

Social and Collaborative Information Seeking: State of the Union

Chirag Shah

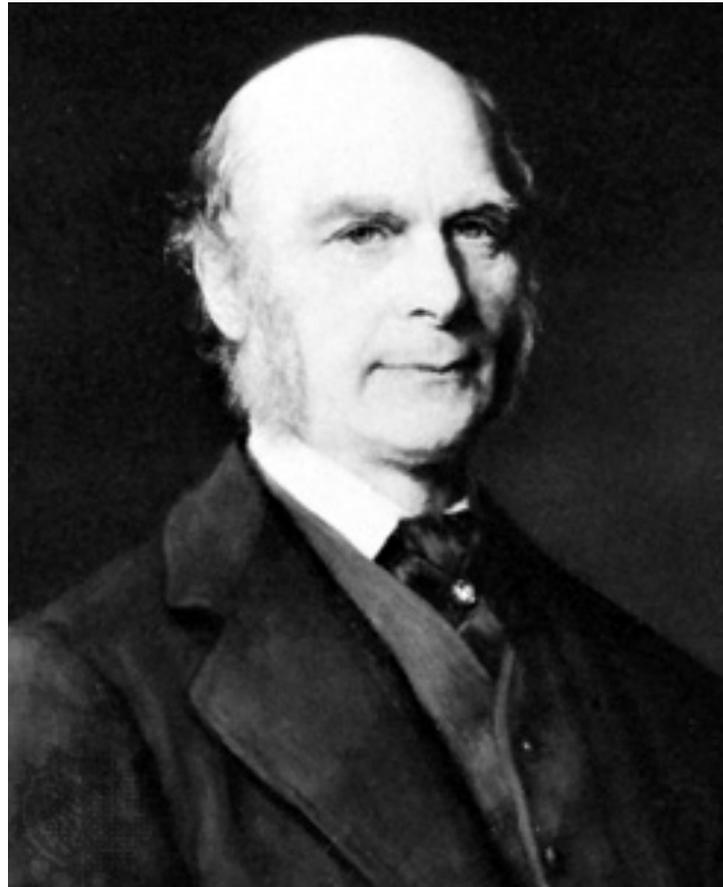
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**ECol 2015 Workshop Keynote at CIKM 2015
Melbourne, Australia**



Collective *intelligence* could be good



Sir Francis Galton (1822–1911)

But it's not always easy!

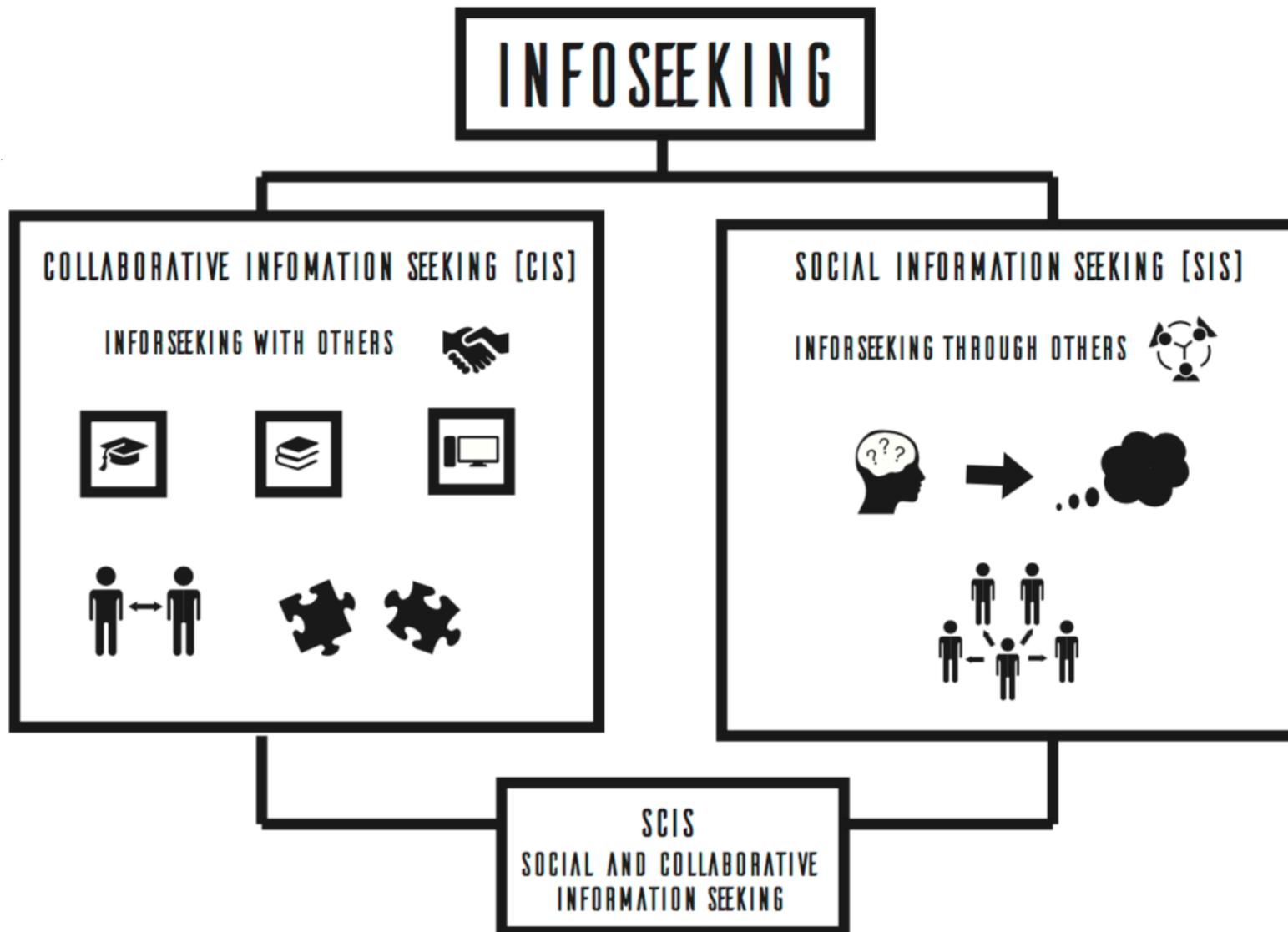


Council of Elrond, Lord of the Rings: Fellowship of the Ring

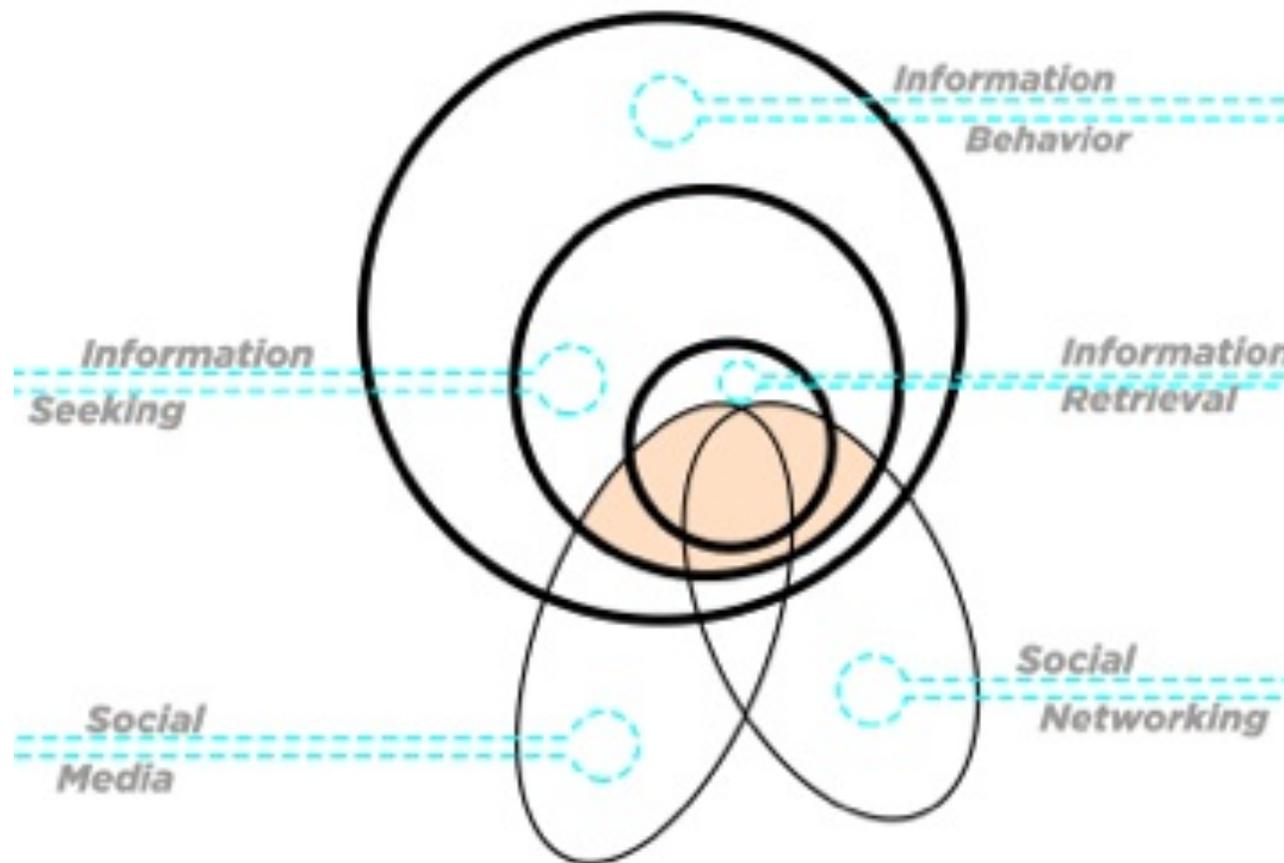
Overview of the talk

- What is social and collaborative information seeking (SCIS)?
- Why should we care?
- How it's studied (methods, evaluation)? Who studies it?
- Where does it apply?
- So what? Now what?

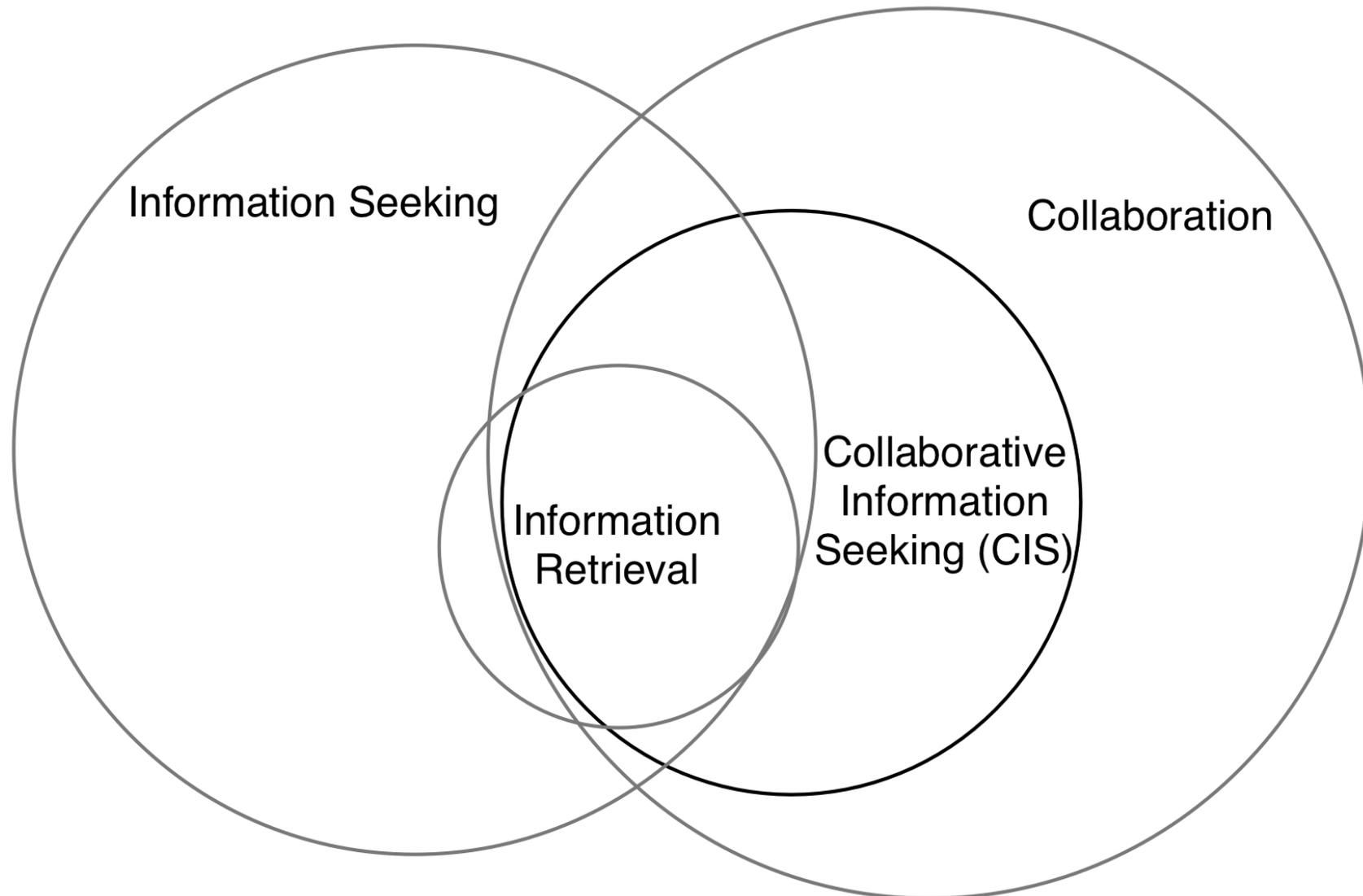
What is SCIS? *Framework-1*



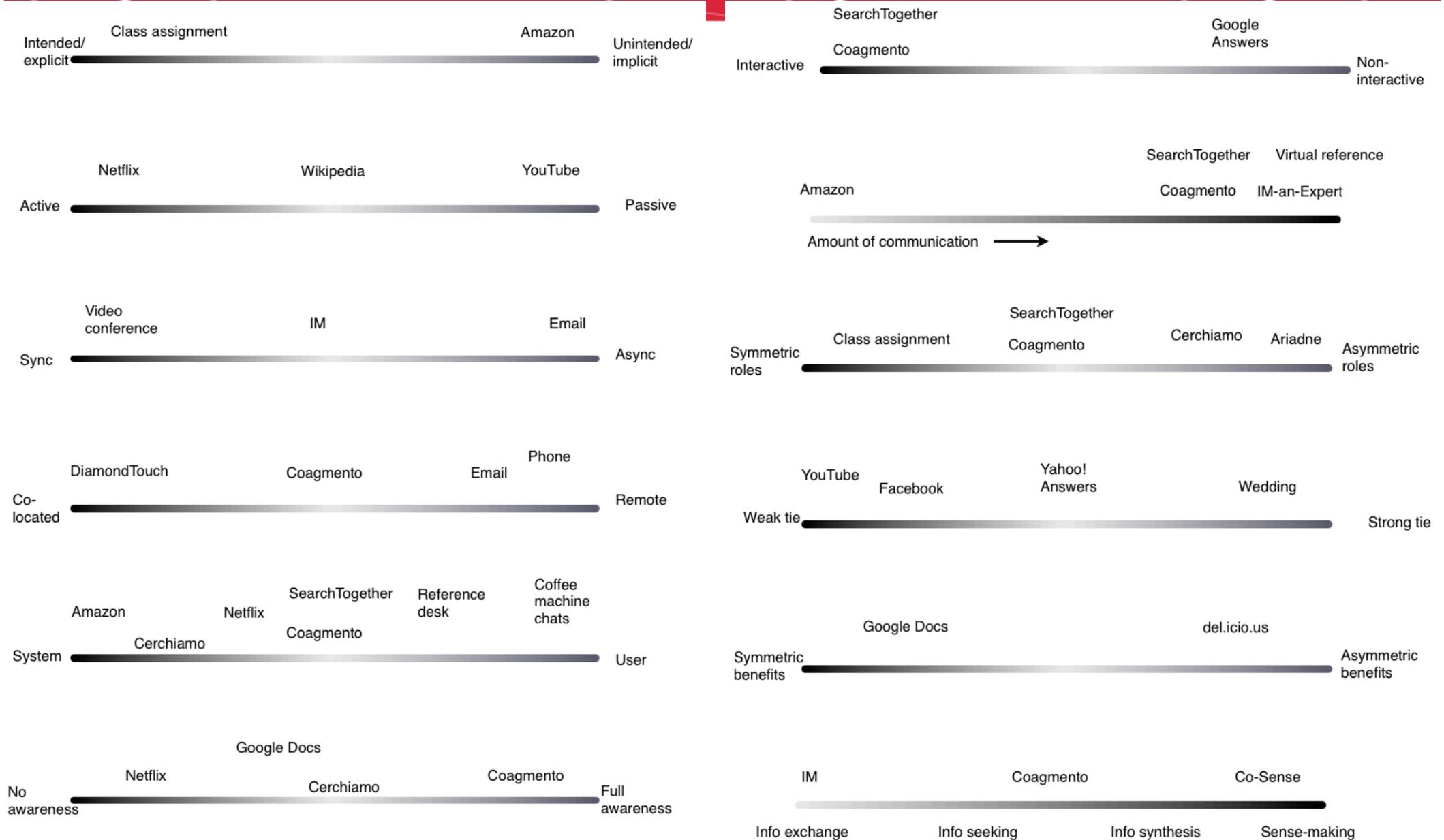
Social Information Seeking (SIS)



Collaborative Information Seeking (CIS)

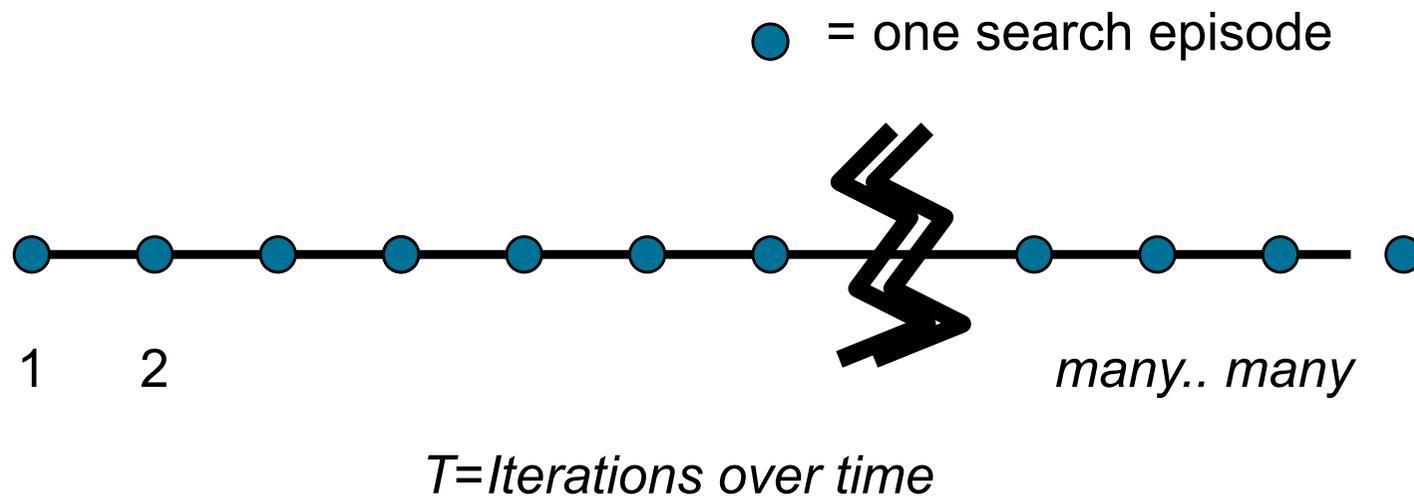


What is SCIS? *Framework-2*



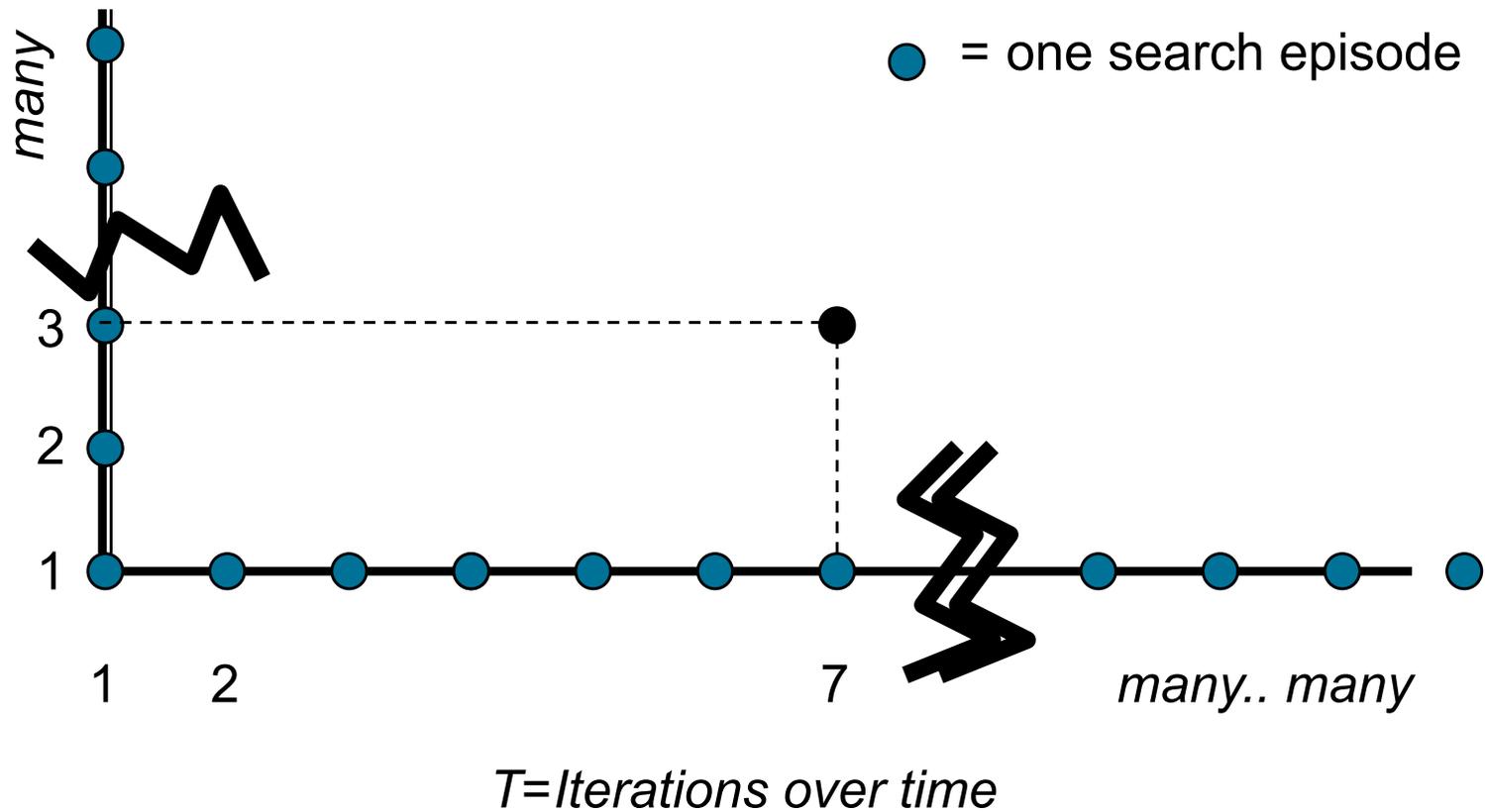
What is SCIS? *Framework-3*

One dimensions information seeking



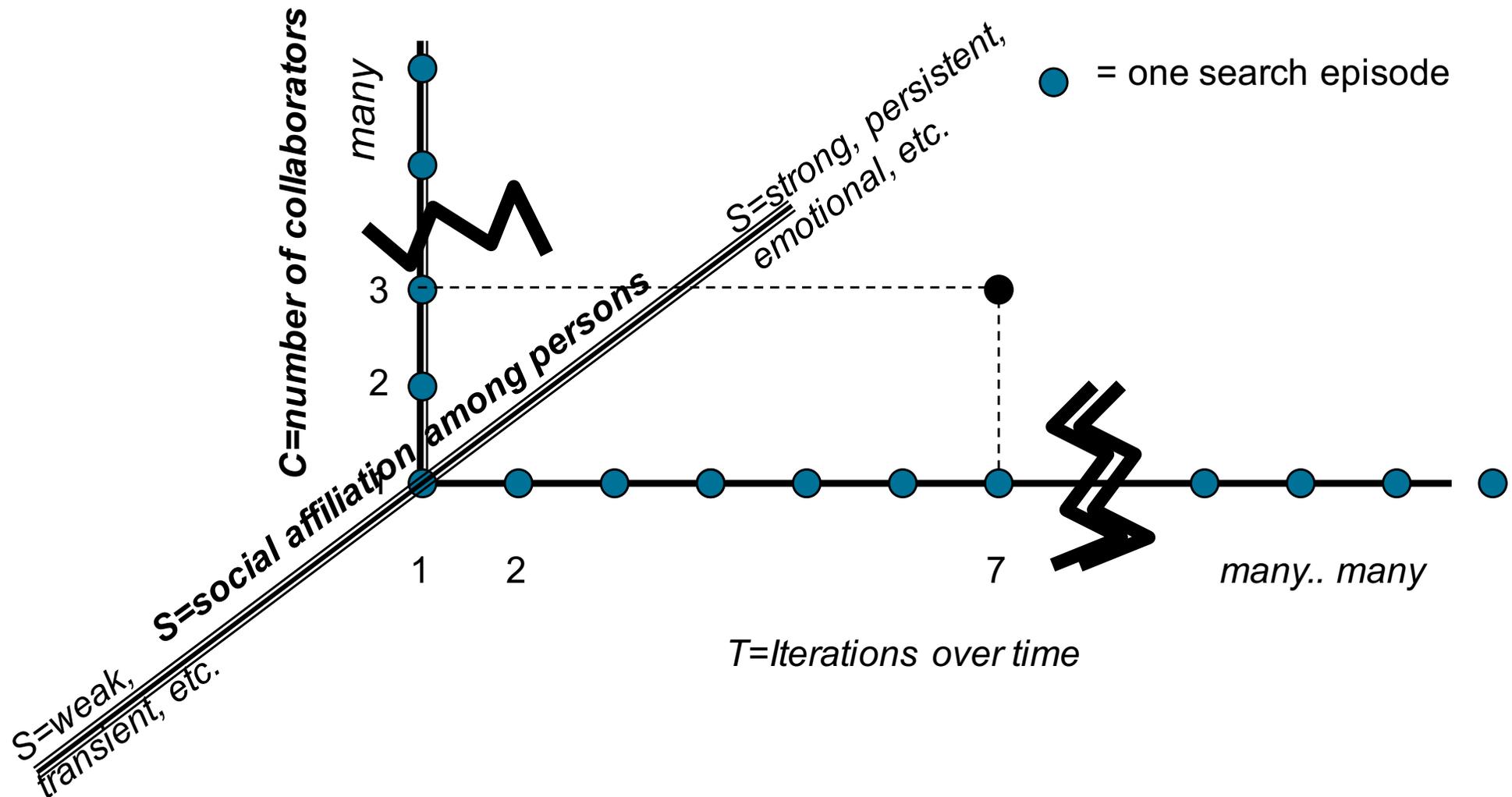
What is SCIS? *Framework-3*

Adding a dimension of collaboration



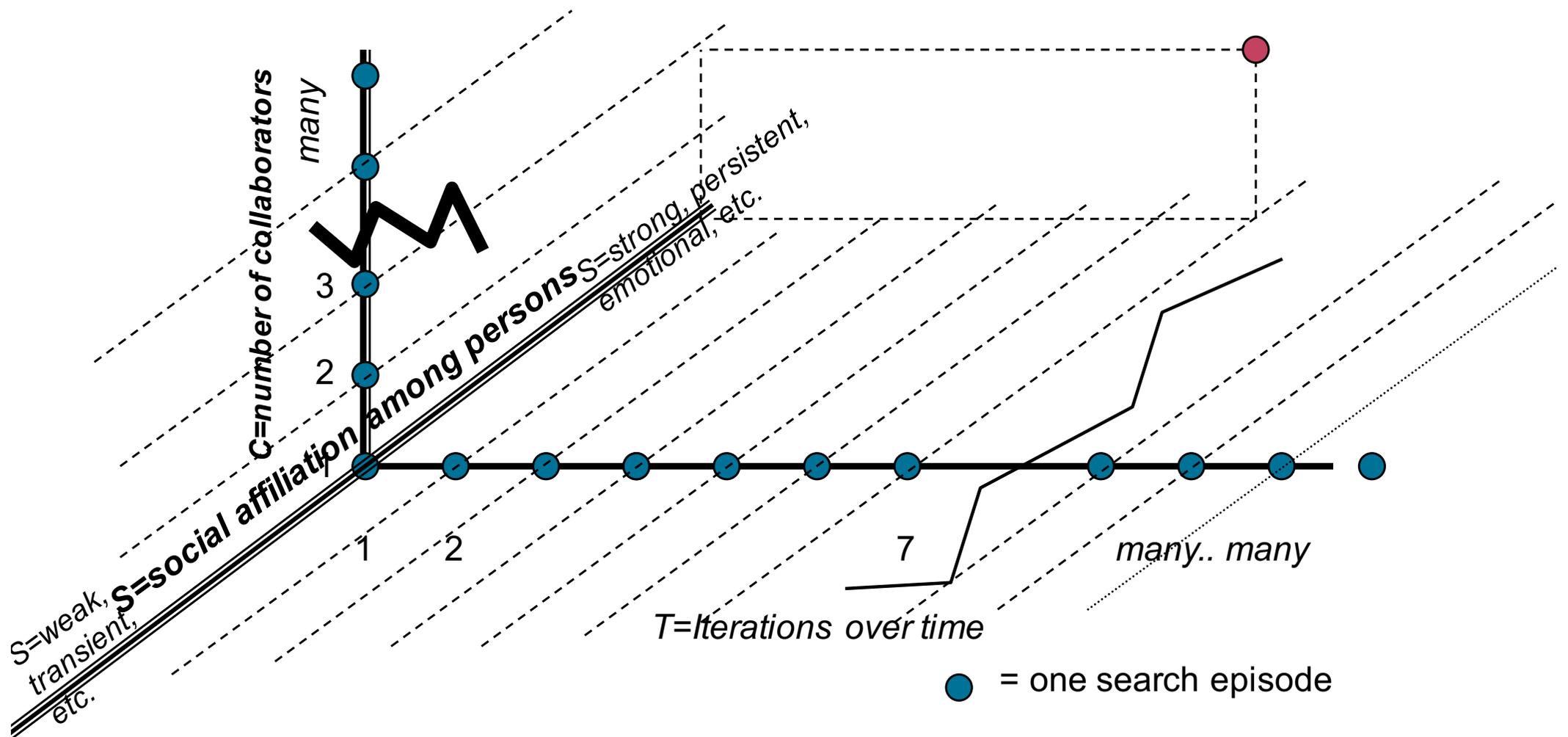
What is SCIS? *Framework-3*

Adding a dimension of social



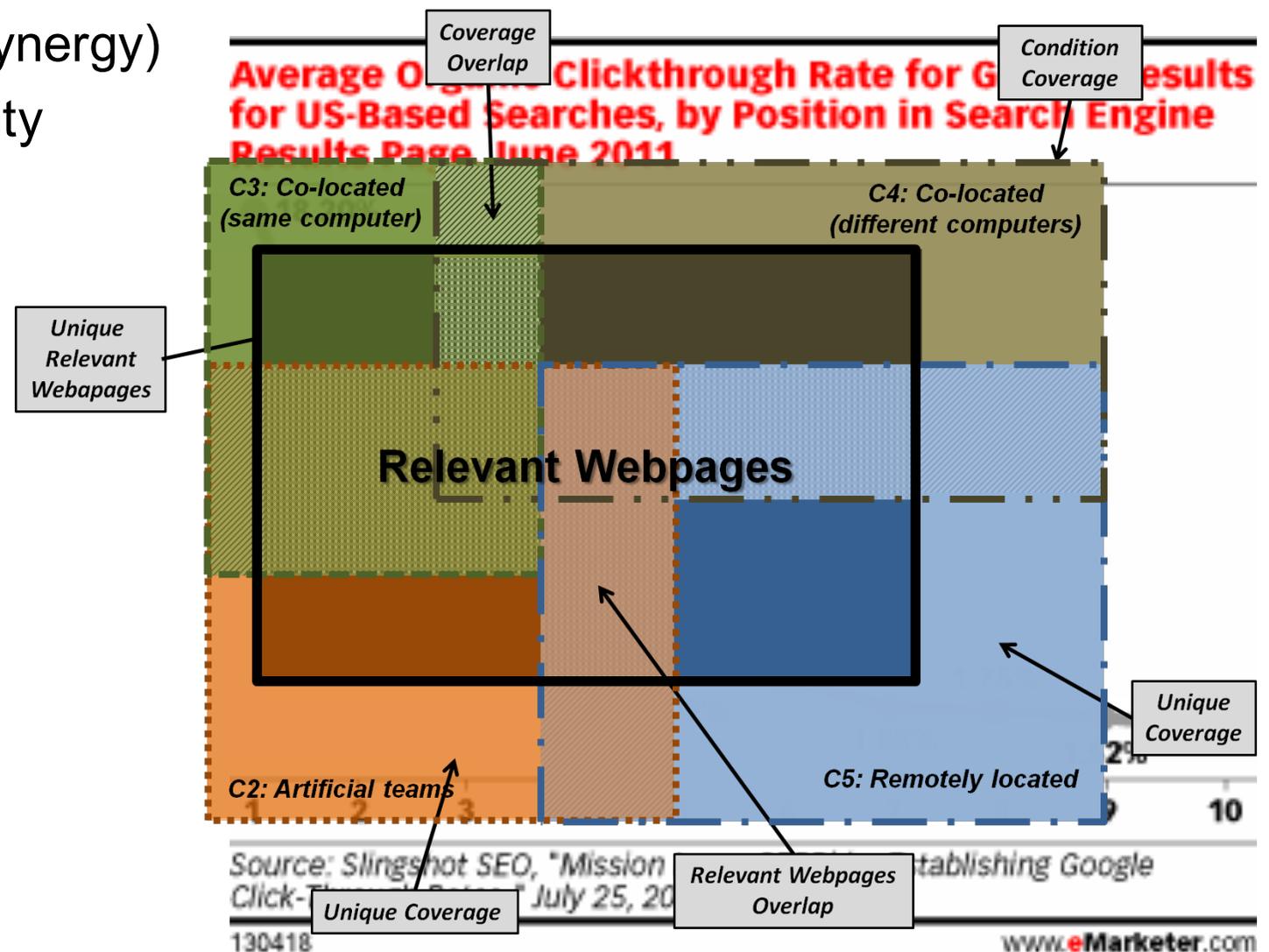
What is SCIS? *Framework-3*

Looking at the unique space of SCIS



Why should we care?

- Problems too difficult or impossible for individuals
- Achieve $1+1>2$ (synergy)
- Need more diversity



How it's studied? Who studies it?

- **SIS**
 - Social search, social Q&A, community Q&A
 - Facebook, Twitter, Pinterest, WikiAnswers, Yahoo! Answers, Stack Overflow
 - Contexts: crowdsourcing, social media
- **CIS**
 - Collaborative search, co-search/co-browsing
 - Algorithmically-mediated, User-mediated
 - Contexts: education; workforce
- **SIS+CIS = SCIS**
 - Common backgrounds: IR, UI/UX design, information science, cognitive science
 - Common applications: health, education
 - Common methods: content analysis, lab study, surveys, interviews, diary studies

Approaches

- **Ethnographic**
 - Observations [Grudin, Reddy, Hansen]
 - Diaries [Hyldegård, Shah]

- **Passive support**
 - User-mediated library-search [Twidale]
 - User-mediated Web-search [Morris, Shah, Capra]

- **Active support**
 - Algorithmically mediated [Pickens, Golovchinsky, Shah, Soulier, Tamine]
 - Agent-based [Teevan, Morris]

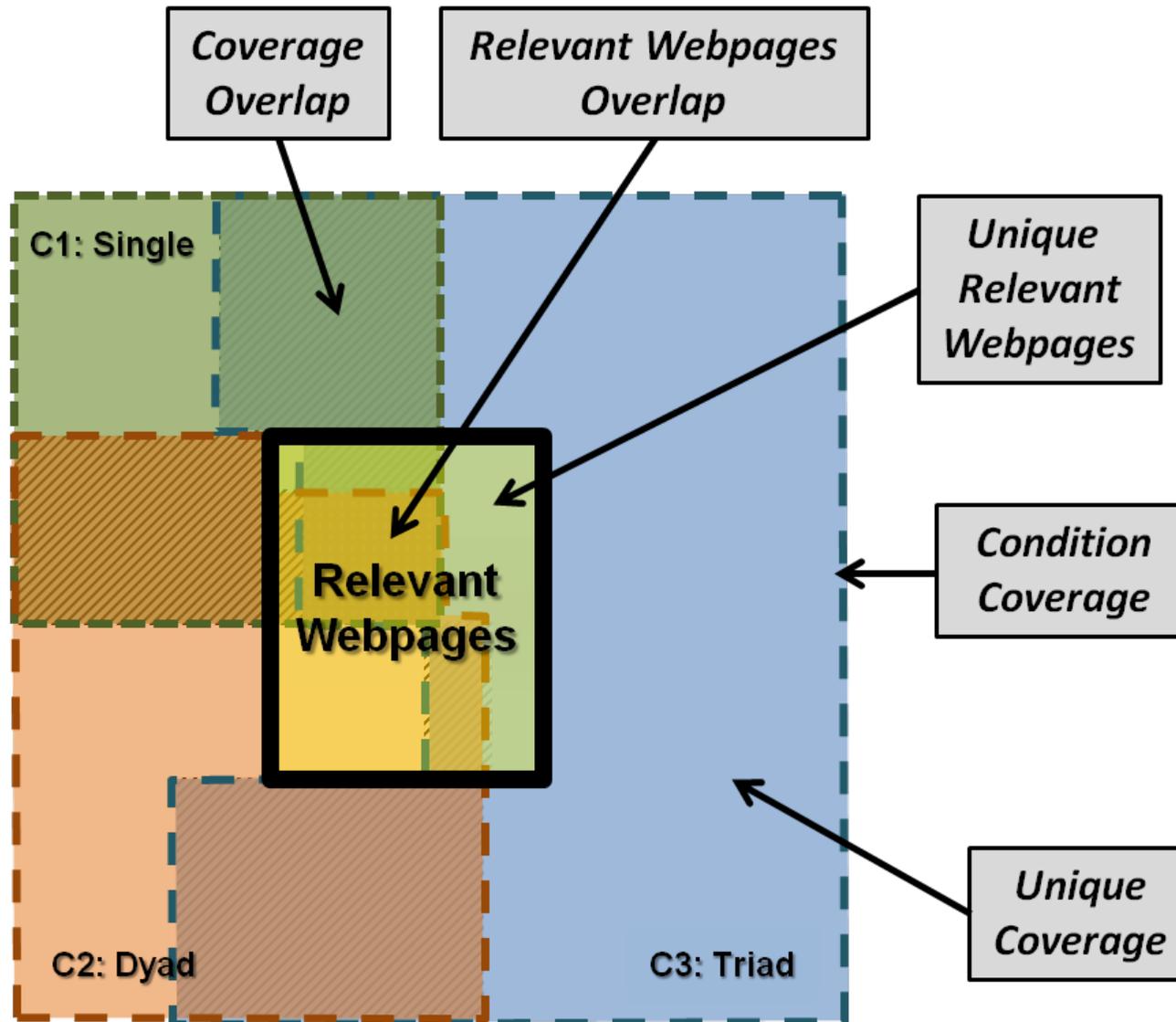
Evaluation: methodologies

- User studies (cognitive approach)
- Task or application based (field studies)
- System-based training-testing (simulations)
- Qualitative evaluations (ethnographic approach)

Evaluation: measurements

- **Traditional measures:** precision, recall, F-score, coverage, novelty, diversity
- **Productivity measures:** effectiveness, efficiency
- **Usability measures:** ease of learning, ease of use, satisfaction, cognitive load
- **Other:** engagement, awareness, learning

Evaluation: retrieval-based measurements



Where does it apply?

- Education
- Legal
- Health
- Product search/shopping
- Online gaming
- Cross-disciplinary projects
- Government (intelligence analysis)



So what? Now what?

Challenges and Opportunities

- Extending/replacing individual information seeking/retrieval **models** with those incorporating collaboration
- Context-dependent analysis of **costs and benefits** of working in socio-collaborative situations
- **Integration** of collaborative tools into existing practices
- **Converting** social tie into collaborative tie and vice versa
- **Evaluation**

Recent events related to SCIS

- Workshops by Golovchinsky, Morris, and Pickens:
 - JCDL 2008
 - CSCW 2010
 - CIKM 2011
- Workshop by Reddy, Jensen, and Twidale:
 - Group 2009
- Workshop by Shah, Reddy, and Twidale:
 - Group 2010
- Workshops by Shah, Capra, and Hansen:
 - ASIST 2011
 - CSCW 2013
 - DIMACS 2015
- Workshop on CIS in Cuba, 2011
- Social Search Social at Microsoft Research, 2012
- Evaluation in CISR workshop at CIKM 2015

Recent productions related to SCIS

Special issues

- IP&M: Golovchinsky, Morris, Pickens (2010)
- IEEE Computer: Shah, Capra, Hansen (2014)

Books

- Morris, M. & Teevan, J. (2010). *Collaborative Web Search: Who, What, Where, When, and Why*. San Rafael, CA: Morgan & Claypool Series on Information Concepts, Retrieval, and Services (Ed. Gary Marchionini).
- Shah, C. (2012). *Collaborative Information Seeking: The Art and Science of Making 1+1>2*. Berlin, Germany: Springer (IR series).
- Hansen, P., Shah, C., & Klas, C-P. (Eds) (2015). *Collaborative Information Seeking*. Berlin, Germany: Springer (CSCW series).

What we already know (or should know)

- Collaboration is not always needed or useful.
- Even when it is needed and useful, we don't always know how to proceed.
- Social and collaborative ties carry costs.
- Collaboration is usually not one of the recommendations for information seekers.
- Issues of **awareness** and **privacy** go together.
- Issues of **control** and **transparency** go together.
- Issues of **communication** and **coordination** go together.

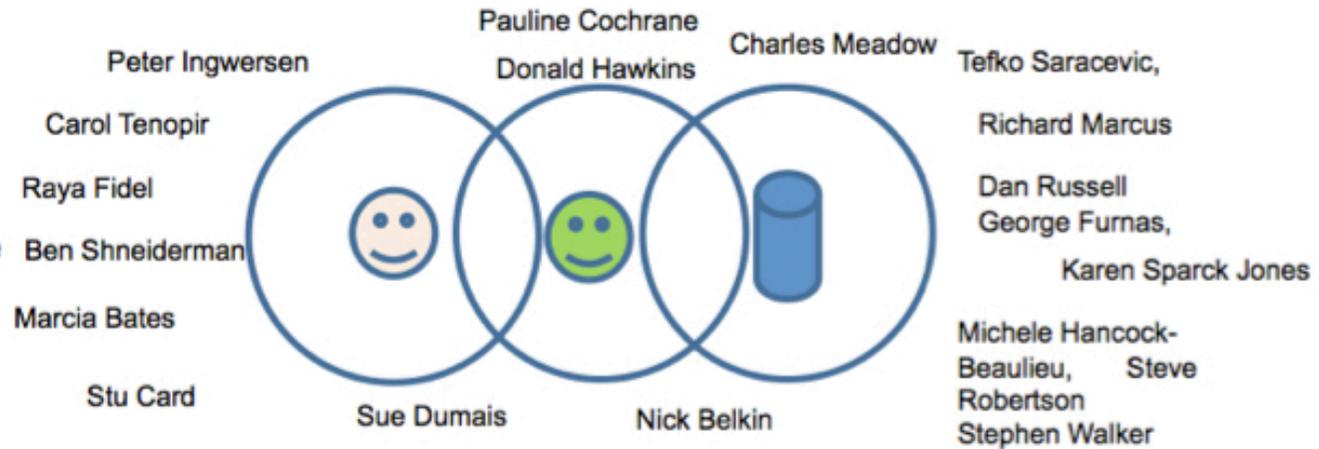
What we don't know

- What are the fundamentals of SCIS research?
- Why should people care about SCIS?
- What is the big impact on the society?
- What other important problems might be addressed with the use of socio-collaborative connections?
- What are computational models that can be developed, used, and evaluated?

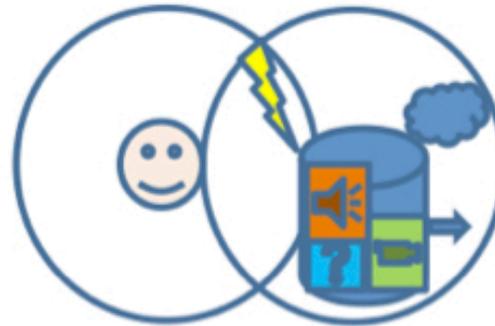
Where we can go from here

- Get “system people” and “user people” together.
- SCIS in education – curriculum development, shared resources for teaching, subject modules.
- Summer program, seminars.
- Create test collections (similar to TREC, CLEF, NTCIR, FIRE).
 - Tasks/tracks
 - Datasets
 - Assessments/matrices
- Create narratives for funding agencies.

Pre 1980s
Human and Machine Intermediaries



1980s-1990s
Networks, search algorithms, words and links, no human intermediary



2000-present
UIs, facets, usage patterns, social interactions



So what? Now what?

- **Idea:** Information seeking doesn't need to be a solitary pursuit.
- **Necessity:** Limits to what engineering solutions can provide; need to extend information seeking in other dimensions.
- **Opportunity:** Web 2.0 and social Web technologies help bring back the social and collaborative dimensions of information seeking.

If we are not careful, we could lose the battle that we have started to win.

Thank You

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