with due regard to implementation</td>
</tr>
</tbody>
</table>
Search for collaboration
Barriers to Collaborative Information Seeking in Organizations

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CONCLUSION
Most underlying conceptualizations of information seeking are still viewed primarily from an individual user’s perspective, despite the evidence that collaborative information seeking plays an important role in organizational work. There has been a great deal of focus on individual information seeking. This has lead to the design of processes and technologies that support individual information seeking but not collaborative information seeking. This is acutely problematic in settings where teams and team work are important. Our current inability to effectively support CIS is an impediment to team success in critical domains such as healthcare. Therefore, we must not only identify but also begin to address the barriers to CIS to help improve people’s ability to collaborate during information seeking activities.

We found that working in the same space encourages more interactions, and in the case of working at the same workstation enforces collective assessment on information being accessed and collected. On the other hand, being remotely located was beneficial in terms of covering more information and attempting more diverse searches. Given that a typical collaboration may involve both face-to-face and remote work, a system should provide appropriate tools for information collection (primarily in remote work), as well as information assessment (primarily in co-located work). This will enable the collaborators to use the same system without having to switch between tools or being distracted with unnecessary features for a given situation.
"I can’t tell you what I found:” Problems in Multi-level Collaborative Information Retrieval

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*CIR ’11*, October 28, 2011, Glasgow, Scotland, UK.

Even though this adds a great deal of complexity to the problem of CIR, we think it’s an important area to explore. As discussed earlier, the classified domain is an extreme, but clear-cut case of a scenario that seems to have wider relevance. Collaborative search tools have great potential in the workplace, but many of the issues around information protection and security discussed here need to be implemented to some degree for the business market. As we’ve noted, these problems can even exist on personal searches: one collaborator may not want to reveal all of the relevant information. Solving these issues would provide a much more flexible and versatile tool.
Characterizing and Supporting Cross-Device Search Tasks

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Figure 1. Search activities on mobile and desktop of a fictitious user over the course of a single day. Numbers denote hours from midnight. Queries of interest (relevant to the body of the paper) are included above the figure for reference.

Although this is the first study, to our knowledge, to investigate cross-device search tasks specifically, the current trend toward multi-device use [8], suggests a need for further research in this area. For example, the findings that we present in this paper are focused on transitions from desktop to mobile search. However, switches in the opposite direction are also popular and need further exploration. Our early analysis of the Mobile-to-Desktop switches shows that they happen in much less time than Desktop-to-Mobile switches. One explanation for this is that switches in that direction are more related to searcher dissatisfaction with the mobile search results or general search experience on mobile (an assertion supported by non-search studies [17]).

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Supporting Collaborative Information Seeking and Searching in Distributed Environments

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Figure 2: Summary of collaborative activities of a member within a team at information searching level
Search for decision support

- Search applications have an important role to play in decision support
- Taking a “decision support perspective” should enable organisations to make a business case for enhancing their investment (technology and staff) in search
- However current search applications do not support collaborative decision making, and only a limited amount of research has been published
- The opportunities seem to have been ignored by commercial search vendors, opening up considerable market potential for open-source developers.
IR and ES

• Although some ES specialists attend IR conferences (notably SIGIR) very few IT specialists attend ES conferences (e.g.) Enterprise Search Summit and Enterprise Search Europe
• There is very little awareness of IR developments by ES practitioners
• IR research remains behind a subscription and conference firewall
• Significant shortage of IR graduates for employment in ES roles
• Little attention paid to ES even at iSchools
Questions?

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