

Crowdsourcing in the Era of Internet

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Brief Overview

- **2010: Hanken Svenska handelshögskolan**
 - Ms.Sc.(Econ.) IS: Thesis on 'BPMS in e-Gov'.
- **2015: Aalto University (School of Business)**
 - Dr.Sc.(Econ.) IS: Thesis on 'Crowdsourcing'.
- **2016 - 2022: University of Jyväskylä**
 - Postdoctoral researcher on Cybersecurity
- **2022 onward: University of Agder (UiA)**
 - Associate Professor (Tenured)



UiA (www.uia.no)

- University of Agder (UiA)
- Located in Agder County
- City of Kristiansand (Southern Norway)
- Popular summer holiday destination



UiA (www.uia.no)

- Seven Faculties
 1. Health and Sport Sciences
 2. Humanities and Education
 3. Fine Arts
 4. **Social Sciences**
 5. Engineering and Science
 6. Business and Law
 7. Teacher Education
- IS Department is situated in the Faculty of Social Sciences
- One of the biggest IS dep.'s in Norway (50+ members)
- Degrees
 - B.Sc. IT
 - M.Sc. IT management; Cybersecurity management
 - PhD in Information Systems

Research Overview

Articles Published in IS Senior Scholars' list (Formerly, Basket Journals)

1. Soliman, W., & Rinta-Kahila, T. (2021). Disinformation platforms: A critical look at two-sided disinformation. *Journal of Information Technology*, 36(1), 1-18. DOI: 10.1016/j.jit.2021.118114
2. Rinta-Kahila, T., & Soliman, W. (2021). Skill Erosion and Disinformation: A Critical Look at Two-Sided Disinformation. *Journal of Information Technology*, 36(1), 1-18. DOI: 10.1016/j.jit.2021.118114
3. Soliman, W., & Rinta-Kahila, T. (2020). Reflection on the future of information systems research. <https://www.researchgate.net/publication/354111114>
4. Mikko, P., & Soliman, W. (2022). Saponen, M., Soliman, W., & Honkcamp, P. (2021). Reconsidering the Role of Research Method Guidelines for Interpretive, Mixed Methods, and Design Science Research. *Journal of the Association for Information Systems*, 22(4), 1-18.
5. Soliman, W., & Rinta-Kahila, T. (2020). Toward a refined conceptualization of IS discontinuance: Reflection on the future of information systems research. <https://www.researchgate.net/publication/354111114>

Theme 1

- **IS/IT lifecycle:**
 - IT use adoption, continuance, discontinuance
 - Dark side of technology use
 - Automation and skill erosion

Articles Published in Peer-Reviewed Journals

1. Siponen, M., & Soliman, W. (2019). Advancing the future of information systems research: A common understanding of deontological theory in information systems research. *Journal of Information Technology*, 34(1), 1-18.
2. Chen, Y., & Soliman, W. (2016). Research on Innovation and Stages of Innovation. *European Journal of Innovation Management*, 19(2), 189-213.
3. Poutanen, J., & Stähle, P. (2016). The complexity of innovation: an assessment and review of the complexity perspective. *European Journal of Innovation Management*, 19(2), 189-213.
4. Soliman, W., & Tuunainen, V. (2015). Understanding Continued Use of Crowdsourcing Systems: An Interpretive Study. *Journal of Theoretical and Applied Electronic Commerce Research*, 10(1), 1-18.

Theme 2

- **Cybersecurity:**
 - Information Security Policy (non)compliance (Individual)
 - Contradiction management in cybersecurity (Organizational)
 - Cyber deception and disinformation (Societal)

Articles Published in Peer-Reviewed Journals

1. Mallapragada, S., & Soliman, W. (2023). Cybersecurity and Disinformation: A Critical Look at Two-Sided Disinformation. *Journal of Information Technology*, 38(1), 1-18.
2. Soliman, W., & Rinta-Kahila, T. (2023). A Critical Look at Two-Sided Disinformation. *Journal of Information Technology*, 38(1), 1-18.
3. Soliman, W., & Rinta-Kahila, T. (2023). Understanding Continued Use of Crowdsourcing Systems: An Interpretive Study. *Journal of Theoretical and Applied Electronic Commerce Research*, 10(1), 1-18.
4. Soliman, W., & Rinta-Kahila, T. (2022). What Do We Really Mean by Rigor in Information Systems Research? *HICSS 2022*.
5. Soliman, W., & Mohammadnazar, H. (2022). New Insights into the Justifiability of Organizational Information Security Policy Noncompliance: A Case Study. *HICSS 2022*.
6. Kauppi, S., Soliman, W. (2022) "This Is the Future of Advertising!" Or Is It? New Insights into the Justifiability of Deceptive Crowdsourcing in Cyberspace. *HICSS 2022*.

Theme 3

- **Philosophy of science:**
 - Method and methodology
 - Temporality and stage modeling
 - Ethics and critical research

7. Soliman, W., & Mohammadnazar, H. (2022). Revisiting neutralization theory and its underlying assumptions to inspire future information security research. *AIS SIGSEC Workshop on Information Security and Privacy (WISP)*. <https://aisel.aistnet.org/wisp2022/2/>
8. Soliman, W., & Rinta-Kahila, T. (2019). Why Is Your Crowd Abandoning You? Continuance through the Lens of Motivation Theory. *Australian Conference on Information Systems (ACIS)*.
9. Honkcamp, P., Soliman, W., Siponen, M. (2019). Reorienting the role of research method guidelines for qualitative, mixed methods, and design science research. *Hawaii International Conference on System Sciences (HICSS)*.
10. Rinta-Kahila, T., Penttinen, T., Salovaara, A., Soliman, W. (2018). Consequences of discontinuing knowledge work automation—surfacing of deskilling effects and methods of recovery. *Hawaii International Conference on System Sciences (HICSS)*.
11. Soliman, W., & Rinta-Kahila, T. (2018). Unethical but not illegal: Uncovering the persuasive messages leveraged by providers of the "real" online social impressions. *The 24th European Conference on Information Systems (ECIS)*.
12. Rinta-Kahila, T., & Soliman, W. (2017). Understanding crowd-turfing: the different ethical logics behind the clandestine industry of deception. *The 25th European Conference on Information Systems (ECIS)*.
13. Soliman, W., & Tuunainen, V. (2012). Organizational adoption of mobile crowdsourcing brokerages – MCB. Discussion Paper in the International Conference for the Mobile Business, London.
14. Soliman, W., & Tuunainen, V. (2012). Crowdsourcing as a mobile service - case study: Publishing and E-commerce. *The 24th European Conference on Information Systems (ECIS)*, Barcelona.
15. Soliman, W., & Tuunainen, V. (2011). Critical Business Process Management Issues in E-Government Projects – A Case Study. In the 34th Information Systems Research Seminar in Scandinavia – (IRIS). Turku, Finland.

Other Publications

1. Book Chapter: Soliman, W., Kivisaari, P., Warma, H., Looga, V., Saarikko, P., Deng, Y., & Buda, A. (2012). From democratizing innovation to innovating democracy. In Y. Neuvo & E. Karvonen (Eds.), *Bit bang IV: Future of Internet: Societal, Business, Governance and Technological Aspects* (pp. 64-96). Espoo: Aalto University.
2. Book Chapter: Visala, K., Soliman, W., Warma, H., Costa, M., Reya, L., Ritola, T., & Grifakov, K. (2012). How to control the Internet? - a complexity perspective. In Y. Neuvo & E. Karvonen (Eds.), *Bit bang IV: Future of Internet: Societal, Business, Governance and Technological Aspects* (pp. 167-191). Espoo: Aalto University.
3. Doctoral Dissertation: Soliman, W. (2015). *People-Driven, ICT-Enabled Innovation: Crowdsourcing*. Helsinki: Aalto University Publication Series; Doctoral Dissertations 173/2015.

Among others in development or review ...

Agenda

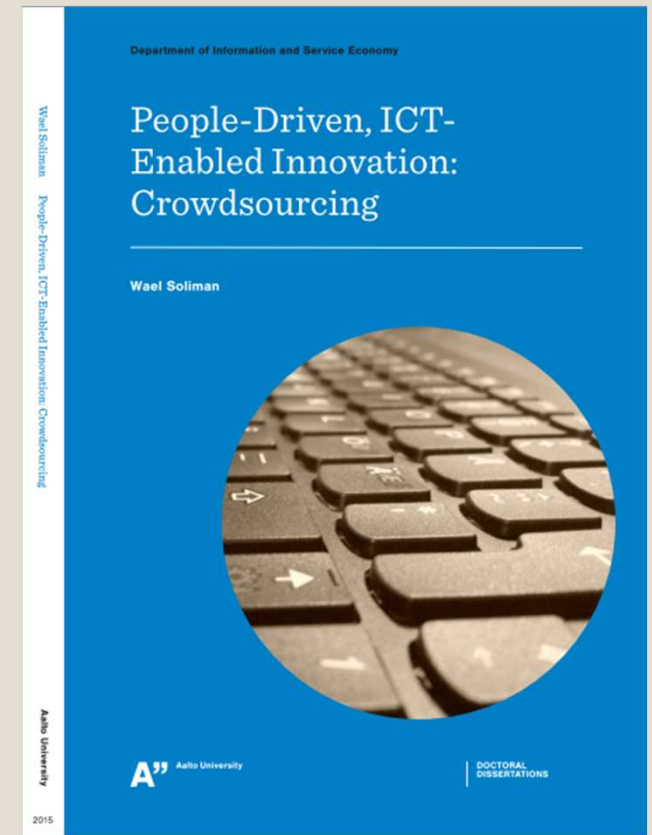
1. **What Is Crowdsourcing?**
2. **What Moves the Crowd?**
3. **DaaS: The Darkside of Crowdsourcing.**



Part I: What Is Crowdsourcing?

What Is Crowdsourcing?

- “The act of a company or institution taking a function once performed by employees and outsourcing it to an undefined ... network of people in the form of an open call” (Howe, 2006).
- “The practice of obtaining needed services, ideas, or content by soliciting contributions from a large group of people and especially from the online community rather than from traditional employees or suppliers” (Merriam-Webster).
- Outsourcing to the CROWD (typically via a **two-sided platform**).



Two-sided platform business

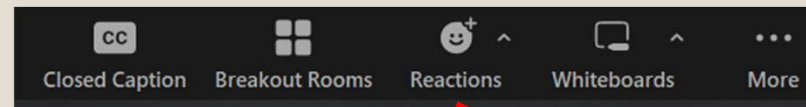
- *Two-sided platforms (aka, cybermediaries) are digital intermediary platforms that facilitate interacting/transacting between two distinct user groups (e.g., UG 1 & UG 2).*
- *Market economists argue that digital platforms are “facilitators of exchange between different types of consumers that could not otherwise transact with each other”. (Gawer, 2014, p. 1240).*
- *These platforms play a major role in introducing and sustaining unprecedented market offerings that could have never been possible before (Giaglis et al., 2002).*



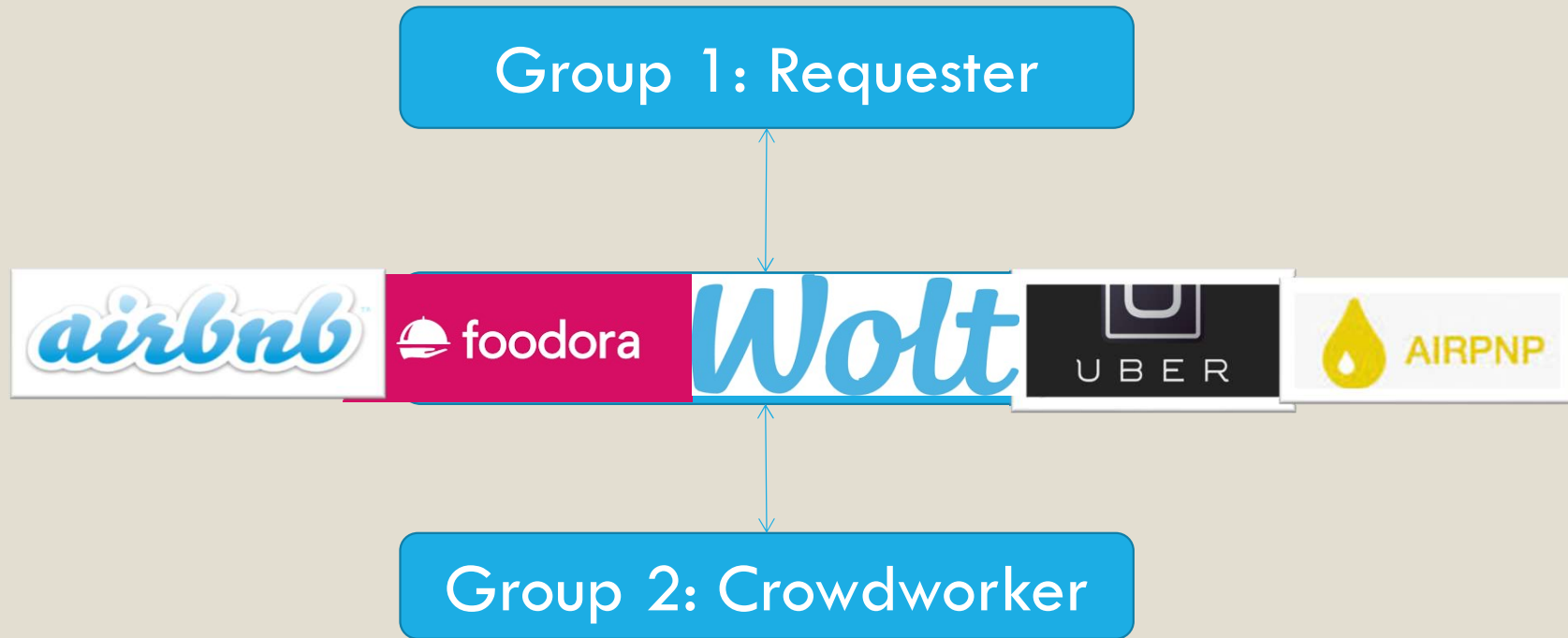
Quick Question

Can you think of a personal experience using a two-sided “crowdsourcing” platform?

- Select “YES” or “NO” (from the reactions button)



Two-sided platform business



Popular Characterization

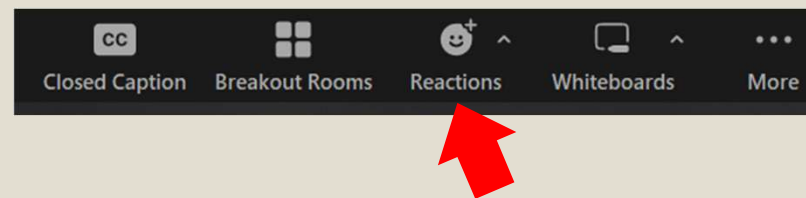
“The fundamental idea of crowdsourcing is that **a crowdsourcer** ... proposes to an undefined group of **contributors** (individuals, formal or informal teams, other companies) the voluntary undertaking of a **task** presented in an open call. The ensuing interaction process unfolds over **IT-based** crowdsourcing platforms ...

(Blohm et al., 2013, p. 200).

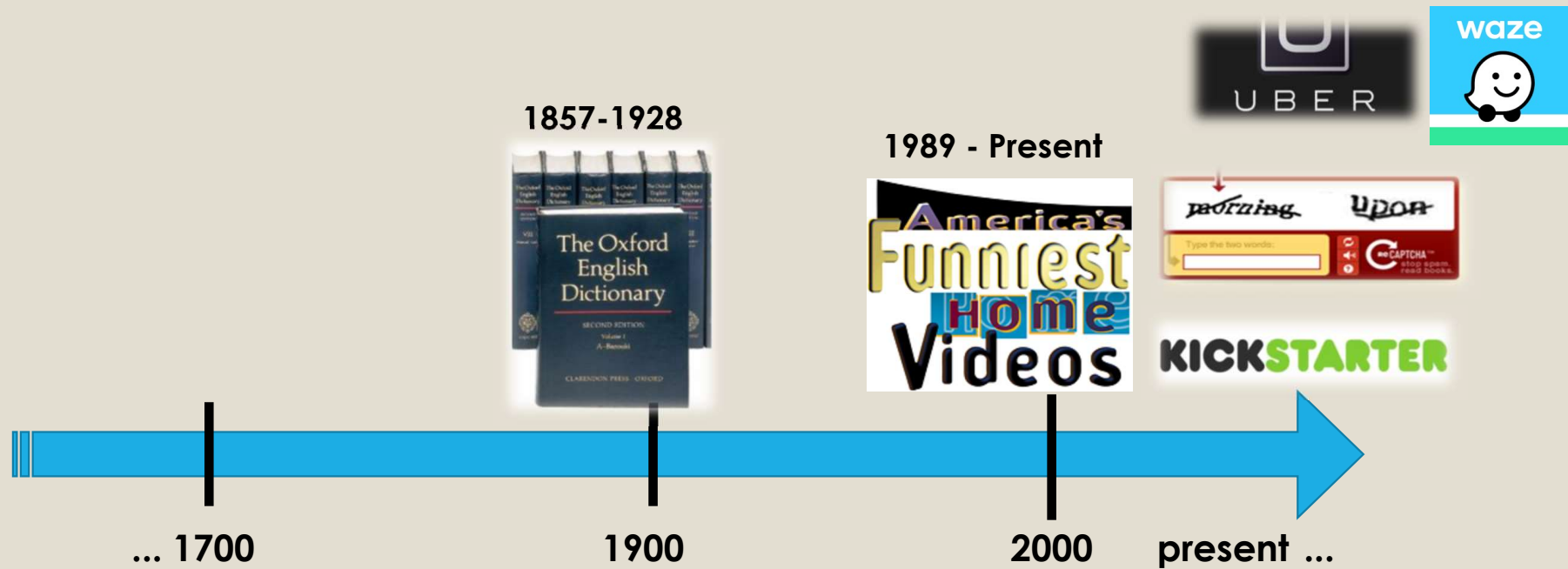
Quick Question

Can you think of crowdsourcing examples before the Internet?

- If YES, raise your hand (from the reactions button)



Crowdsourcing Pre-/Post- WWW



Crowdsourcing Pre-/Post- WWW



Crowdsourcing in Academic Research

Three research streams

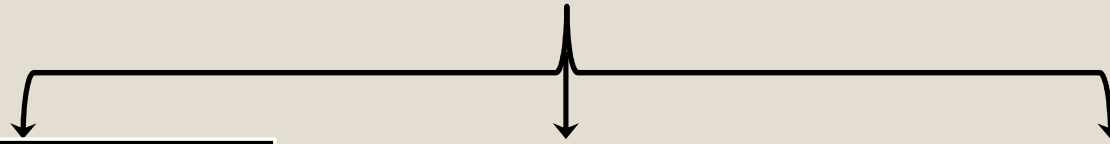
Technology Perspective
focus on the
IT artifact

E.g.,
How can
crowdsourcing be



Von Ahn, L., Maurer, B., McMillen, C., Abraham, D., & Blum, M. (2008). recaptcha: Human-based character recognition via web security measures. *Science*, 321(5895), 1465-1468.

Three research streams



Games

With

A

Purpose

Technology Perspective

focus on the
IT artifact

E.g.,
How can

Good read:
Digitalkoot

<https://www.wired.com/2011/03/digitalkoot-a-game-ified-crowdsourced-finnish-cultural-endeavor/>

Three research streams

Games

With

A

Purpose

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Digital

<https://m/201-a-gar-crowd-culture>

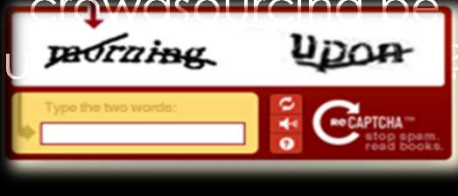


Three research streams



Technology Perspective
focus on the
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E.g.,
How can
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Von Ahn, L., Maurer, B., McMillen, C., Abraham, D., & Blum, M. (2008). recaptcha: Human-based character recognition via web security measures. *Science*, 321(5895), 1465-1468.

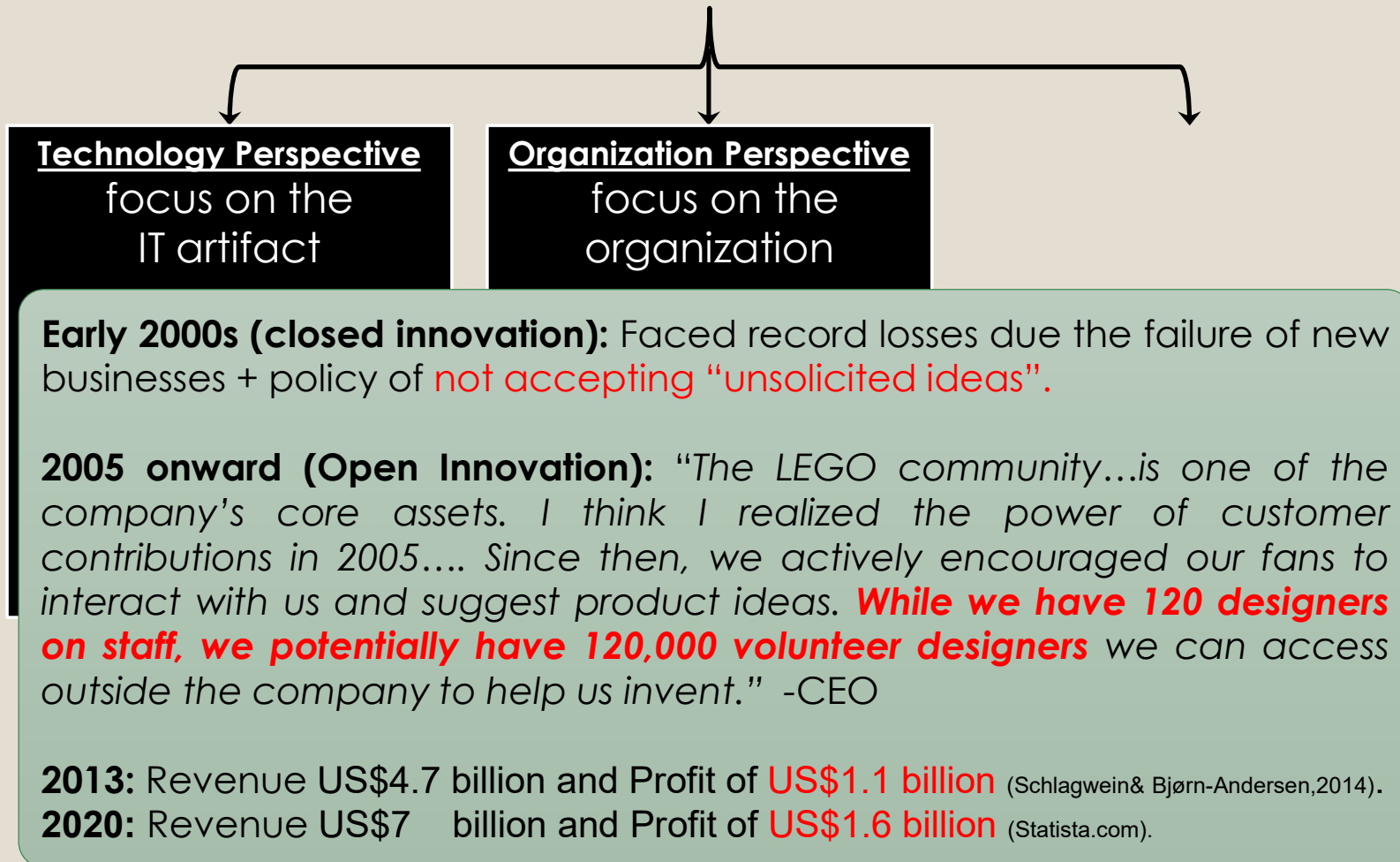
Organization Perspective
focus on the
organization

E.g.,



Schlagwein, D., & Bjørn-Andersen, N. (2014). Organizational learning with crowdsourcing: The revelatory case of LEGO. *Journal of the Association for Information Systems*, 15(Special Issue), 754-778.

Three research streams



PRODUCT IDEA | Feb 08, 2019

THE PIRATE BAY



DESCRIPTION UPDATES 9 COMMENTS 1808 OFFICIAL LEGO COMMENTS 5 BUILDING INSTRUCTIONS STATISTICS

Sep 26, 2019

PROJECT APPROVED FOR PRODUCTION AS A LEGO IDEAS SET!

We're very excited to release Bricky_Brick's The Pirate Bay project as our next LEGO Ideas set! The final design, pricing and release date are still being worked out. For more information, see the [LEGO Ideas](#)



By Bricky_Brick
10K Club Member

ON SHELVES

FIND AT LEGO SHOP

- 1808 comments
- Save project
- Share project
- Report project

LEAVE PRIVATE FEEDBACK

Originality



Building Techniques



Details



SUBMIT

This will only be visible to the creator.

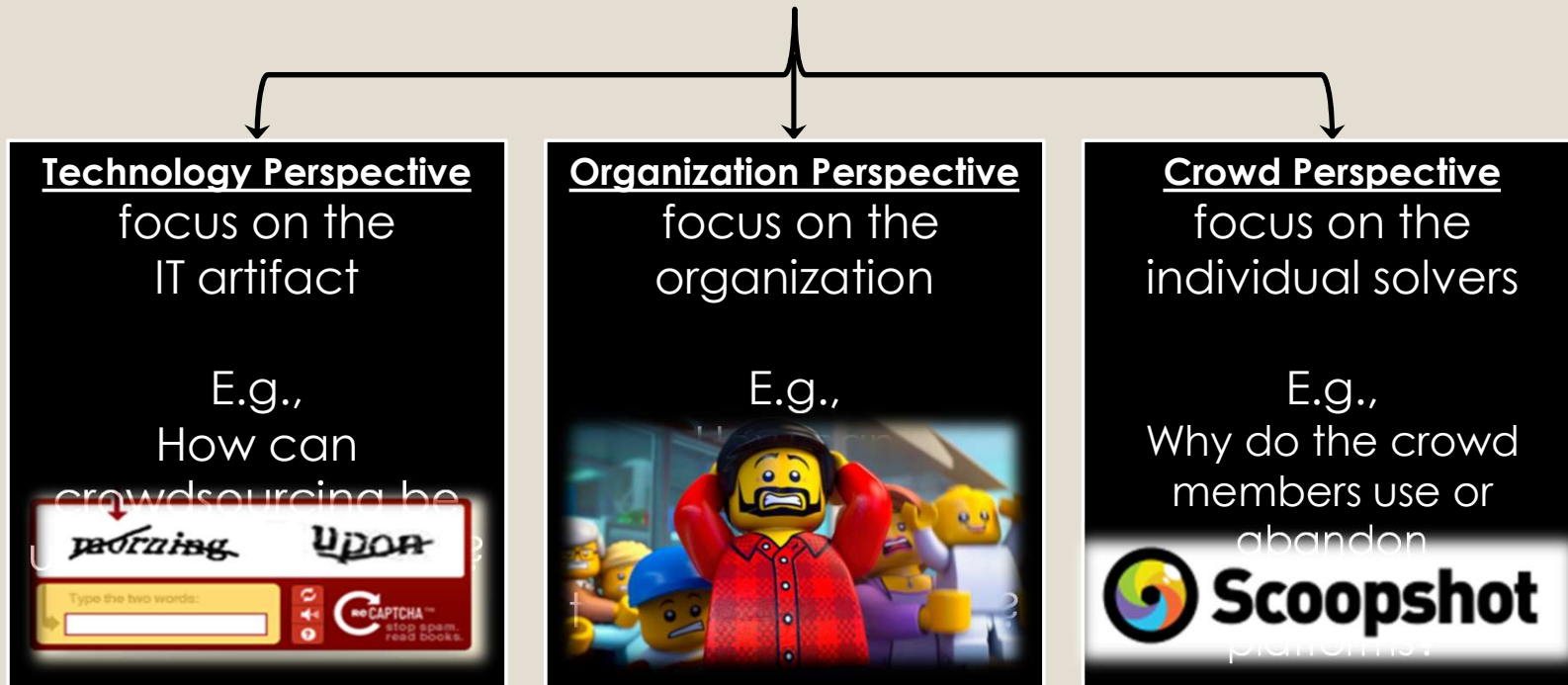
“Not all the smart people in the world work for you”!

“The presence of many smart people outside your own company is not simply a ... fact of life to be regretted. It poses an opportunity for you. If the smart people within your company are aware of, ... and informed by the efforts of smart people outside, then your innovation process will reinvent fewer wheels”.

(Chesbrough, 2003, p.177)



Three research streams



von Ahn, L., Maurer, B., McMillen, C., Abraham, D., & Blum, M. (2008). reCAPTCHA: Human-based character recognition via web security measures. *SCIENCE*.

Schlagwein, D., & Bjørn-Andersen, N. (2014). Organizational learning with crowdsourcing: The revelatory case of LEGO. *Journal of the Association for Information Systems*, 15(Special Issue), 754–778.

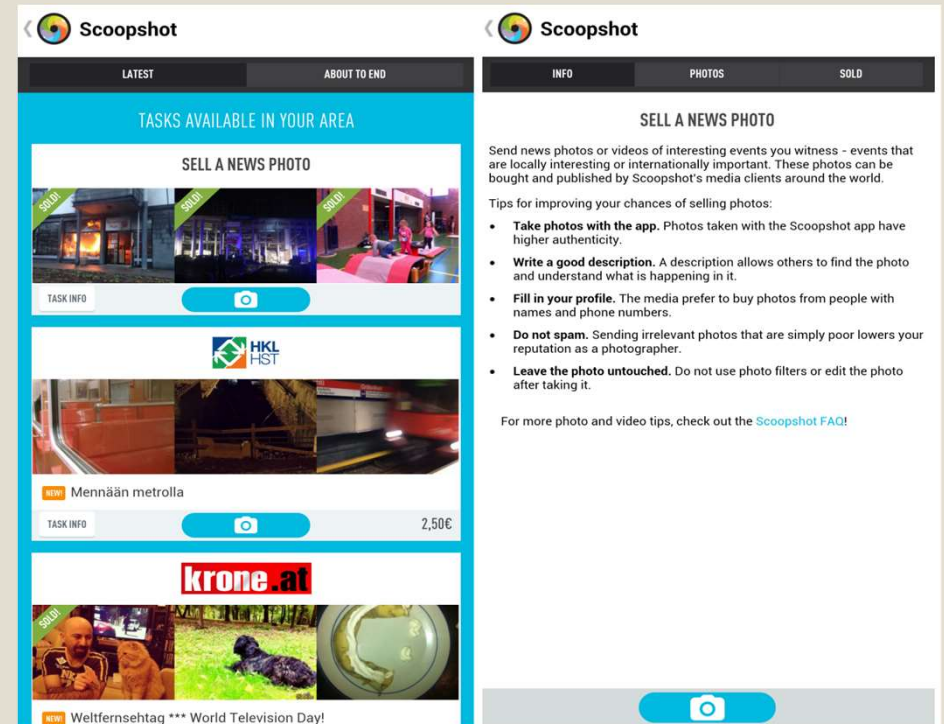
Soliman, W., & Tuunainen, V. K. (2015). Understanding continued use of crowdsourcing systems: An interpretive study. *Journal of Theoretical and Applied Electronic Commerce Research*, 10(1), 1–18.



Part II: What Drives the Crowd?

Case Study: Scoopshot

- **The Platform:** Scoopshot (www.scoopshot.com) platform developed by P2S Media Group, founded in 2010 in Finland.
- **The Seeker:** Any organization that needs fresh and authentic images/videos (e.g., TV, newspapers, online campaigns, etc).
- **The Problem:** (a) Fresh, (b) Accessible and (c) Authentic.
- **The Solution:**
 - **Fresh** → The platform offers an on-demand service.
 - **Accessibility** → ubiquitous crowds with smartphones.
 - **Authentic** → Built-in technology provides “authenticity scoring” for images/videos submitted (e.g., EXIF data).
- **The Crowd:** At the time of study, Scoopshot was available for Apple, Android and Windows phones. The platform had a community of over 500,000 users across 177 countries.
- **Reward system:** A submission may get compensated if it is chosen to be purchased by a seeker organization.



Soliman & Tuunainen (2015)

Case Study: Scoopshot

Real-life case:

- **Seeker:** Oxfam & Coldplay
- **Platform:** Scoopshot
- **Crowdworkers:** Fans with phones
- **Task:** Video and photos of “people living outside home”
- **End-product:** Video Clip for Coldplay’s hit-song “In My Place”.
- **Link:** <https://www.youtube.com/watch?v=ogltgrO9GSg>



Research Questions

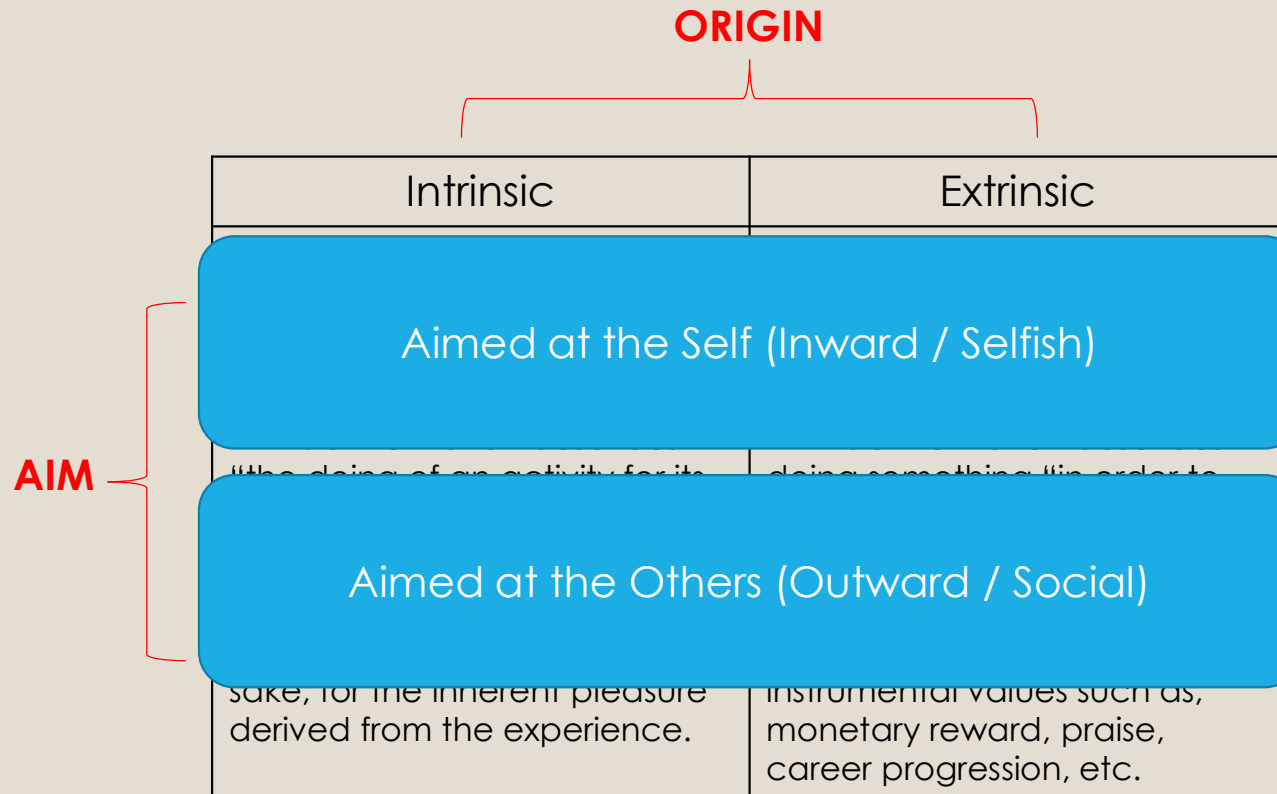
- Broadly speaking:
- (1) Who are these people (that we call crowd)?
- (2) What made them decide to participate in this platform?
- (3) What keeps them interested to continue their participation?

Theoretical Background: Motivation Theory

- The study of motivation concerns those processes that give behavior its energy and direction (Reeve, 2008).
- Self-Determination Theory (SDT) distinguishes between motives depending on their Perceived Locus of Causality (Ploc); aka internal and external (Ryan & Deci, 2000).

Intrinsic	Extrinsic
A behavior is attributed to an internal PLoC with interests and desires serving as motivational forces.	A behavior is attributed to an external perceived locus of causality (PLoC) when external goals being the motivators.
intrinsic motivation describes “the doing of an activity for its inherent satisfactions rather than some separable consequence”	Extrinsic motivation describes doing something “in order to attain some separable outcome”
Behavior performed for its own sake; for the inherent pleasure derived from the experience.	Behaviors driven by instrumental values such as, monetary reward, praise, career progression, etc.

Theoretical Background: Motivation Theory



Nov et al., 2010

Findings (1): Participation Motivations

		ORIGIN	
		INTRINSIC	EXTRINSIC
AIM	INWARD	Curiosity Enjoyment	Monetary rewards Non-monetary rewards
	OUTWARD	Altruism	Recognition

Figure 2. Motivational factors and the temporal dimension

Findings (2): Motivations Change Over Time

		ORIGIN	
		INTRINSIC	EXTRINSIC
AIM	INWARD	<u>Initial Usage</u> Curiosity	Monetary rewards
	OUTWARD	<u>Continued Usage</u> Enjoyment	Non-monetary rewards
		Altruism	Recognition

Figure 2. Motivational factors and the temporal dimension

Findings: (3) Feedback Matters

Anita,
The Netherlands

*“I would like **any response** from Scoopshot of the winning pictures so I can learn of the picture type they like. I don't want to have the feeling that **I'm doing it for nothing at all**”.*

Ali,
Finland

*“I don't know why I stopped using Scoopshot. I sent them many good photos and **didn't receive any response** at the end ... my photos don't look bad ... **As a result I got a bit tired of the service**. I don't send them photos very often nowadays. But I do send them photo if I'm at the location with a good photo, then I'm almost sure that it will be sold”.*



Received: 22 August 2017 | Revised: 3 March 2021 | Accepted: 5 June 2021 | Information Systems Journal

DOI: 10.1111/isj.12355

RESEARCH ARTICLE

WILEY

A tale of two frames: Exploring the role of framing in the use discontinuance of volitionally adopted technology

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University of Jyväskylä, Jyväskylä, Finland

²Department of Information and Service
Management, Aalto University School of
Business, Espoo, Finland

Abstract

The discontinuance of volitional IS (i.e., information systems adopted, used and discontinued at will) has recently attracted remarkable attention from academics and practi-

Practical Implications For Crowdsourcing of Creative Nature

(1) the communication strategy.

- Communication strategies for attracting the crowd should be different from those nurturing/sustaining the crowd.
- Initial use may be achieved by highlighting the financial reward.
- Continued use needs an effort to highlight the social (non-selfish) values as well.

(2) the importance of 'showing-off'.

- Wall of fame

(3) the importance of feedback.

- "Like" buttons, for example, on the photos sold/unsold.

Why do some crowdsourcing
projects fail?

1) Failure to motivate the crowd



-Source: <https://lisamerriam.com/crowdsourcing-without-a-crowd-levias-failed-attempt/>

2) Failure to generate desired Contribution



<http://www.nytimes.com/2006/04/04/business/media/chevy-tries-a-writeyourownad-approach-and-the-potshots-fly.html>

3) Failure to sustain the crowd



- Cambrian House CEO Michael Sikorsky reflects:

*“Indeed, our model **failed**. In short: we became a destination people loved to **bookmark** more than they loved to **actively visit**”.*

Source: <https://techcrunch.com/2008/05/12/when-crowdsourcing-fails-cambrian-house-headed-to-the-deadpool/>

Crowdsourcing Flops

- REMEMBER: Crowdsourcing success is not guaranteed!
-
- 1) Some failed to motivate the crowds (Levia).
- 2) Some failed to generate the right content (Chevrolet).
- 3) Some failed to sustain the crowd (Cambridge House).

Part III: The Darkside of Crowdsourcing

Deception as a Service (DaaS)

What Is Deception?

- **Generally:**

- Deception is “an art of conjuring”! (Hyman, 1989, p.136)
- Deception “implies that an agent acts or speaks so as to induce a false belief in a target or victim.” (Hyman, 1989, p. 133).

- **More strictly:**

- deception involves an interaction between two parties: a **deceiver** and their **target/victim**.
- The deceiver’s aim is to “manipulate the environment of the other party ... so as to intentionally foster an incorrect cognitive representation of the target’s situation and instigate a desired action, one the target would be unlikely to take without the manipulation” (Grazioli & Jarvenpaa, 2003, p. 95).



1. Classical Deception (1st Generation)

- Direct and face-to-face encounter between the deceiver and the deceived.
- Sharing same physical environment
- Example: selling counterfeit product with the assumption they are original



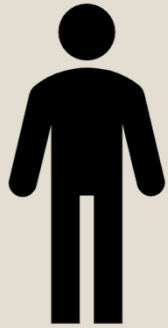
2. E-mediated Deception (2nd Generation)

- Direct (but mediated) encounter between the deceiver and the deceived.
- Using phones, emails, chat rooms, etc.
- Example: Pretending to be IT support.

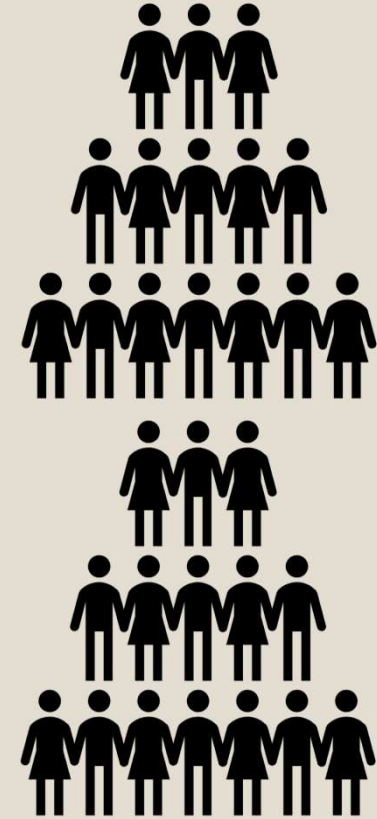


One Degree of Separation (D-I-Y)

(Kauppila & Soliman, 2022)



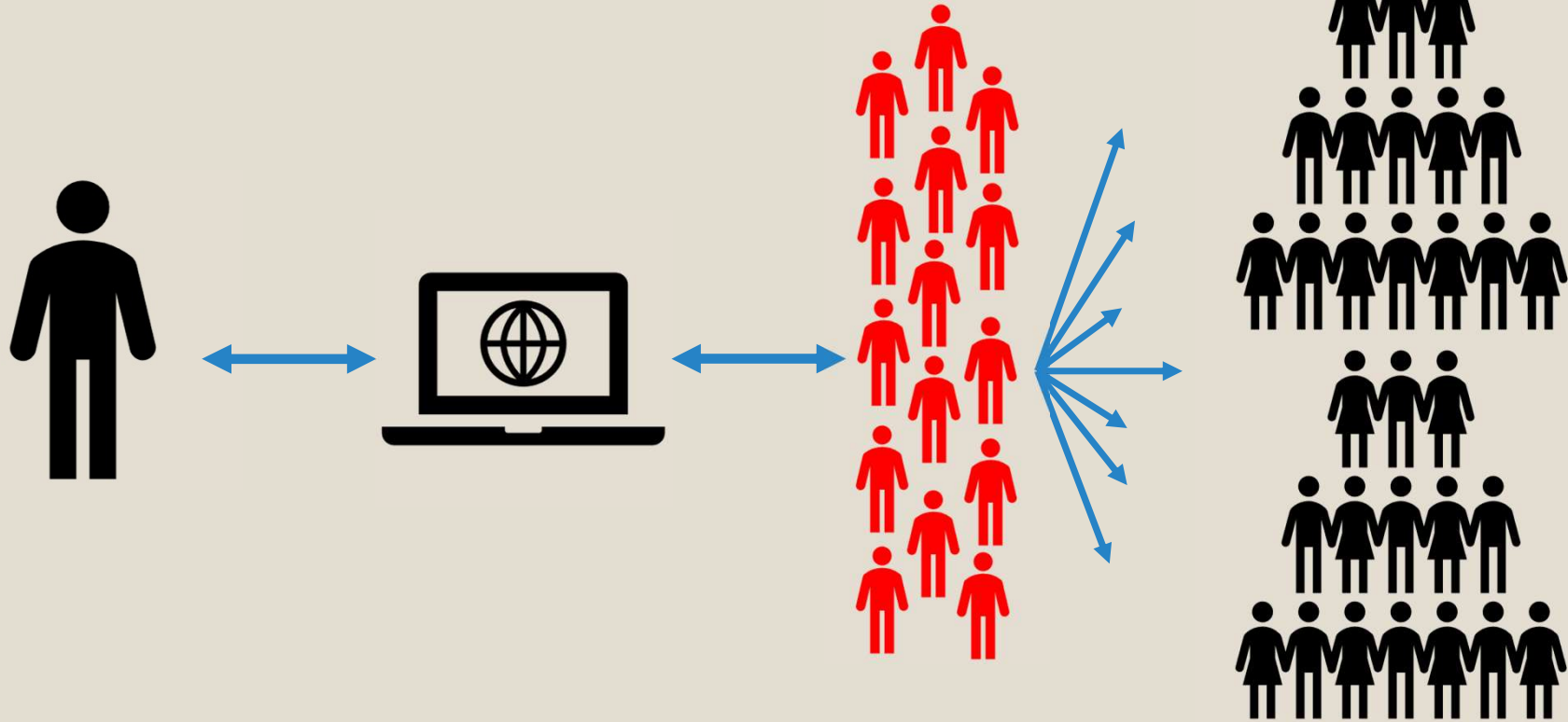
The Deceiver



The Target Victim

Crowdsource it From the Shadows

(Kauppila & Soliman, 2022)



The Deceiver

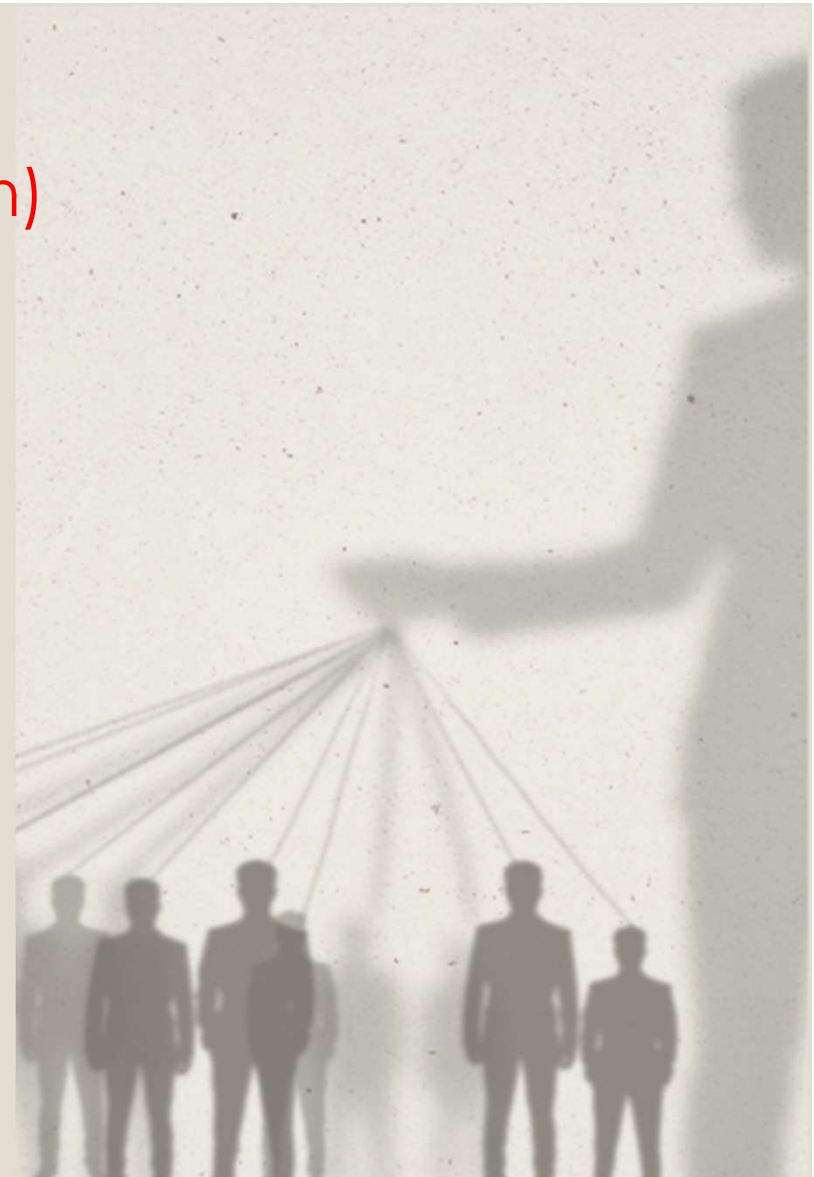
Crowdwork Agency

Crowdworkers

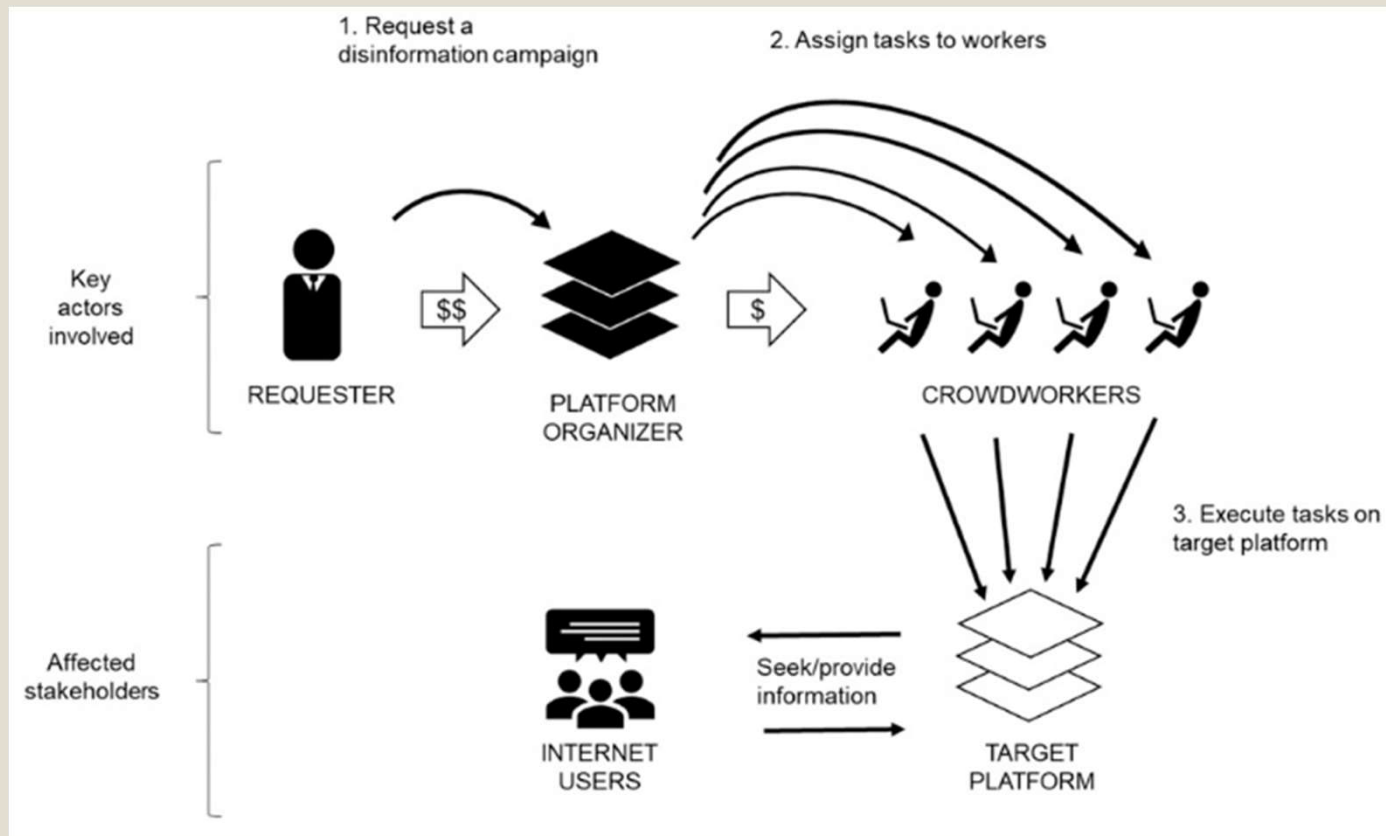
The Target Victim

3. Deception-as-a-Service (3rd Generation)

- DaaS (aka, “disinformation-as-a-service”)
- Indirect mediated encounter between the deceiver and the deceived via a middle-agent.
- Using mainly two-sided digital platforms.
- Example: Buying a defamation campaign.



How Does it Work?

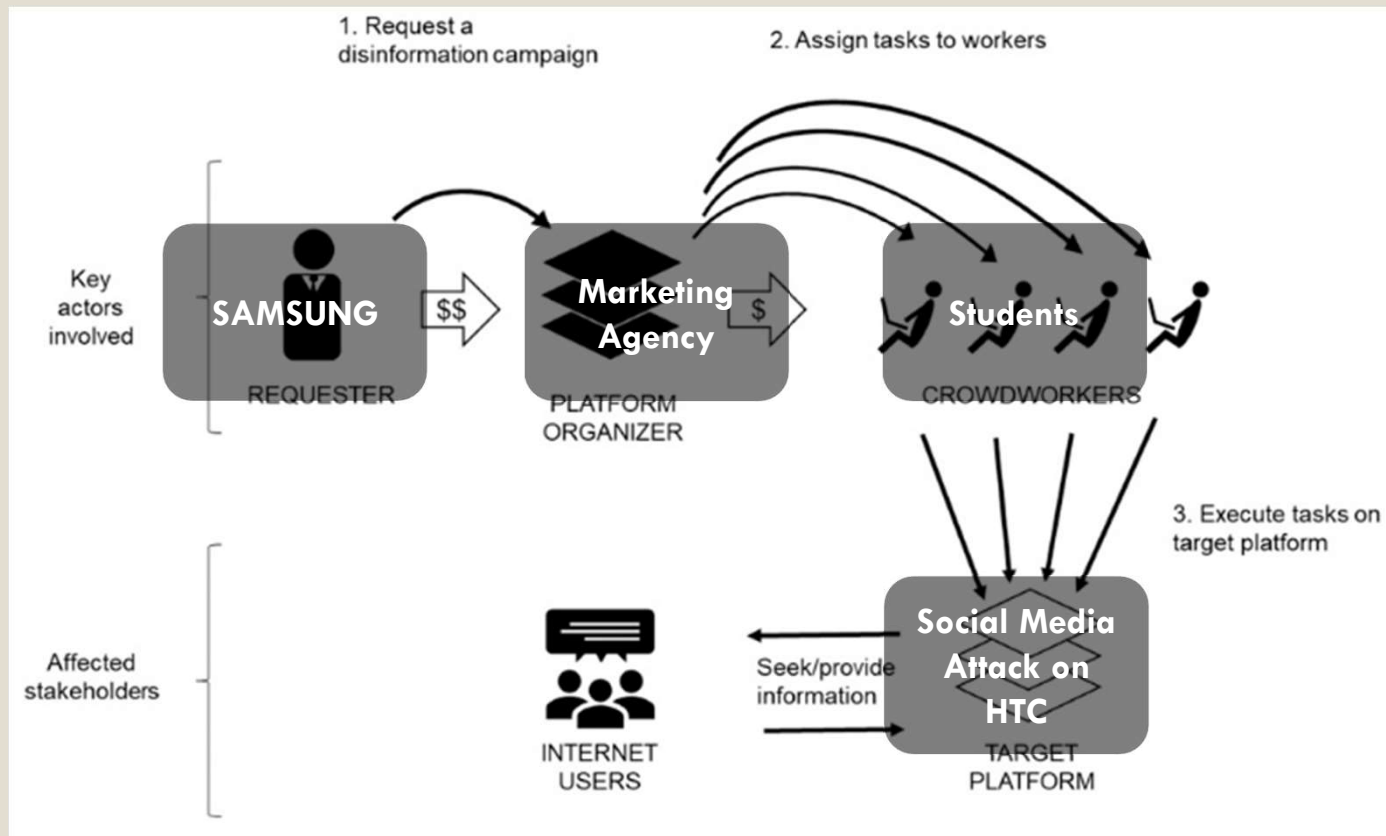


Source: Soliman & Rinta-Kahila (2023)

Who Buys these Services

- **Governments (King et al., 2017)**
 - Buys support for a bad policy
 - Buys attacks on a dissident
- **Corporations (Upton et al., 2021)**
 - Buys positive reviews on its own products
 - Buys negative reviews on the products of its competitors
- **Individuals (Lieu, 2019)**
 - Buys followers, likes and hearts for their online persona
 - Buys views and comments on their content

Example: Samsung's Defamation Campaigns



Source: Soliman & Rinta-Kahila (2023)

Fake positive Comments

1 ★★★★★ Cool charger
By [Tiffany](#) on March 30, 2015
2 Verified Purchase
3 Bought this for my Galaxy phone and I have to say, this is a pretty cool USB cord! :) I like the
4 lights in the cord as it puts off a cool glowing effect in my room at night and it makes it much easier
5 to see, thanks for the great product!

6 ★★★★★ Definitely buying more.
By [Krystal Willingham](#) on March 28, 2015
7 Verified Purchase
8 I was impressed with how bright the lights on the cable are. It works amazing and as described. I
9 received earlier than expected so that made me very happy. So far is working like a charm and I
10 can't wait to buy a few more.

11 ★★★★★ Spot It In the Crowd
By [Heather-Joan Carls](#) on March 29, 2015
12 Verified Purchase
Such a cool product. I was so happy with how bright the lights on the cable are. It shipped super
fast. The light shuts off when the charging is complete, so that's super helpful. I don't have to keep
checking.

Source: <https://www.cnet.com/news/amazon-sues-alleged-reviews-for-pay-sites/>

Fake “Likes”

100 Likes	500 Likes	1,000 Likes	5,000 Likes	10,000 Likes	50,000 Likes
\$2.95	\$6.95	\$9.95	\$39.95	\$64.95	\$249.95
Instant delivery guaranteed	Instant delivery guaranteed	Instant delivery guaranteed	Instant delivery guaranteed	Instant delivery guaranteed	Instant delivery guaranteed
Possibility to split likes between multiple pictures	Possibility to split likes between multiple pictures	Possibility to split likes between multiple pictures	Possibility to split likes between multiple pictures	Possibility to split likes between multiple pictures	Possibility to split likes between multiple pictures
Quality profiles	Quality profiles	Quality profiles	Quality profiles	Quality profiles	Quality profiles
100% safe	100% safe	100% safe	100% safe	100% safe	100% safe
Buy Now	Buy Now	Buy Now	Buy Now	Buy Now	Buy Now

Source: <http://www.idigic.net/buy-instagram-likes/>

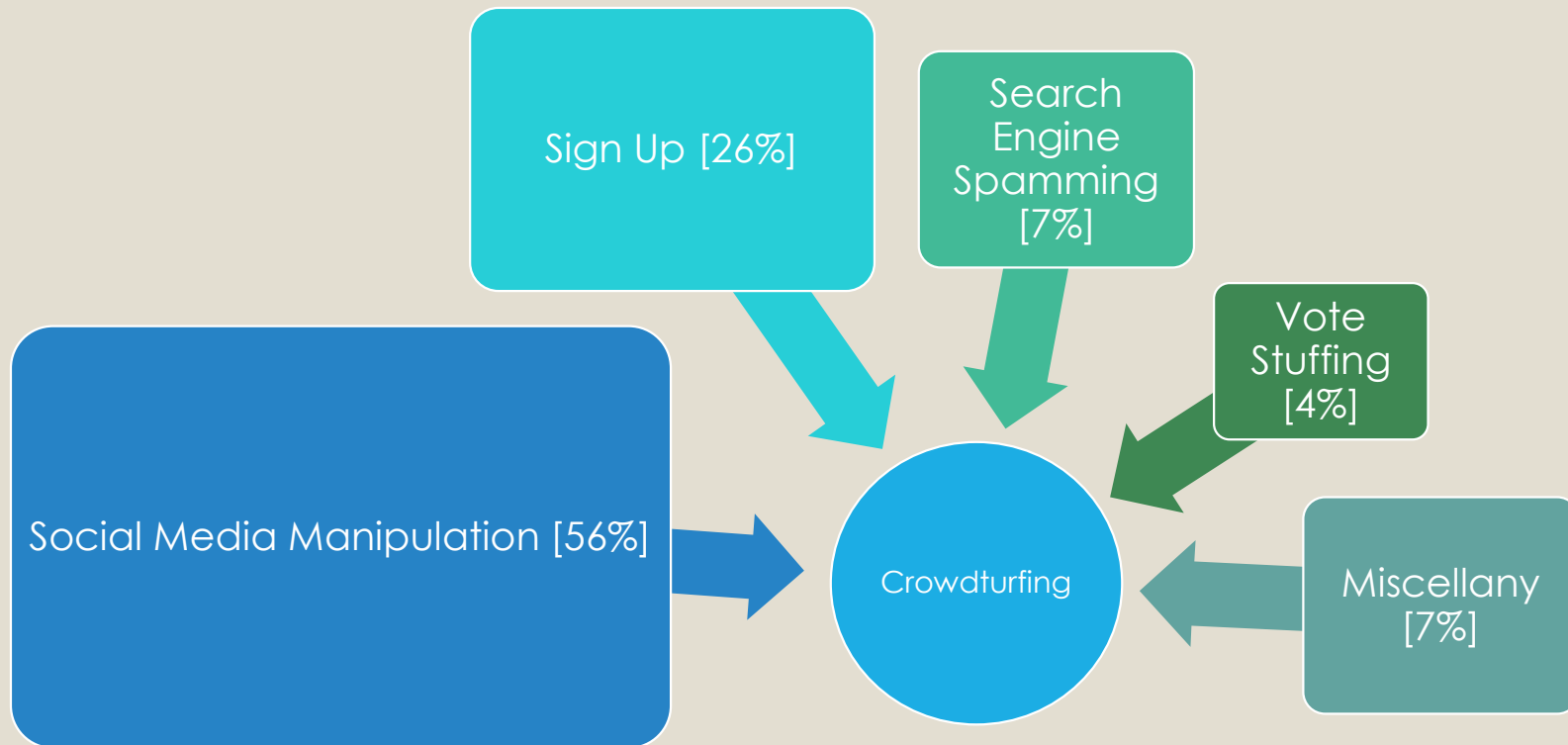
Fake "Views"

The screenshot shows the homepage of 'BUY VIEWS'. The header includes the logo and a tagline: 'Buy Video Views 1000 for \$3 Only - Instant Delivery Guaranteed!'. A red navigation bar contains links for HOME, YOUTUBE VIEWS, INSTAGRAM VIEWS, FACEBOOK VIDEO VIEWS, SOUNDCLOUD VIDEO VIEWS, and VINE VIDEO VIEWS. Below the navigation, a main heading reads 'Buy Youtube Views Cheap and Fast - 1000 for \$3.00'. The central content area is titled 'Buy Youtube Views Cheap With Instant Delivery' and features five pricing options in a row. Each option is presented in a white box with a dark grey base. The prices are \$3.00, \$6.00, \$15.00, \$30.00, and \$60.00, corresponding to 1,000, 2,000, 5,000, 10,000, and 20,000 views respectively. A yellow 'TOP' badge is positioned above the \$15.00 option.

Price	Views
\$3.00	1,000 Views
\$6.00	2,000 Views
\$15.00	5,000 Views
\$30.00	10,000 Views
\$60.00	20,000 Views

<https://buyviews.info/buy-youtube-views/>

Crowdturfing Landscape



Lee et al (2013)

How Can We Deal with Crowdturfing?

1. Make the process visible.
2. Detect and filter out the spotted campaigns.
3. Understand the logic of justification of participants.
4. Delegitimize the weak arguments.
5. ... What else?

More on the topic:

- Soliman & Rinta-Kahila (2023)
- Kauppila & Soliman (2022)
- Soliman & Rinta-Kahila (2018)
- Rinta-Kahila, & Soliman (2017)

To Sum Up ...

- Crowdsourcing is outsourcing to the crowd
 - ICT plays a major role in modern crowdsourcing
 - But the phenomenon has been around for centuries
 - Crowdsourcing tasks may be “simple” but they do not need to be “boring”
- There is no success recipe, however you need to
 - Make an effort to understand the context in which you operate
 - Make an effort to envision how you will manage the overall process
 - Make an effort to understand your crowd, and what motivates them
- Crowdsourcing can be used for evil as well
 - DaaS has gone under the radar and requires some serious attention
 - We need to devise strategies to combat the unethical-but-non-illegal behavior

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Q&A