

The Future of Work: Insights for CSCW

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July 2018

Future of Work Workshop, July 5th

- CSCW and the Future of work (Peggy, 25-30 m)
- *Break 1 (10 m)*
- “Workforce transitions in a time of automation”, Ying Wang (15 m)
- "The future of work and work-life balance 2025", Andreas Koenzen (15m)
- "Organizational Behaviour", by Matti Laine Farrell (10 m)
- *Break 2 (10 m)*
- Small group activity: Your predictions on how CSCW may impact the future of work (introduced and chaired by Jon Grandfield and Kira Elise Tilcock)
 - How far into the future is up to you (but be clear)
 - Refer to blog posts from this week for ideas!
 - Report back to the group as a whole – < 3 mins we may use futurework-prediction for discussion

Future of Work: Insights for CSCW

<https://ieeexplore.ieee.org/document/8066668/>

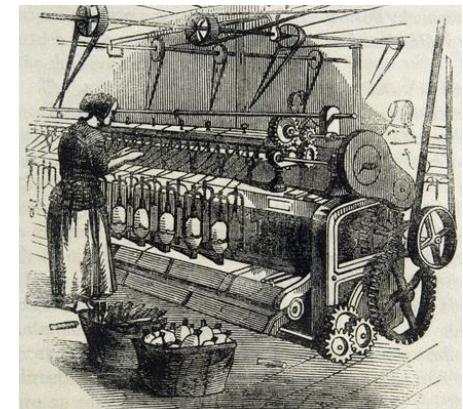
Productivity Paradox

(Landauer, Trouble with Computers, 1996)

- Phase 1 applications replace or automate actions done by humans
- Phase 2 applications help humans think
- *Phase 3 applications help humans collaborate?* (my addition!)
- Successes: word processors, spreadsheets, accounting systems, ATMs, airline registration systems
- Failures: US Patent Office, government systems, health care systems

Automation of tasks

- Moderately repetitive and/or predictable tasks executed by intellectual and skilled workers
- Roomba
- Continuous integration in software
- Robots as care givers
- Expert radiology advice
- Self driving cars
- E-discovery
- (which of these involve thinking, collaboration?)



“Humans need not apply”

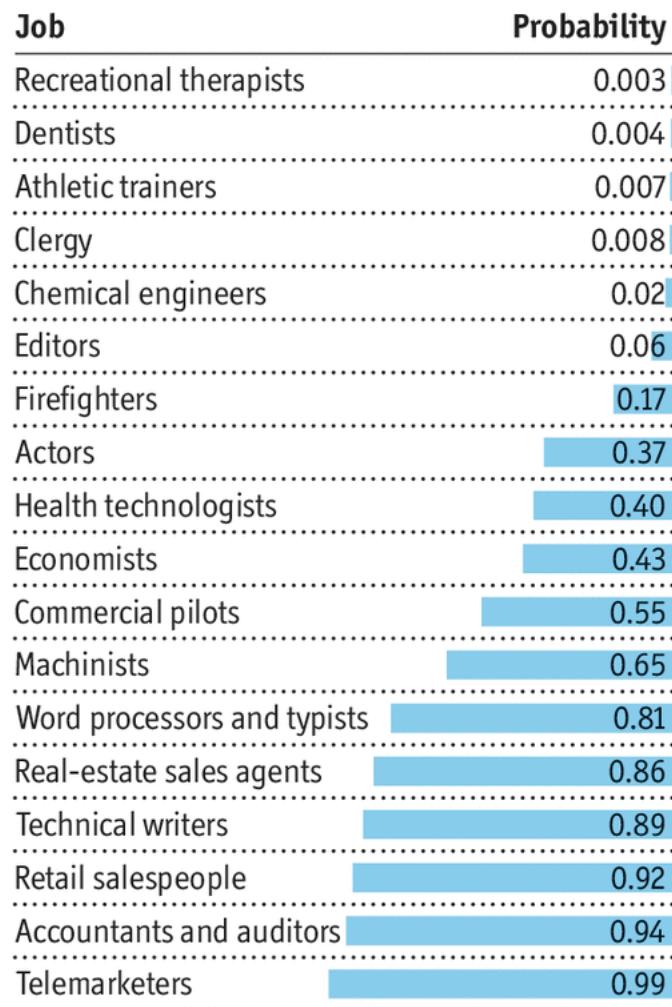
Killer robots or job displacement?

- Two views! **Pessimist** view (techies) versus **Optimist** view (economists, historians)
- Will higher skilled people be required (increase in knowledge workers)?
Will lower skilled jobs be replaced?
- More self employment? More mobile work?

<https://venturebeat.com/2017/07/25/ai-expert-worry-more-about-jobs-than-killer-robots/>

Catalogue of fears

Probability of computerisation of different occupations, 2013
(1 = certain)



Source: "The Future of Employment: How Susceptible are Jobs to Computerisation?", by C. Frey and M. Osborne (2013)

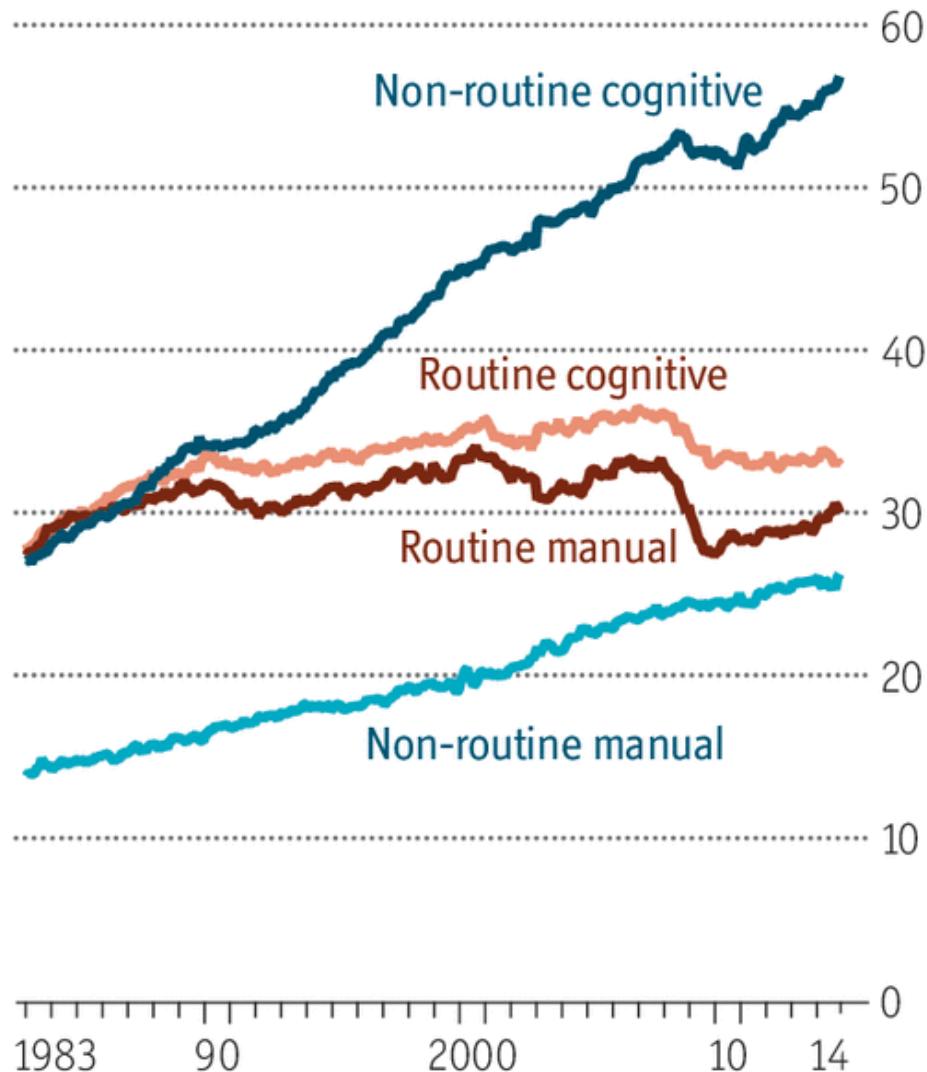
Economist.com

- Historically, similar fears with banktellers...
- Reduced the need, but led to an increase in local bank branches
- Work mix was changed (less routine work)

<https://www.economist.com/special-report/2016/06/25/automation-and-anxiety>

Think

United States employment, by type of work, m



Manual tasks and non-routine cognitive tasks go up, while middle jobs go down (hour glass effect)

Sources: US Population Survey; Federal Reserve Bank of St. Louis

<https://www.economist.com/special-report/2016/06/25/automation-and-anxiety>

Impossible to predict the jobs in the far future...

- If we think back 20 years ago, could we have predicted:
 - Video game designers?
 - Fake reviewers?
 - Dialog writers for chatbots?
- But if we only consider the near future – can we predict new roles or changes in work?

Social Trends cont.

- More “participatory” between stakeholders (reduced barriers)
- Peer production
- Global production
- Productivity paradox today – early benefits are spent on future developments perhaps?
- Some of things lead to more free time in the future (Andreas to discuss this!)

Socio-economic challenges

- The competition for talent from large companies
- Issues of branding and information ownership, copyright
- Shift in balance between outsourced workers and local workers (the dark side of agile)
- Privacy of workers (productivity measures)
- Lack of worker contracts (micro tasks)
- Will voluntary work increase and if so how?

Work and organizational trends

- Workplace and working time shifts (“dark side of agile”)
 - A return to pre industrial revolution of working at home
 - No set hours to work, no set hours for time off
 - More **autonomy** at work, or smaller more boring tasks that don’t require coordination?
 - Work time as units of production?
- A move from work contracts with companies, to **guilds** (associated with their skills, e.g., white hat hackers)

Training/skills changes

- Training to new jobs over time (need better educational methods, use AI?)
- Social trend: later retirements, longer life expectancy, how will this impact jobs?
- (Ying will discuss this more!)

Beyond Disruption

https://datasociety.net/wp-content/uploads/2018/06/Data_Society_Beyond_Disruption_FINAL.pdf

Beyond Disruption

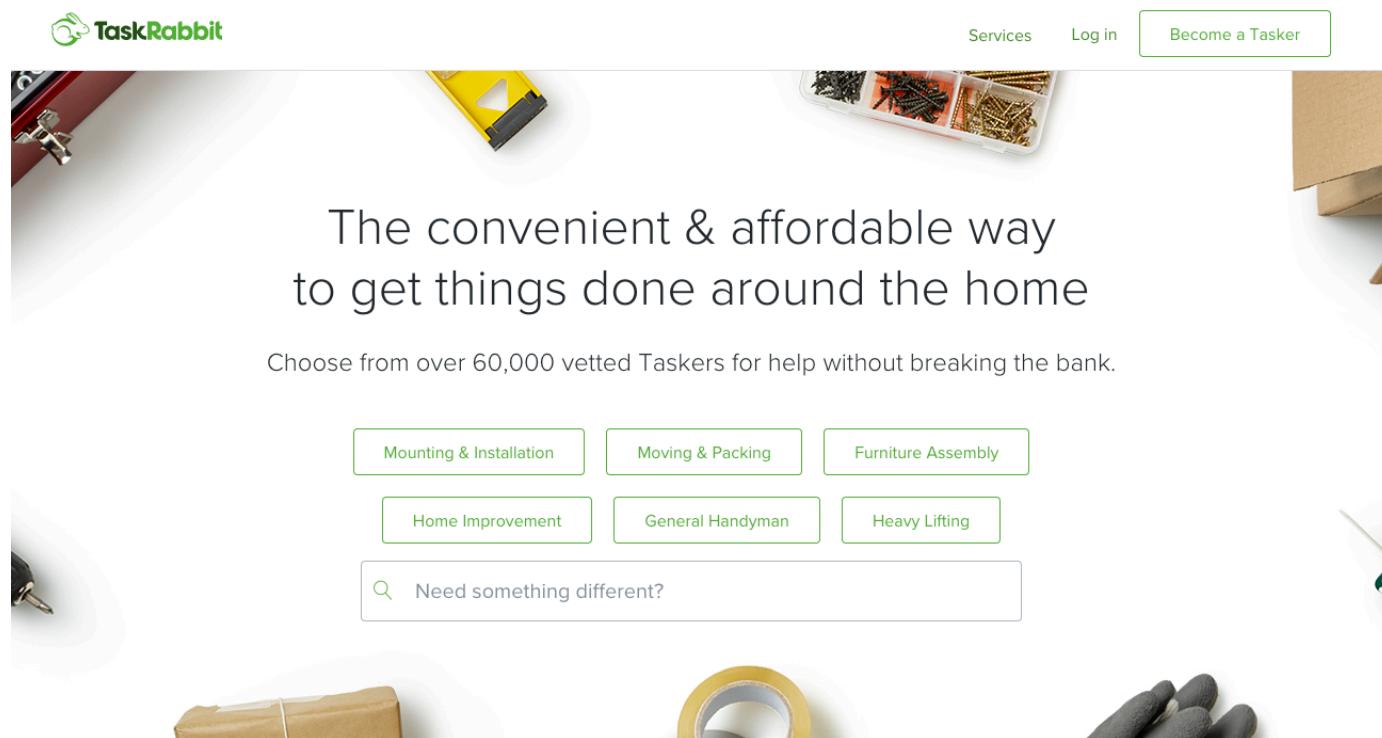
- Innovative labour platforms (“Uberization” and the “gig economy”) -- how they mediate work but may shift the rules of the game <https://hbr.org/2018/03/thriving-in-the-gig-economy>
- Cabs, carework, cleaning servies...
- Place, Routines, Purpose, People (avoiding the “loneliness epidemic”), Redefining success
- Who is advantaged, who is disadvantaged?
- How to navigate individual and collective work?
- Different professional norms and historical legacies of work can lead to divergent experiences with similar technologies!

On-Demand versus Marketplace Platforms

- Share features such as measuring worker performance through ratings and reviews, penalizing workers through deactivation, and channeling communication through in-app systems.
- But intervene differently in the relationships between workers and clients:
 - **On-demand platforms** (e.g., Uber) indirectly manages the entire labor process – from hiring, dispatching to clients, payment, and surveillance of services provided
 - **Marketplace platforms** (e.g., Care.com) primarily target the hiring process through sorting, ranking, and rendering visible large pools of workers.
 - Several platforms (like TaskRabbit) combine elements of both types

Home tasks work

- TaskRabbit (acquired by Ikea!)
- Amazon home services (Amazon)



Not so obvious differences!

- **Marketplace platforms** incentivize workers to invest heavily in self-branding and disadvantage workers without competitive new media skills
- **On-demand platforms** create challenges for workers by offloading inefficiencies and hidden costs directly onto workers.

Issues to consider!

- Gender
- Race, ethnicity, and nationality
- Labor brokers (agencies)
- Market conditions

Platforms like Uber also deploy extensive regimes of surveillance, tracking, and coordination in ways that go beyond neutral mediation; they shape the experience of work itself.

https://datasociety.net/wp-content/uploads/2018/06/Data_Society_Beyond_Disruption_FINAL.pdf

Table: On-demand, Marketplace, and Hybrid Platforms

	On-demand	Marketplace	Hybrid
What are some examples of these platforms?	Uber, Lyft, Gett, Via, Juno, Postmates, Instacart, Caviar	Care.com, UrbanSitter, SitterCity, CareLinx, Thumbtack, Fiverr	Handy, TaskRabbit, Hux, Maids, Chime, Hello Sitter
How do workers get jobs?	Workers are "on-call" when logged in to the app; they can receive one service request at a time, which they can accept or reject	Worker profiles or job listings are searchable by criteria such as zip code or service type; users are responsible for applying to jobs or placing service requests	Typically, workers can select from a list of available nearby gigs in advance; on some apps, clients book workers based on their reported scheduling availability
How are workers' performances measured by platforms?	Ratings; reviews; acceptance/cancellation rates; work performance metrics through smartphone data, such as geolocation	Ratings; reviews; typically, metrics based on user account activity, such as on-platform message response rates	Ratings; reviews; wide range of metrics, including work performance and other data such as number of gigs worked
How are workers penalized?	Profile deactivation (e.g. for low rating average or violating Terms of Use); temporary suspension; low ratings	Profile deactivation (for violating Terms of Use, but not for low rating average); temporary suspension; low ratings	Profile deactivation; temporary suspension; penalty fees
How are pay rates determined?	Rates are set by platform companies; typically, fares are dynamically priced based on multiple fluctuating variables chosen by the platform	Workers and/or clients set rates; workers and clients can list a desired hourly range in profile; platforms provide suggested rates based on local averages, but pay rate is negotiated between clients and workers	Varies; on some platforms, pay rate is determined by workers' rating average and other performance metrics; on others, workers set their own rates (minus platform commission)
How do workers communicate with clients?	Workers typically can text or call passengers via anonymized phone numbers	Users are encouraged to use on-platform messaging/calling features; private phone numbers and email addresses are censored in in-app messaging	Workers can only contact clients via in-app messaging prior to booking; workers are penalized for taking communications off-platform

While platforms provide some forms of protection, their incentives and policies force workers to walk a tightrope between their maintaining their dignity, building their reputation, and receiving fair payment for their work.

It is naive, going forward, to assume that technology can flatten entrenched inequalities through standardization and scale.

Crowdsourcing (deep dive)

- Taking work normally done by an individual by outsourcing to an undefined potentially very large group of people
- Term was coined in a 2006 Wired article:
<https://www.wired.com/2006/06/crowds/>
- Fueled by “Web 2.0”?

Suggestions for crowdsourcing

- Be focused
- Get your filters right
- Tap the right crowds
- Build community into social networks
- Paid versus not?

<https://www.slideshare.net/larboz/crowdsourcing-2704821>

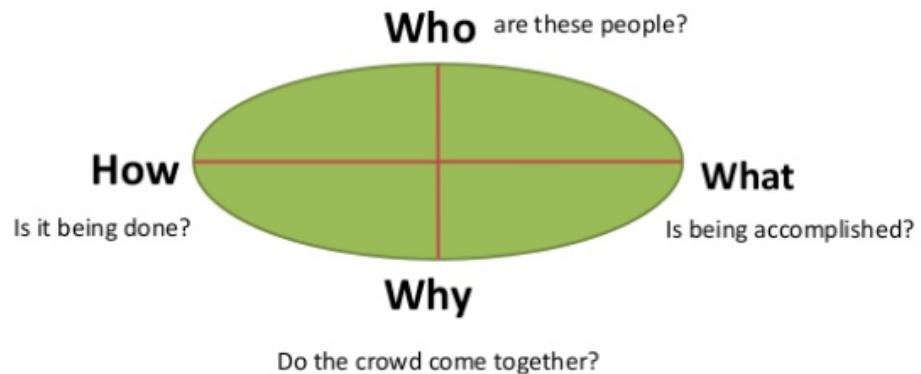
Not just about gathering the flock!

- Who are the connectors, salesmen, the mavens?
- Why do people come together? Rewards, autonomy



Essentials in crowdsourcing

- Tasks and individual contributions are essential to identify...
- But what are group tasks?
- Do's and don'ts.



Crowdsourcing examples...

(do you agree?)

- Open source (Linux)
- Stackoverflow (documentation)
- Wikipedia
- Rent a coder
- Amazon Mechanical Turk
- Product voting (Threadless)
- Netflix prize...
- Kaggle
- Classifying the entire universe
- Gather ideas for creating a new car (e.g., Fiat Mio)
- Shaping the future of Starbucks

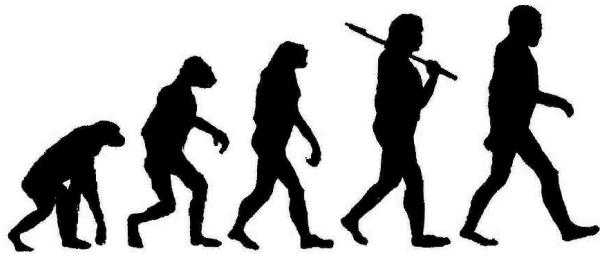
Crowdsourcing complex tasks

- But many don't see Wikipedia, Yahoo answers etc as "crowdsourcing" !
- Human computation is more focused around Mechanical Turk and micro tasks

What is the best category for this color?



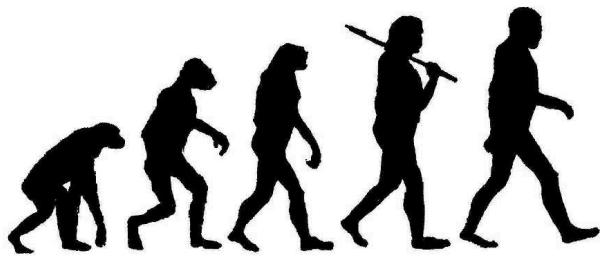
Category	Best?
Aqua	<input type="checkbox"/>
Greenish	<input checked="" type="checkbox"/>
Lime	<input type="checkbox"/>
Pastel	<input type="checkbox"/>



Collective Intelligence



**1906: 787 aggregated votes averaged 1197 lbs.
Actual answer: 1198 lbs.**



Collective Intelligence

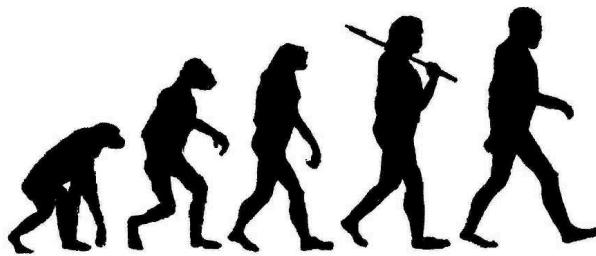
Principles:

- Small tasks
- Intuitive tasks
- Independent answers
- Simple aggregation

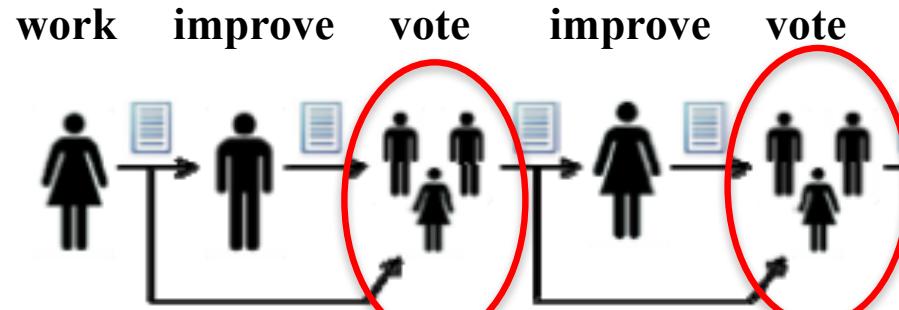
Application:

- ESP Game





Iterative Workflows

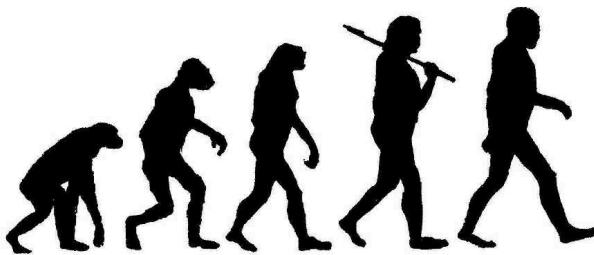


Collective Intelligence

You misspelled several words. Also you have some punctuation mistakes which I also notice a few grammatical mistakes. Overall your writing style is a bit too flowery. You do make some good points, but they got lost amidst the writing.

"You (misspelled) (several) (words). Please spellcheck your work next time. I also notice a few grammatical mistakes. Overall your writing style is a bit too **phoney**. You do make some good (points), but they **got** lost amidst the **(writing)**. **(signature)**"

According to our ground truth, the highlighted words should be "flowery", "get", "verbiage" and "B-" respectively.



Iterative Workflows

version 1:

You (?) (?) (?) (work). (?) (?) (?) work (not) (time). I (?) (?) a few grammatical mistakes. Overall your writing style is a bit too (phoney). You do (?) have good (points), but they got lost amidst the (writing). (signature)

version 4:

You (misspelled) (several) (words). (?) (?) (?) work next (time). I also notice a few grammatical mistakes. ...

version 5:

You (misspelled) (several) (words). (Plan?) (spellcheck) (your) work next time. I also notice a few grammatical mistakes. Overall your writing style is a bit too phoney. You do make some good (points), but they got lost amidst the (writing). (signature)

version 6:

You (misspelled) (several) (words). Please spellcheck your work next time. I also notice a few grammatical mistakes. Overall your writing style is a bit too phoney. You do make some good (points), but they got lost amidst the (writing). (signature)



Principles:

- Use fresh eyes
- Vote to ensure improvement

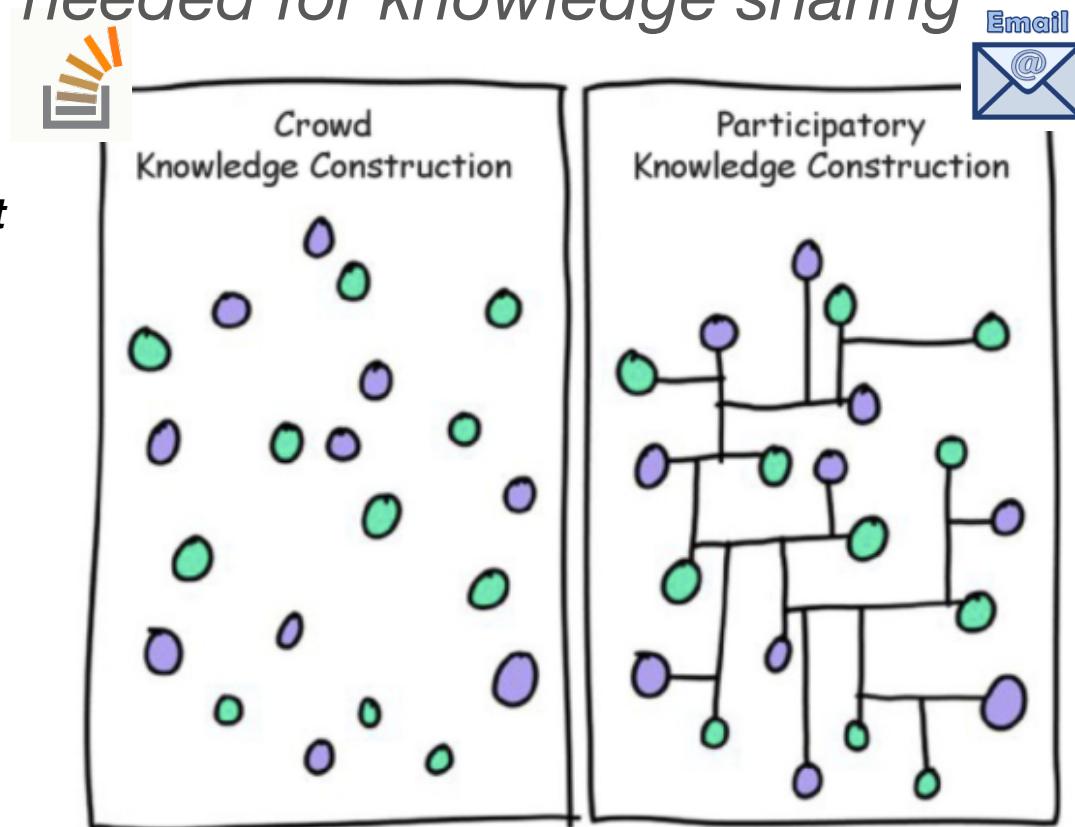
Application:

- Bug finding

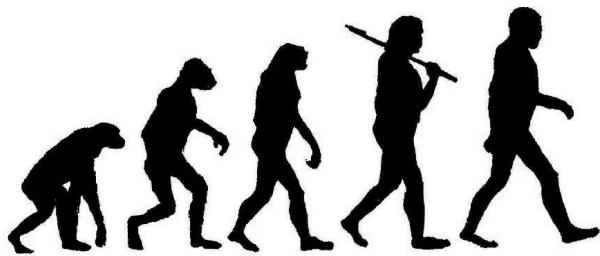
*“given enough eyeballs,
all bugs are shallow”*

Studying the R community – why email and Stack Overflow are both needed for knowledge sharing

**"The best way to get the right answer on the Internet is not to ask a question, it's to post the wrong answer",
Ward Cunningham**



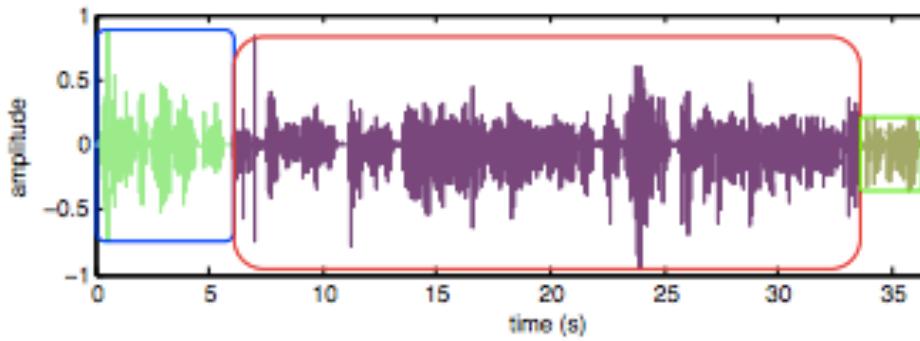
[How the R community creates and curates knowledge: an extended study of stack overflow and mailing lists](#)
A Zagalsky, DM German, MA Storey, CG Teshima, G Poo-Caamaño, Empirical Software Engineering 2017, 1-34



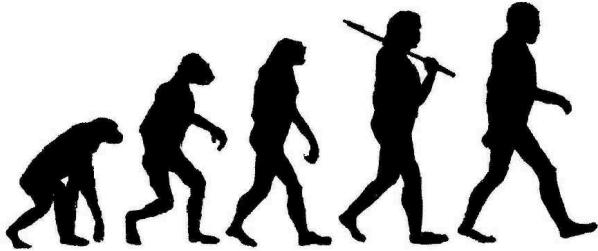
Task Decomposition

Legion:Scribe Real Time Audio Captioning on MTurk

- W1:** So now suppose that we have a crystal that has a two-fold axis in such a way that the motif is
- W2:** So now suppose that we have a crystal that has a two-fold axis in such a way that the motif is
- W3:** So now suppose that we have a crystal that has a two-fold axis in such a way that the motif is



A screenshot of a web browser window titled "Audio Transcription". The URL bar shows "scribe/?coverage=fixed". The main content area contains instructions: "type the words that you hear as quickly as possible" and "type complete phrases then press ENTER". Below these are two lines of text: "+800 +400+400 +400 +400 +400+400" and "electrodes on the crystal before and after". To the right, a sidebar displays "You have earned: 1.00 USD" and a large bolded "27663" with the note "(depending on quality check)". At the bottom, there is a text input field containing "so suppose we have a cryst" and a pink button below it with the text "double points for what you hear now".

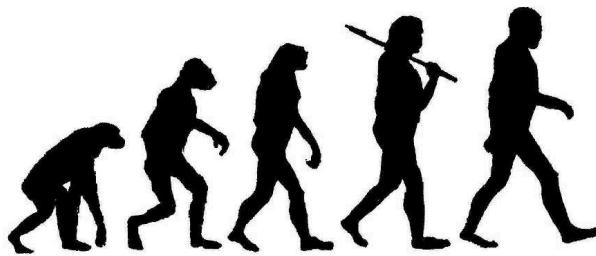


Task Decomposition

- W1:** So now suppose that we have a crystal that has a two-fold axis in such a way that the motif is
- W2:** So now suppose that we have a crystal that has a two-fold axis in such a way that the motif is
- W3:** So now suppose that we have a crystal that has a two-fold axis in such a way that the motif is

Principles:

- Must be able to break apart tasks AND put them back together.
- Complex aggregation
- Hint: Solve backwards. Find what people can do, and build up from there.



Worker Choice

Mobi: Trip Planning on Mturk with an open UI.

visiting harvard in the summer [reveal mission details](#) [what you can do to help](#) [confused? check out the tutorial](#)

Our brainstream

- #campus tour sites #shopping #lunch #non-touristy #todo #activity #note
- Search or add an idea, or click on one below [Add](#)
- Check out the Boathouse**
Classic Harvard
[#Activity](#) [#campus tour sites](#)
- Shop at Berk's Clothing and Shoes**
Clothing and Shoe Store
[#Activity](#) [#shopping](#)
- Shop at the Harvard Student Agencies**
shop
[#Activity](#) [#shopping](#)
- greenhouse cafe**
eat yummy snack food such as amazing garlic knots!
[#Activity](#) [#non-touristy](#)
- Explore Harvard Yard**
[#Activity](#) [#campus tour sites](#)
- mobi admin: shopping requirement reduced**
Good point -- 2 hours is too long of a requirement for shopping.
The requirement is now only 1 hour. [...]
[#note](#) [#shopping](#)
- Too much required shopping time**
Not all tourists want to spend such a large percentage of their trip shopping. I can't fit museums [...]
[#note](#) [#shopping](#)
- Visit Cambridge Commons**
Cambridge Commons
[#Activity](#) [#non-touristy](#)

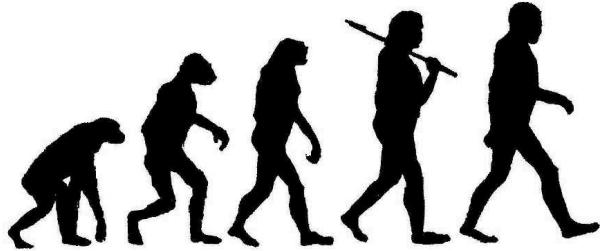
Map

Trip time: 6 hours and 58 minutes

Itinerary [drag activities to reorder, click to edit](#)

● arrive at MBTA-HARVARD	(9:30am)
■ Explore Harvard Yard	(9:32am-9:47am)
■ Take pictures with the John Harvard Statue	(9:47am-10:02am)
■ Visit Memorial Church and Widener Library	(10:05am-10:10am)
■ See Annenberg	(10:15am-10:20am)
■ Visit the Science Center	(10:26am-10:41am)
■ greenhouse cafe	(10:44am-10:54am)
■ Visit the Museum of Natural History	(10:57am-12:12pm)
■ get a sandwich at Darwin's	(12:24pm-12:24pm)
■ Walk along the Charles River	(1:32pm-2:17pm)
■ Check out the Boathouse	(2:17pm-2:32pm)
■ Get Bubble Tea at the Boston Tea Stop	(2:36pm-2:41pm)
■ Shop at Berk's Clothing and Shoes	(2:41pm-3:11pm)
■ shop at Urban Outfitters bargain basement	(3:12pm-3:42pm)
■ buy harvard stuff at coop	(3:43pm-4:28pm)
● arrive at MBTA-HARVARD	(4:28pm)

If you are experiencing problems, please [contact us](#).



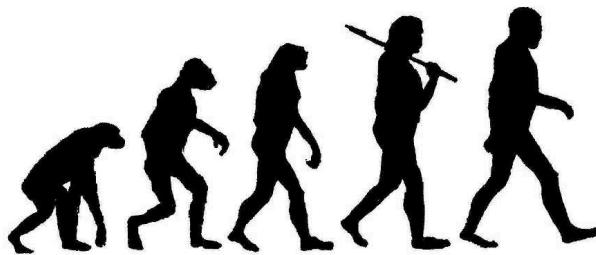
Worker Choice

Applications:

- Trip planning
- Conference time table
- Conference session-making

Principles:

- Giving workers freedom relieves requesters' burden of task decomposition.
- Workers feel more involved and empowered.
- BUT complex interface that is difficult to scale.



Learning and Doing

A horizontal progress bar consisting of a green track with a grey slider, indicating completion of a task.

 Tips and notes

 Four small, light-grey heart-shaped icons arranged horizontally.

Enter a German word that describes these images

 Hint: It's the translation of *the child*



das

kind

Check

Continue



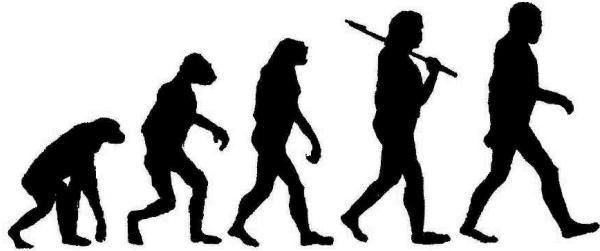
Woot, you are almost correct.

Correct solution:

- das Kind

 All nouns are capitalized in German.

Report a Problem ▾



Learning and Doing

Applications:

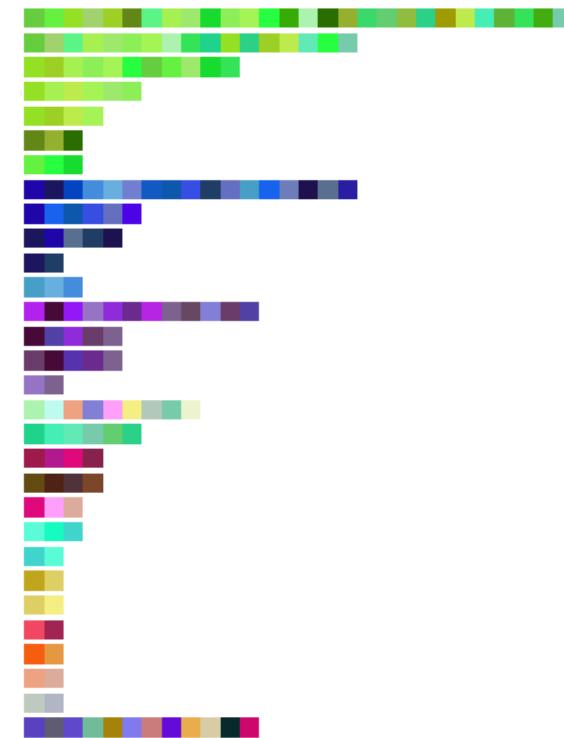
- Peer assessment
- Do grading assignments before you do your own assignment
- Task Feedback

Principles:

- Teaching workers makes them better.
- How long will they stay?

Cascade

Crowdsourcing Taxonomy Creation



**Lydia Chilton (UW), Greg Little (oDesk), Darren Edge (MSR Asia),
Dan Weld (UW), James Landay (UW)**

well, housekey, phone & charger? That's my checklist when I leave the way on the go. Anything else is an extra item! I figure I can get a lot of what I need. You could buy a new phone there but this is not the time to do that. If you have a car, you can always get a driving test in 30 days. If you take the bus, make sure you're right with your checklist. Did you forget your charger, case, the hotel, usually have a sleeve full of frequent flier charges behind the front desk and you take your check.

I popular among frequent flyers, but I used the Bose noise-cancelling headphones because they're big and the travel case makes them even bigger. I also have a pair of noise-cancelling headphones as well. The pair I got from Sennheiser (the value's like \$100+) don't fit. Slip your pocket and travel light. Use a pair from Shure and they fit in with a helmet feature is worth the slight price premium. People may make a study bag that strong enough you can sit on it or sit on a e-board-waiting and with zippers that rarely break. And when the day is over - replacement is expensive.

A tall or otherwise picky about airplane seats, use seatguru.com to tandem the layout of your flight. Seatguru will warn you about discomfort under the seat in front, if you cold-seat, or seats with a lot of traffic.

My wife, I want to "always" go for a better price or a free upgrade in flight. We've been to a 5-star 5,000+ night hotel with no room upgrade stemming just off at Moab Mountain in Utah (isn't amazing, check back) for less than \$300 a night because who they checked in and said "sure" when asked for a better upgrade. If they say "no," And you'll be surprised how often they're negotiable (I was).
I might add that sleeping all night in a car is actually of itself. I have never slept in a parking garage. I have never had a problem with the air quality. I have never had a problem with the weather. I have never had a problem with the noise. I have never had a problem with the smell. I have never had a problem with the taste. I have never had a problem with the drink. I have never had a problem with the drink. You'd be despaired enough when you land without any alcohol or any other desire. I avoid caffeine for the reason.

of this question. See When is the best time during the week to buy an airline ticket?

On flights from abroad to New York Airport, I like to reserve seats on the port side, so that I can see Manhattan as I land.

Packing

I've been using the packing method to save space to great effect.
<http://www.homesense.com/2010/02/>...

In the Airport

Observe the flight crews. They know which meal(s) to get on fastest. Cut. They knew which of the plates in an airport is worth eating at.

When going through airport security, avoid lines that contain people who like they don't travel often. E.g. children, senior citizens, holiday makers, organized groups. Or to borrow a line from Up in the Air: "I'm not a customer." ...

Ryan Bingham [on getting through airport security] "I have these bodies are literally hidden behind and they're never gonna see the face of...Bingo. They pack light, have a short list of things, and take care of me."

Natalie Keener "That's racist."

Ryan Bingham "I am my mother. I stereotype. It's how

Can't always feel the need to use the "elite" frequent flier card. Sometimes the regular is a better choice. Between the two is a decision. Some airports, like Newark, post more points for regular line, thus increasing its effectiveness. Also feel the need to use all elite services, even if it works against that trip.

When going through security, stuff my wallet, keys, backpack before placing it on the conveyor belt. The separator will flip it over.

At Best Buy I saw someone in one case who classed us

per year, spending a day or two in each city. I have been to all of them, and I am more than halfway through the list. Here's what I've learned:

- **Not all cities are created equal.** If you're staying for more than a couple of days, it's best to stay in a city where there are lots of things to do. You don't want to get bored and restless. In addition, I found it much easier to travel and explore for a month or around \$600 total. In addition to being cheaper, the hotels tend to experience more life than the place you're staying in.
- **Always pack light.** You never know what kind of weather you'll encounter, so it's best to pack light. You can always buy clothes when you arrive. In Germany, for example, it's hard to find decent-looking clothing, so you might end up buying some online or in local markets. Two experiences that wouldn't have happened as a pure tourist.
- **If people are nice, they're probably German.** Germans are the friendliest people I've ever met. They are always willing to help, even if you don't speak their language. You can always go to a nearby bar or restaurant and ask for directions. They are also very open to new experiences, so if you're looking for something to do, just ask around and see what people are up to. People who enjoy a place or get uncomfortable by not checking off items are more likely to leave without.

1000 e

50 top

100 ep

The MET (Vienna) (<http://www.metrecruit.com>) is a great big, legal database that you can download over the web, and it converts the file into a database.

- Get a cool card out with all your personal information on it.
- If you're planning to use a ATM, make sure you know what ATM's where you're going. ATM's in some countries won't handle PIN's that have more than 4 digits.
- The Kindle app or iPhone or iPod touch lets you carry several travel guides onto your pocket.
- If you find many books uncomfortable to do, see if there's pocket book stores. Any bookstore store will sell pre-made pocket books, and your stretching down the aisle will be a thing of the past.

Take a road trip to the winter. Hotels everywhere you go...except for some resort...will have plenty of places and they'll be charged their lowest rates.

- Another reading tip: You can download the Kindle e-reader app to your laptop and it'll be the same viewing. (I don't know when it'll be staying up there though.) It's a great way to read while you're traveling, and it's checked in at two thousand dollars. You get the hundred of e-books with the reduced price of licensing where you're headed once you arrive.

- For parking the truck in BIT, buy a *base*. Pack the minivan and need it to get somewhere? Buy a *base*. Often I anything, but making that part of my tippling plan helps a lot.
- Passport, insurance, passes & charge. That's the house on the way to a flight. Anything else is a non-take care of *heat* get there. You'll have a new phone is such an *oops*-button item. Could want it on your belt or in your pocket. It's a \$30 wall vault. You take heat head to add that to your checklist. *DO NOT* forget your passport. They usually have a checklist of forgotten changes will let you know what you forgot.
- They're popular among frequent fliers, but I avoid the hoodie because they're too big (and the travel case bigger). You can get a pair of non-ironing clothing good, half the cost, and 15% off the volume that's yours in your pocket and travel light. I use a pair from

man you think you'll never get up buying me the relax and pack

checkbox when I am at item I figure you could charge this but this checkbox test you had to pay for my flight you might want to change this so the hotel checkbox front desk and

checkbox makes them aware that are just as important as we are in "on", not off. Slip away and they fine me in case anyone

Andy Cheung, Jason Bourne got nothing on me
Andy Cheung, Jason Bourne got nothing on me. I'm the best time manager. [Read more](#)

Other rewarding your ticket

There's a whole dark side to getting your ticket of this question. See when is the best time during online?

On Rights from abroad into Newark Airport, I like the cabin, so that I can see Manhattan as I land.

Packing

I've been using this packing method to save space [http://www.nytimes.com/2010/05/06/...](#)

In the Airport

Observe the flight crews. They know which more. This time when the plane comes as a result

- Eat it before baking what it is
- Learn the language of food and better taste
- Eat more raw vegetables and new ones to keep your body healthy and give you energy. Also, learn to say "Yum, Yum." That way is very useful the whole world over.
- Rent local items! If you staying for a long time, rent local items to save. I lived in a decent hotel room and utilized. In Japan, I rented a room in a local guest house. It was a great experience to experience many of the rituals of life as they stay with like German friends made of chopping wood, German bread and beer, and many other things that have been passed down through generations.
- Also, if you're backpacking try to make sure you stay with like German friends made of chopping wood, German bread and beer, and many other things that have been passed down through generations.
- Find people already drinking. Organize and have drinks with. If you naturally do not drink, then go to a bar and have a beer. Buy a drink or return and join the new VIP.
- You can always rent a place if you have to, but don't do it.

If you can reasonably perceive
that your spouse has been unfaithful
in the past, the question when you huggle
"This too's high." "She's ane" and
you're about to leave them is "Hello, how are
you?"

After a couple weeks, find it's
about six months in Thailand for E&B
and you've got a traditional Cambodian
temple barbershop style room
with a few other guys in there, you
realize that you're not the only one
who's been caught.

Jeanne Hileman at Hotels that you
trust in Amsterdam resulted in
a nice room with a balcony and a
view of the canal. She was the most fun to sit down
with, it's easy to score free drinks
and she's a good conversationalist.

Wanting to plan a vacation can result in
a lot of stress. I'm not sure if it's the
travel or the planning, but I'm not
sure I'd like to do either again.

Everyone says "It's always been a day
when you can't find a place to stay."
But if you could just have a day where
you could book a place to stay,
you'd be better off.

The MEI (Vienna) has three nice rooms
but they're all at extremely high rates.
Get a card one week with no intention of traveling
offered once.

Planning to travel on an A&T card
for a week in Thailand, I was on a cruise
600 plus whoops a day. It was a come
on with 0 debt now but high debt.

The Kindle App on an iPhone or iPod touch
is great for reading books on the go.

For free money, write an unconfirmed check.
Any bank account will still be pre-arranged
doesn't need to be paid. And a zipper of course.

Take a road trip to the winter. Hotels are
usually less expensive in the winter
months, so you can get more bang for your buck.

For the same amount, I usually don't
book, but I've found some good deals
in an hour or two later. You get the
feeling of getting away from it all.

Photo: iStockphoto.com/Thane, June 4, 2010

2. Not liable for any information

It's not that I'm not interested in
traveling to the US to see what's up there.
It's just that I'm not that specific.
And hopefully someone
else will do the research for me.

Travel:

where The Fabulous Is (use a search engine)

3. Mean, Transport

It's not that I'm not interested in
traveling to the US to see what's up there.
It's just that I'm not that specific.
And hopefully someone
else will do the research for me.

Photo: iStockphoto.com/Thane, June 4, 2010

4. Walk, bicycle, phone & charge

1000 eGovernment suggestions
50 top product reviews
100 employee feedback comments
1000 answers to “Why did you decide to major in Computer Science?”

Ryan Bingham [on getting through airport security] Never get behind old people. Their bodies are littered with hidden metal and they never seem to appreciate little time they have left. Bingo, Asians. They pack light, travel efficiently, and have a thing for slip on shoes. Gotta love 'em.

Finally, I stayed at a swimming pool at Vail Mountain in Oct. 2008 [for \$81 the website] for less than \$300 a night because the lady who checked us in shrugged and said "sure" when we asked for a free upgrade. If they can do that, imagine what else they can do. And you'll be surprised how often things are negotiable.

- Passport, wallet, housekey, phone & charger. This is the house on the way to a flight. Anything else is take care of when I get there. You could buy a new one, but it's such an oft-forgotten item that you want it so you

On flights from abroad into Newark Airport, I

- **Rent local rooms.** If you're staying put, rent a local room or apartment. Food is a decent

- The IXL Voyager (ID: www.ixltravel.com) fits in an airplane overhead bin, and costs \$1,295.
- Get a credit card with no international transaction fees (see [1]).

anything, but making it a part of my planning helps me the next and pack. 

Passport, wallet, headphones, phone & charger. That's my checklist when I leave the house. It's the right thing. Anything else is a non-essential item. I can take care of it when I get there. You could buy a new phone/case there but this is such an often-logged item that you'd want a spot on your checklist lest you find yourself in \$30 wally. If you take a flight, maybe you might need to add that to your checklist. If you plan your phone usage, etc. the hotel will take care of it.

You already have a checklist full of forgotten changes before the hard desk and will let you take care of it.

• **Local**: I tend to bring one or two non-negotiating headphones because they fit so well into the travel case I make them out of paper. If you happen to fit a pair of travel headphones that are just as good, the price, and 10X the volume (that's claim in *bold*, not *italic*), do it. Slip them in your pocket and travel light. I use a pair from Shure and they're fine.

Luggage with a lifetime guarantee is worth the slight premium in price. Doggs

• **Entertainment**: Everyone says this, but it's always worth a reminder if you possibly can. You never know if your hotel has broadband. You may also meet someone who:

- **The Big Voyager** (<http://www.voyager.com>)
It's an app that makes travel better, and, conveniently, it's free.
- **Get a seatmate** or international travel partner
If you're planning to use ATM cards, ATMs where you'll print ATM slips in some countries will cut it off have no rights.
- **The Kindle app** or **Promo/Pouch** (<http://www.promopouch.com>)
You'll find many flight fees unconstitutional, especially in Europe. Any airline that will set up your flight for you doesn't need to pay. Add it to your trip.
- **Take a road trip in the winter**. Hotels everywhere

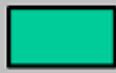
Solution

Propose, Vote, Test

1. Workers have good heuristics.
2. Let them propose categories.
3. Vote on categories to weed out bad ones.
4. Test the heuristics by verifying it on data.

Propose

What category do you suggest for this color?



Greenish

Vote

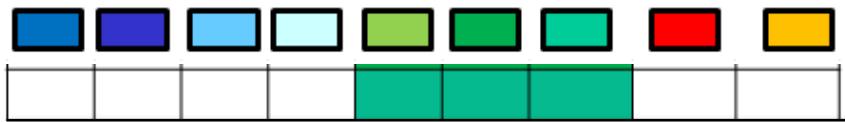
What is the best category for this color?



Category	Best?
Aqua	<input type="checkbox"/>
Greenish	<input checked="" type="checkbox"/>
Lime	<input type="checkbox"/>
Pastel	<input type="checkbox"/>

Test

Greenish



What categories does this belong to?

Category	Fits	Doesn't Fit
Green	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Greenish	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Yellow	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pink	<input type="checkbox"/>	<input checked="" type="checkbox"/>

What categories does this belong to?

Category	Fits	Doesn't Fit
Green	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Greenish	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Yellow	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pink	<input type="checkbox"/>	<input checked="" type="checkbox"/>

What categories does this belong to?

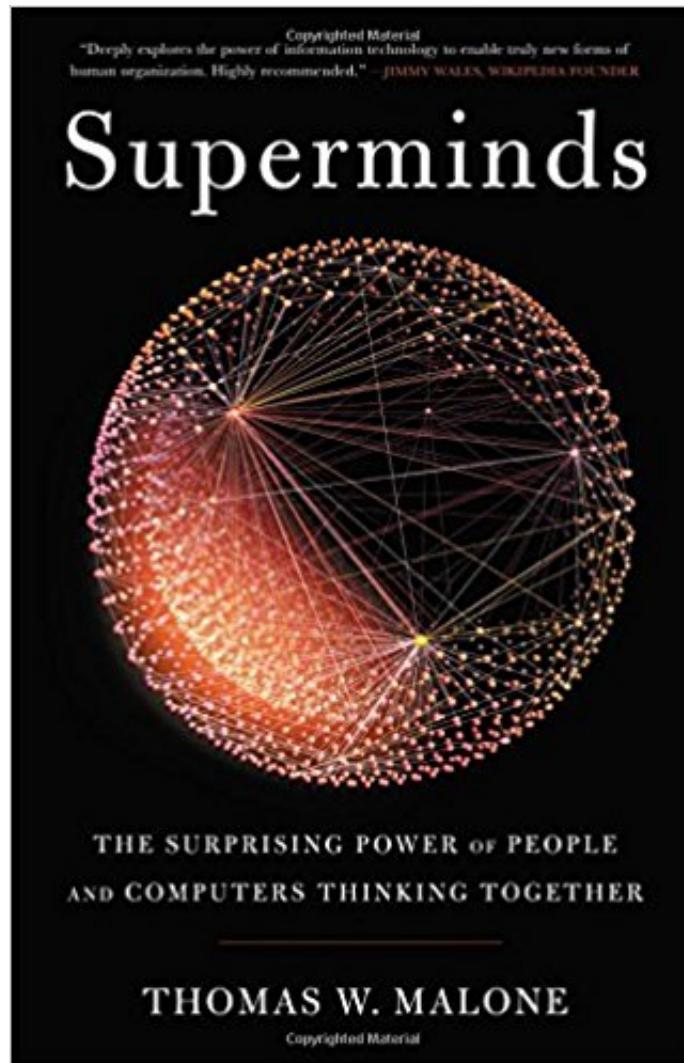
Category	Fits	Doesn't Fit
Green	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Greenish	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Pink	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<https://juhokim.com/projects/cobi/>

Beyond crowdsourcing: Superminds

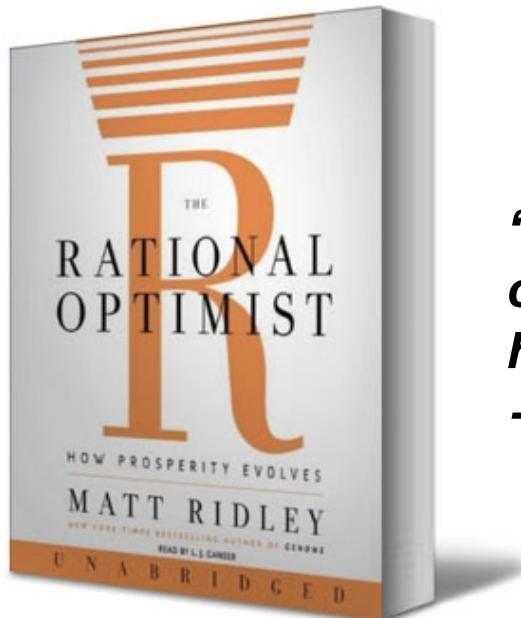


“Simple?

Yet, not a single person on the face of this earth knows how to make me”



“I, Pencil”, An essay by Leonard Read, 1958



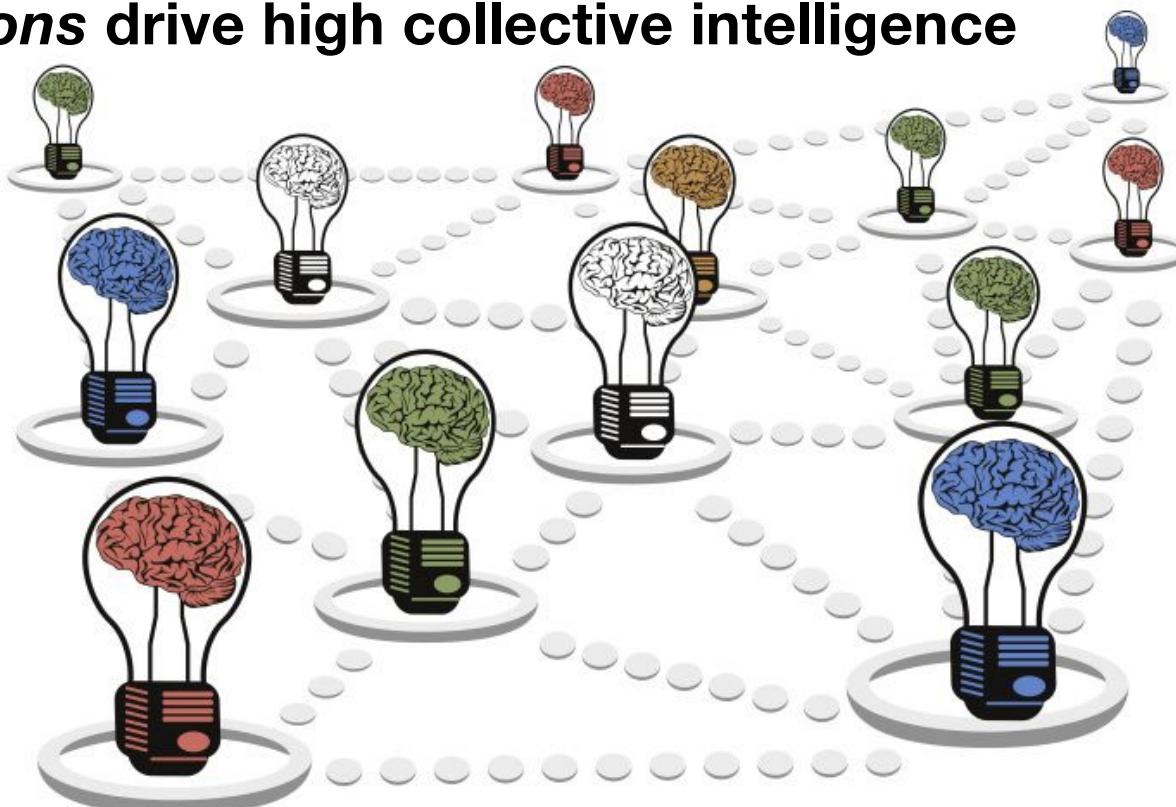
“At some point, human intelligence became collective and cumulative in a way that happened to no other animal”

— Matt Ridley, The Rational Optimist



Aim for high collective intelligence

- *Specialization* drives high collective intelligence
- *Contributions* drive high collective intelligence





High collective intelligence enhances creativity

Culture matters...



Gregory Brown
@practicingdev

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Develop solutions to human problems.
Develop with kindness.

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Gary @blimey85 · 2h

Replying to @practicingdev

What if I'm asocial and just want to develop code?



1



1



Gregory Brown @practicingdev · 1h

Find a different career. Seriously.



1



What is intelligence?

- Adam Smith (1776): buyers and sellers in a market, who do what's best for themselves are “often led by an **invisible hand**”
- Supermind: group of individuals acting together in ways that seem intelligent
- *What is intelligence?* Ability to reason, plan, solve problems, learn quickly, learn from experience, making sense and figuring things out
- **Specialized intelligence:** ability to achieve specific goals effectively in a given environment
- **General intelligence:** ability to achieve a wide variety of goals in different environments

Superminds

- How to find fake news? Reviewers? Crowd?
- People working together over time (in hierarchies, communities, democracies, ecosystems) – have led to major achievements
- Idea: Connect (more) people and AI at massively new scales and in rich ways – create independent hierarchical organizations with the goal to rate the credibility of news

Example of a supermind: Is Apple Conscious?

- **Awareness:** The entity can react to changes in the world.
- **Self-awareness:** The entity can react to—and can tell others about—changes in itself.
- **Goal-directed behavior:** The entity can take intentional action to achieve goals.
- **Integrated information:** The entity can combine many different kinds of information simultaneously.
- **Experience:** The entity feels happiness, pain, hunger, or other subjective experiences.

Can a group take an intelligence test?

- Tasks: generating something, executing tasks, choosing something, negotiating
- Predictors?
 - Social perceptiveness (mind reading, dominates next two)
 - Members participate equally in conversation
 - Diversity (proportion of women in the group)
- Cognitive style matters too (some diversity, but not too much)

How do computers help?

- Google: over 2.3 million times every second, someone in the world types keywords in Google
- It is more of a **tool** than an **assistant** or **peer**
- Assistants require your direct attention to guide them (Google assistant, Alexa)
- Peers: your driving assistant may be my driving assistant peer (auction bidding), peers may operate to improve overall goals
 - Wikipedia uses bots/ML to detect and undo vandalism

Future of Work Workshop, July 5th

- CSCW and the Future of work (Peggy, 25-30 m)
- *Break 1 (10 m)*
- “Workforce transitions in a time of automation”, Ying Wang (15 m)
- "The future of work and work-life balance 2025", Andreas Koenzen (15m)
- "Organizational Behaviour", by Matti Laine Farrell (10 m)
- *Break 2 (10 m)*
- Small group activity: Your predictions on how CSCW may impact the future of work (introduced and chaired by Jon Grandfield and Kira Elise Tilcock)
 - How far into the future is up to you (but be clear)
 - Refer to blog posts from this week for ideas!
 - Report back to the group as a whole – < 3 mins we may use futurework-prediction for discussion