

Collaboration on the Web

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Autumn 2009



Alan's idea:
attach the wires to
the middle tubing

Bill: copyright
visualization of license



Scott: a gate that shows
who walked through it last
Bill: a gate that measures
ceremonial gates



Collaboration: What succeeds today?

- Collocation for tightly coupled work
 - because you get common ground and rapid rich interaction for free
- Remote work that is loosely coupled
 - because it doesn't require high interaction
 - use video and other high bandwidth to overcome loss of common ground
 - travel often

Distance Work will Only Increase

- 67% of companies anticipate increased reliance on virtual teams
 - 80% for companies with 10,000+ employees
- 35% of respondents rated difficulty of management as top challenge for virtual teams
- 92% said trust is critical for virtual teams

• Survey by Institute for Corporate Productivity

What has changed in practice?

- Fundamentally very little
 - Distance work is still less efficient & effective than collocated work
 - The basic problems haven't changed
- Changes
 - Demand has increased
 - Some tools have gotten better



Geographic dispersion & software development

- Software outsourcing is increasingly common
- But software development takes longer when performed by geographically distributed teams
 - Compare software development efficiency, when all developers are at one location or distributed across sites
 - Two different software development organizations
 - Time to complete an “MR” (Modification Request)

	Team type		
Study	Single site	Multiple site	Ratio
Herbsleb	5.0	12.7	2.5
Espinosa	48.2	97.2	2.0
Days from start to completion of MR			



Cummings & Kiesler (2005; 2007)

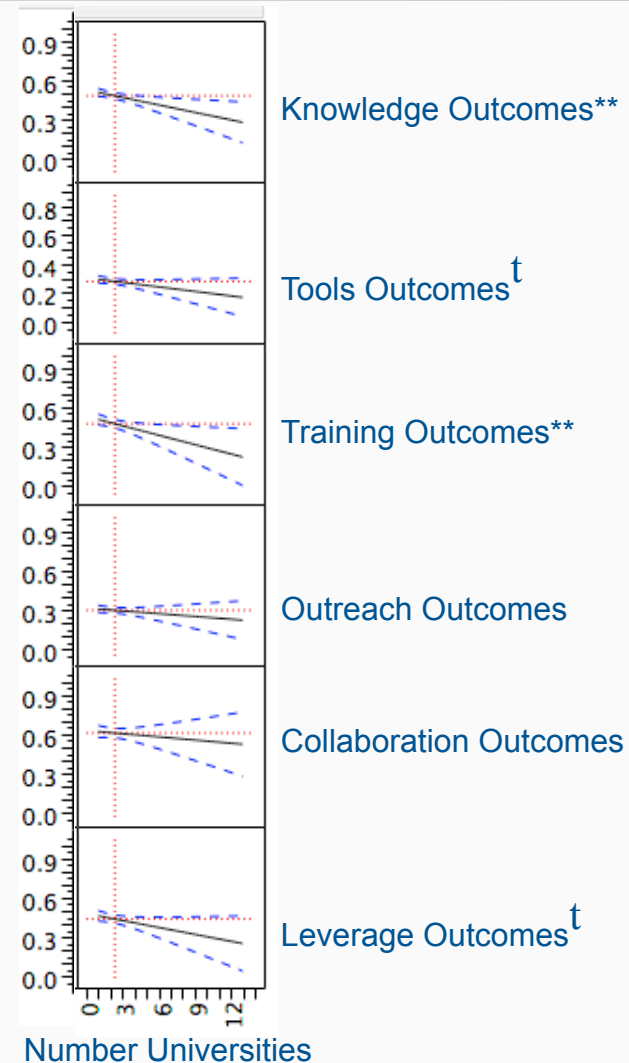
Study of Large NSF Projects

- Two studies of the outcomes of large NSF funding initiatives
 - 71 Knowledge & Distributed Intelligence projects 1998/99
 - 491 Information Technology Research Projects, 2001-2003
- PIs complete questionnaires describing
 - Collaboration composition
 - Coordination techniques used
 - Scientific & educational success



Research Model & Consistent Findings

- Multi-university projects were less successful than single-university projects
- More successful projects used a variety of specific coordination mechanisms
- Multi-university projects used fewer coordination mechanisms than single-university projects
- Reduced use of coordination mechanisms mediated the relationship between # of university and performance



Collocation supports awareness & increased frequency of communication

- Visual information supports information pick-up without explicit communication →
 - Common ground
 - Trust
 - Opportunities for communication
 - Identification of appropriate times for communication
- Examples of walking down corridor



Live video to support informal interaction

- Early systems for distributed work tried to leverage affordances of the visual channel
 - Video Window
 - Montage



Change the metaphor

Goal should be to support the ***functions*** of collocation and not the ***form***



Challenges

- Unobtrusive Accessibility
Features that support group processes are used relatively infrequently, requiring unobtrusive accessibility and integration with more heavily used features.

Track Changes

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Samantha Smith, 4/8/04 11:22 AM:
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2

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Samantha Smith 4/8/04 11:08 AM



Deleted: consectetuer

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Samantha Smith 4/8/04 11:14 AM





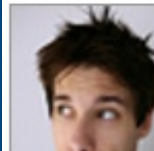
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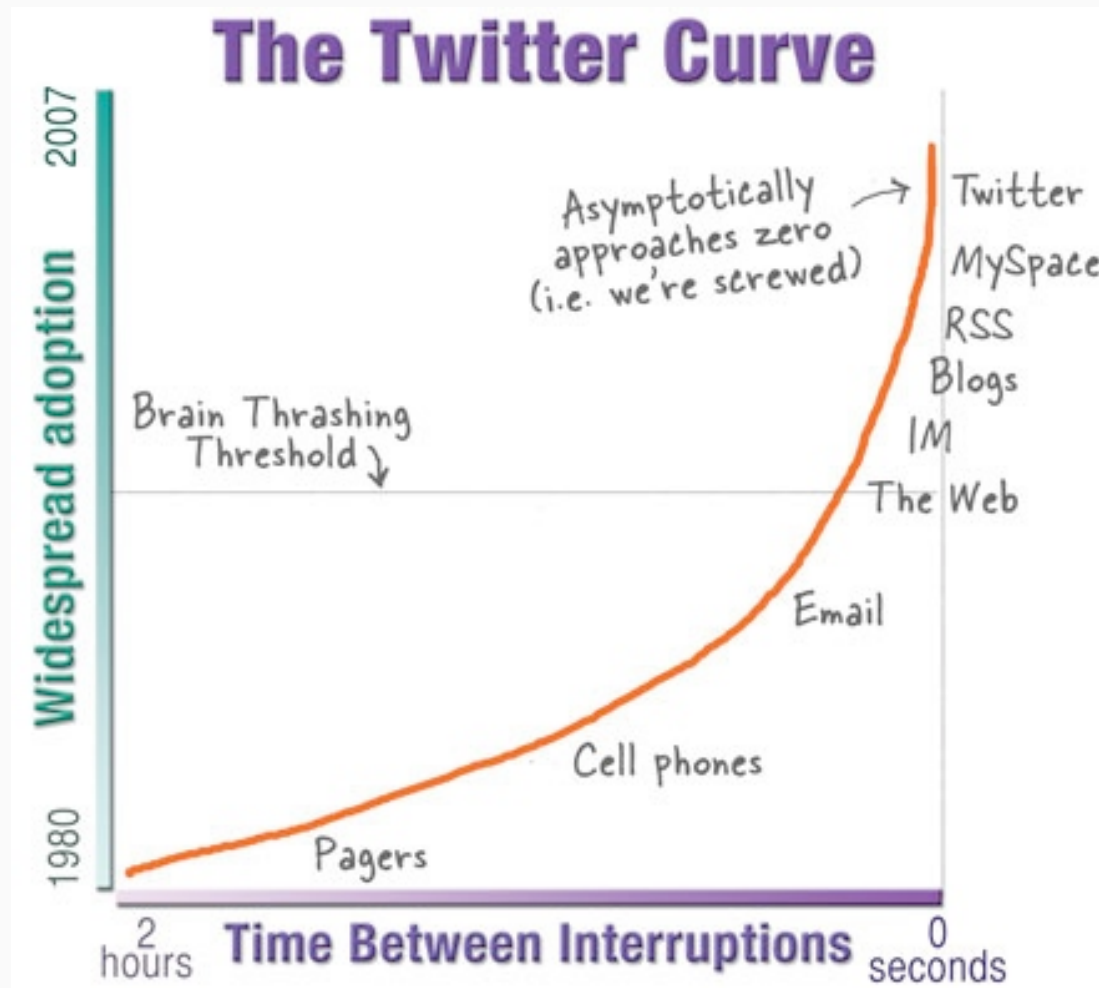
molestie consequat, vel

3

Lower tech solutions: Text based, manual awareness displays

 <p>hardillb</p> <p>listening to roo's presentation http://v half a minute ago from web</p> <p>working from home about 5 hours ago</p> <p>@kellypuffs: aye, up norf about 15</p> <p>up north about 16 hours ago from web</p> <p>Listening to the Radio 1 Establish</p> <p>wiundering if anybody if going to t web</p> <p>getting older 01:14 AM October 03, 2</p> <p>suffering from insomnia 12:21 AM C</p> <p>Back from the gym to find that dir September 30, 2007 from web</p> <p>Trying to write a c lib for audioScr publish it. 12:44 AM September 30, 2</p>	 <p>Stimpdawg</p> <p>off to work now..... 1 minute ago from web</p> <p>off to work now..... hope it's not to</p> <p>what the hell... usb controller bar</p> <p>wondering if Ivan made it safely...</p> <p>great... can't find my glasses 11 n</p> <p>going to hop in the shower..... 28</p> <p>laptop is slow.. I'm going to look a</p> <p>jeez why can't Hotmail Popper be</p> <p>ok maybe it's just the slow interne</p> <p>the internet hates me 39 minutes a</p> <p>I should really defrag my compute</p> <p>for once I'm up early... I have a h</p> <p>oh no.. stomach is hurting.. sigh</p> <p>ahhh hotmail is so slow about 1 ho</p>	 <p>jyunderwood</p> <p>going to watch Stars vs Bruins tonight at 7:30 p.m. 4 minutes ago from web</p> <p>With Others Previous</p> <p>being audited at work. boo. about 21 hours ago from web</p> <p>deciding... Tomorrow: Physics exam or Stars vs Avalanche... Tricky. 06:46 PM October 02, 2007 from web</p> <p>listening to "Exodus Honey" by Honeycut. You should too. Really. 05:57 PM October 01, 2007 from web</p> <p>in need of a light trim. 09:41 AM October 01, 2007 from web</p> <p>trying to focus long enough on studying to say I actually did some. 06:49 PM September 30, 2007 from web</p> <p>new glasses today, yay. 10:32 AM September 21, 2007 from web</p> <p>crawling under my desk and hiding from all the crazy customers at work. 11:44 AM September 21, 2007 from web</p>
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Raises it own problems



NYTimes on Social Software



- This is the paradox of ambient awareness. Each little update — each individual bit of social information — is insignificant on its own, even supremely mundane. But taken together, over time, the little snippets coalesce into a surprisingly sophisticated portrait of your friends' and family members' lives, like thousands of dots making a pointillist painting.
- “Brave New World of Digital Intimacy” by Clive Thompson

Some fundamental shifts are occurring in practice

- Highly distributed work groups have been successful by not striving for the collocation ideal
 - Wikipedia,
 - > 500,000 successful articles
 - Each written by 10s - 1000s of editors & large time periods
 - Coordination via the malleable & revertible artifact
 - Coordination thru text linked to the artifact
 - Open source software
 - Highly distributed teams
 - Task decomposition
 - Database driven production, with formalization to reduce the need for direct interpersonal communication
- Maybe the comparison with collocated work is fundamentally misleading



About this project

These are some of the real ballots that have been challenged in the U.S. Senate race. Evaluate each one based on the voter's intent.

- Under Minnesota law a ballot must be counted if it is possible to determine intent - even if the voter failed to follow instructions. [Learn more.](#)
- Ballots are not counted if two candidates are marked (with no attempt to strike one of them) or if there's any mark on the ballot that would identify the voter.

As you vote, the results change to reflect your decisions — projected as if you had voted on every challenged ballot. We've built in a margin of error (+/-), so the more ballots you evaluate, the more precise the numbers get. [Learn more.](#)

[Close](#)

The Ballot Challenge [Log in](#) to vote on 6700 ballots

	Resolved challenges			Remaining challenges	Projected vote totals *			
	Coleman	Franken	Other/no one		Coleman	Franken	Margin	Error
Current recount totals	0	0	0	5,421	1,212,317	1,212,629	Franken by 312	
Your choices	0	0	0	5,421				
Everyone	2980	3246	510	0	1,211,915	1,211,993	Franken by 78	
Ask your friends to take the StarTribune.com Ballot Challenge								

 [Can't see the issue? Click to see the full-size ballot and reason for the challenge.](#)

<input type="radio"/>	BOB BARR AND WAYNE A. ROOT Libertarian	and fish, game, and wildlife h preserve our arts and cultural support our parks and trails; a
<input type="radio"/>	CHUCK BALDWIN AND DARRELL CASTLE Constitution	enhance, and restore our lake streams, and groundwater by sales and use tax rate beginn
<input type="radio"/>	write-in, if any	2009, by three-eighths of one taxable sales until the year 20
<input type="radio"/>	UNITED STATES SENATOR VOTE FOR ONE	<input type="radio"/> YES
<input checked="" type="radio"/>	DEAN BARKLEY	<input checked="" type="radio"/> NO



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SENATE
RECOUNT



Complete Star Tribune coverage of the [Senate recount](#), including the latest on missing ballots, the ballot challenges and rejected absentee ballots.

You must be logged in to vote

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[Next ballot](#)

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If you're retired or have taken money out of a retirement account, we'll help you enter the income you've received from:

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- IRA and pension distributions (Form 1099-R) [More Info](#)

[What paperwork do I need?](#)



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Spacing Lists

12 13 14 15 16

qtwu1.turbotaxonline.intuit.com Open Notebook Now: Hyv.thundstr... 48° F Tue: 55° F Wed: 59° F

Wisdom of the Crowds (Surowiecki)

- Aggregate groups of people can be really smart / effective...
 - At predicting the future (prediction markets)
 - At solving tough problems (InnoCentive)
 - At causing / creating change
 - At collecting / filtering info (Digg, Delicious)
 - At democratizing production (crowdsourcing)