

Building online environments for social AI agents with Aigents

Anton Kolonin, Ph.D.

Aigents®, Founder

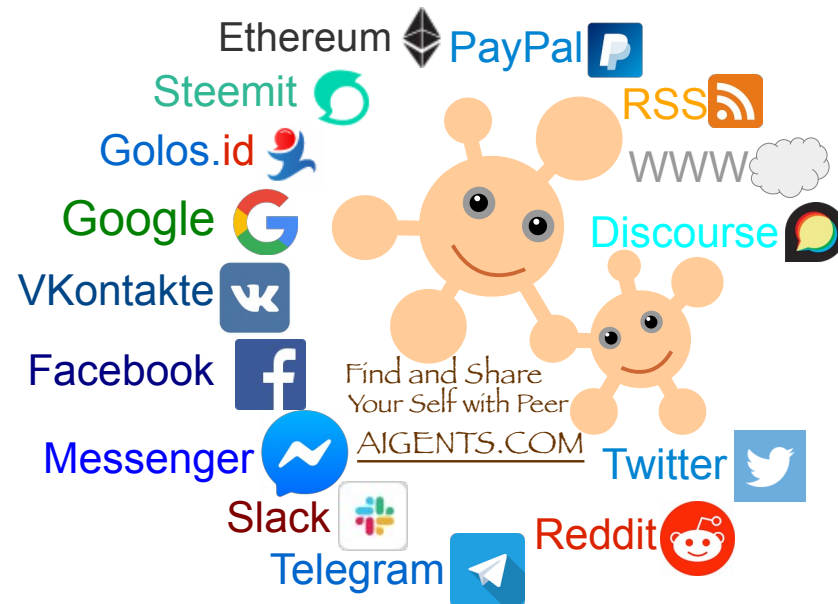
SingularityNET, AI and blockchain architect

Novosibirsk State University, Senior lecturer



Aigents Social and Media Intelligence Platform for Business

Joins heterogeneous social and online media sources, blockchains and payment systems and couples them with artificial intelligence to find and track changes in the field of information to **let its force be with you.**

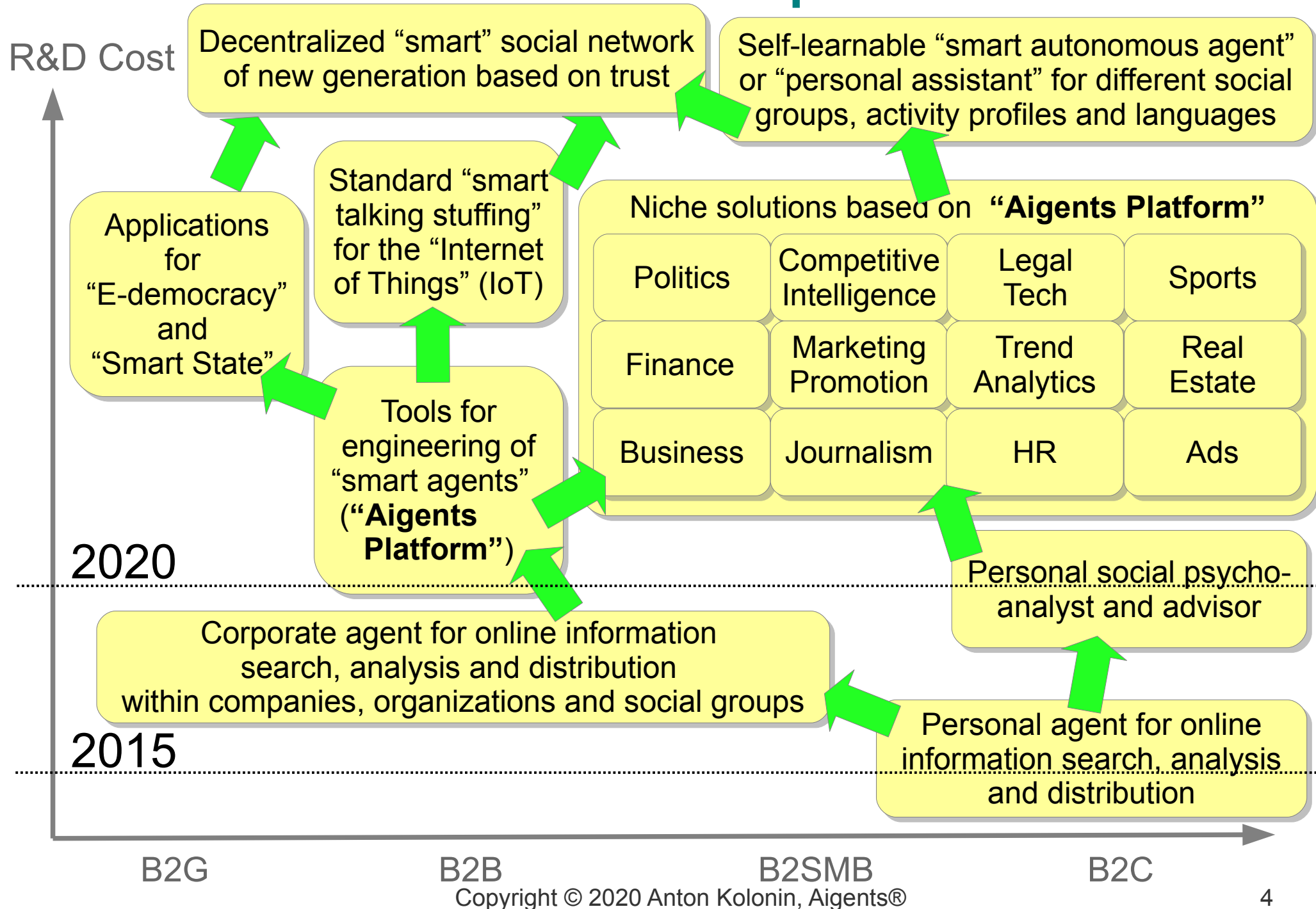


Aigents Personal AI

serving as a **magic glass ball** in the world of social and online networks to recognize one's preferences, find what they need and help managing connections.

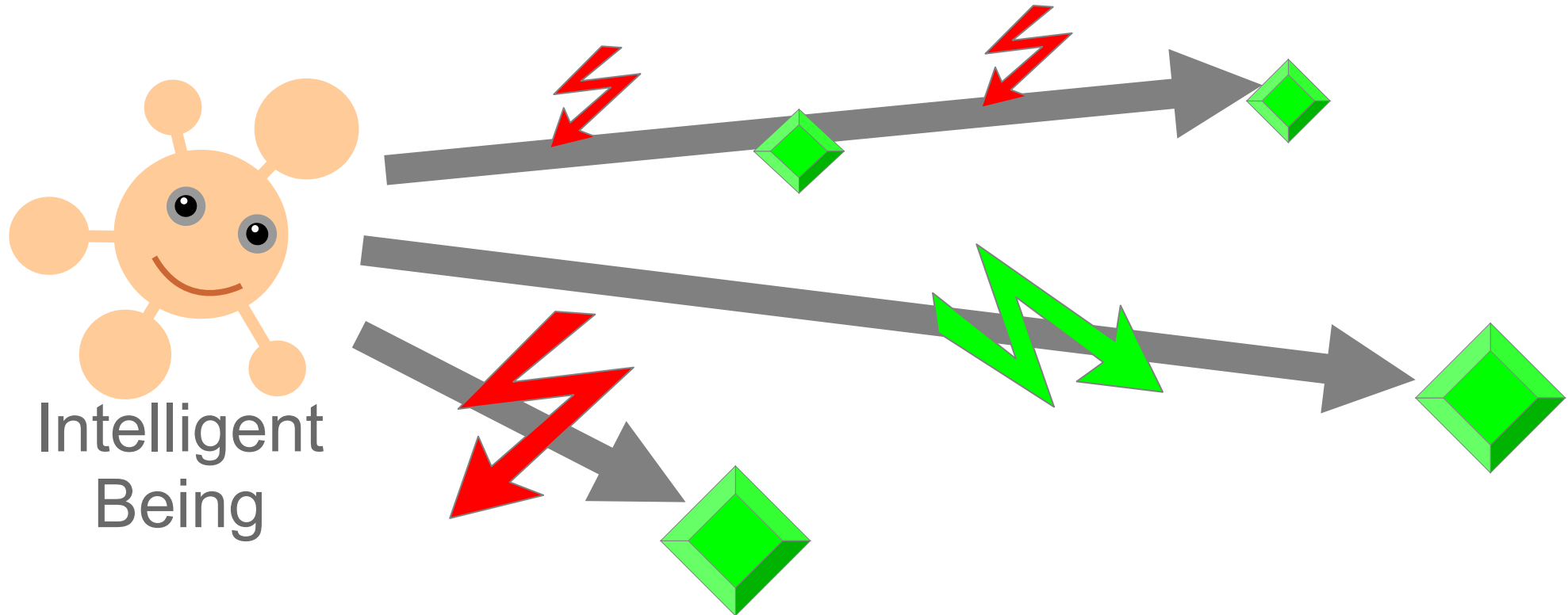


The Universe Capture Plan



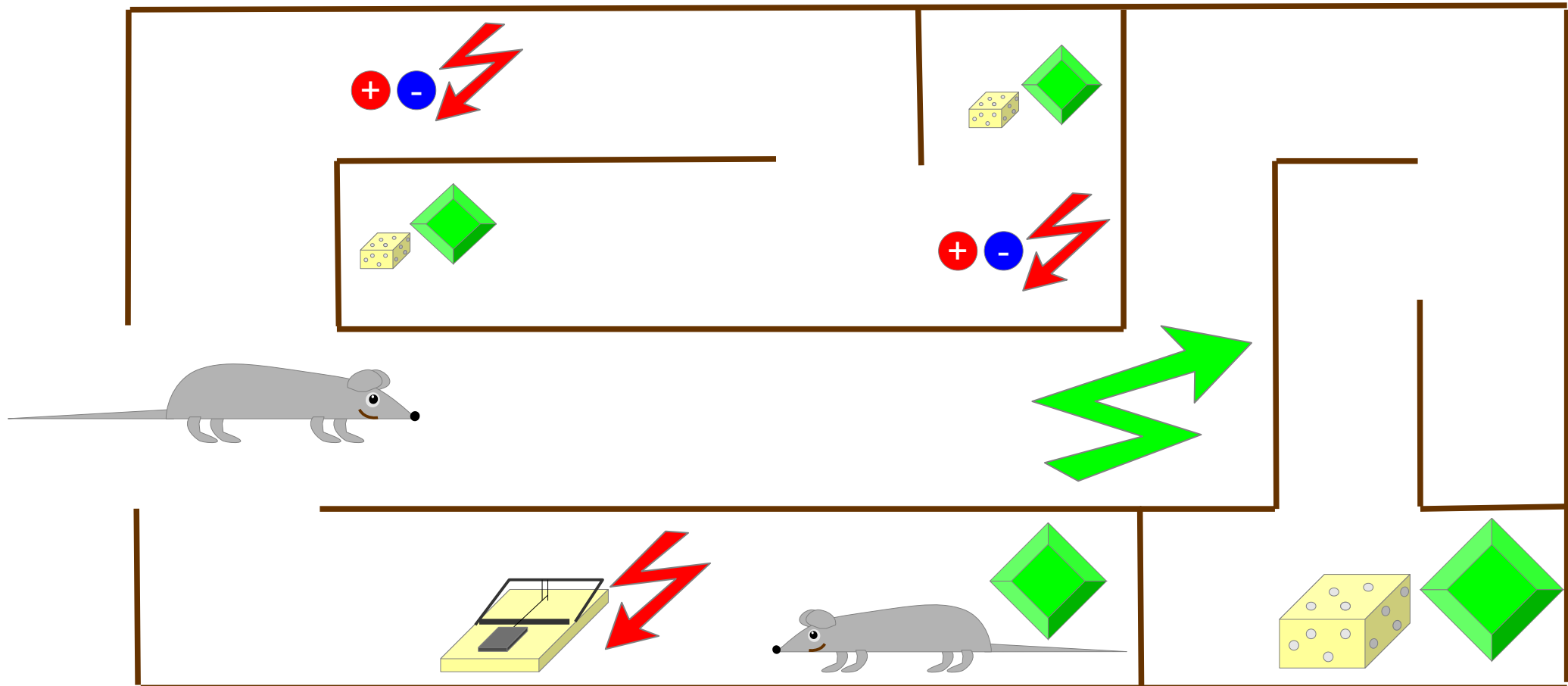
General Intelligence:

Reaching complex goals in
different complex environments, using
limited resources and *minimizing risks*
(Ben Goertzel, Pei Wang, et al.)



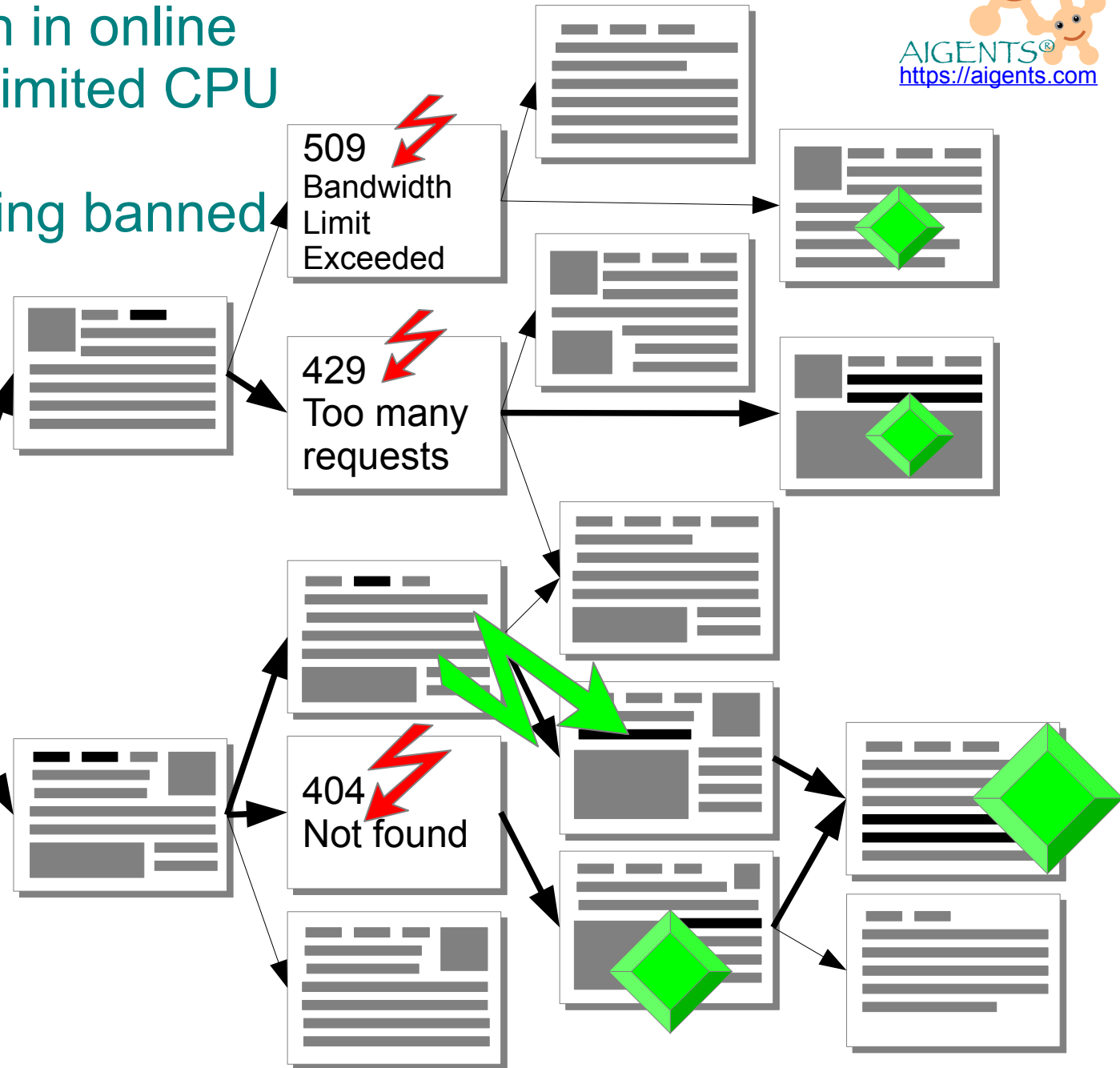
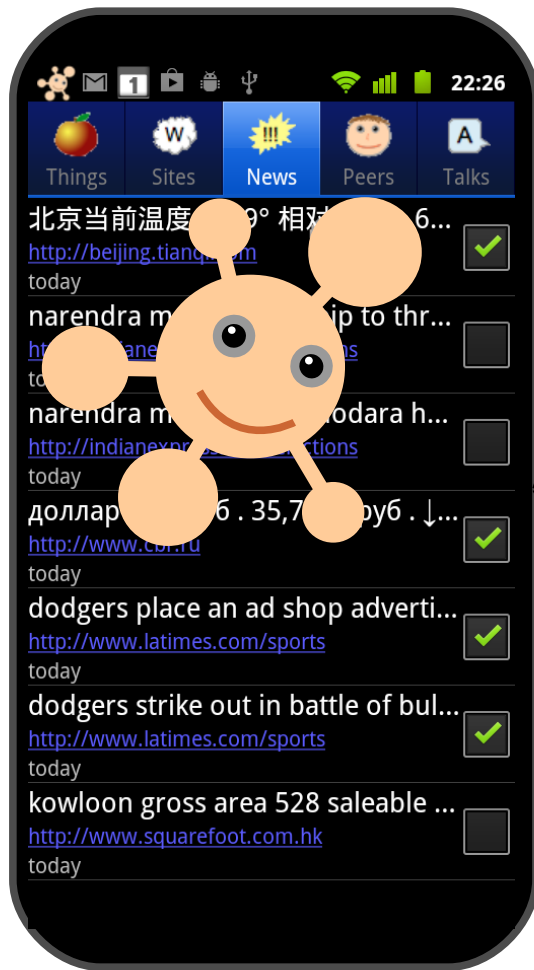
Narrow Biological Intelligence:

Reaching food and parents for self-reproduction in natural environments using limited physical resources and minimizing existential risks



Narrow Online Intelligence:

Reaching information in online environments using limited CPU and RAM resources, minimizing risk of being banned



Problem #1 that we solve

Make time-critical news monitoring more precise, reliable, safe and cheap.

Configuring custom combination of online information sources.

Specifying precise alerting text patterns.

Using artificial general intelligence (AGI) to find critical information.

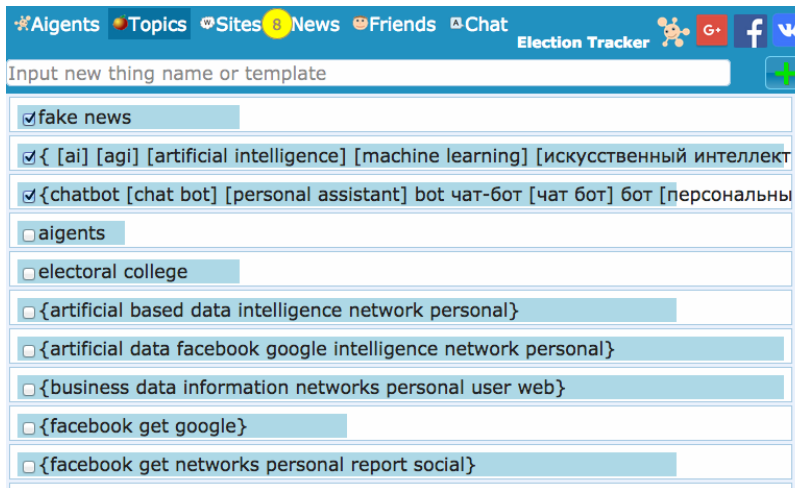
Providing timely alerts with news items extracted from online text.

Evaluating news relevance based on collective intelligence.



How it works

Agent figures out initial set of information sources and text patterns from online data.



Aigents Topics Sites 8 News Friends Chat Election Tracker

Input new thing name or template

- ☒ fake news
- ☒ { [ai] [agi] [artificial intelligence] [machine learning] [искусственный интеллект]
- ☒ {chatbot [chat bot] [personal assistant] bot чат-бот [чат бот] бот [персональны
- ☐ aigents
- ☐ electoral college
- ☐ {artificial based data intelligence network personal}
- ☐ {artificial data facebook google intelligence network personal}
- ☐ {business data information networks personal user web}
- ☐ {facebook get google}
- ☐ {facebook get networks personal report social}

User adjusts preferences and provides feedback.



Aigents Topics Sites 2 News Friends Chat Election Tracker

Input search text

☐ today

i encourage all of you to use your natural and well-developed skills to adapt to changes here at home as well. . i know this was a hotly contested election we do not all feel the same way about the outcome," said tillerson
<http://www.reuters.com/article/newsOne/idUSKBN15H2G0>

☐ yesterday

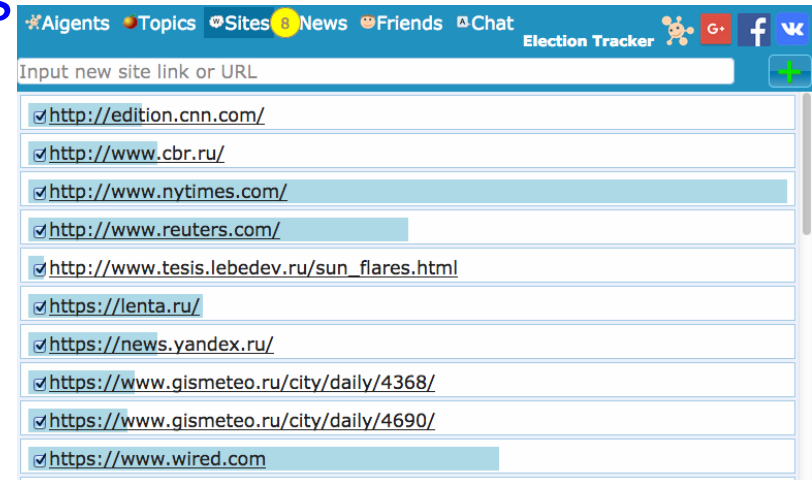
facebook ceo mark zuckerberg famously dismissed the impact of fake news as a red herring that betrayed a lack of faith in democracy
<https://www.wired.com/2017/02/trump-tech-finds-troll-cant-ignore>

☒ yesterday

Okay, Aigents now can be accessible as Facebook or Telegram bot, including capability to retrieve reports on personal activity on social networks with ability to configure contents of the reports manually. First of all, you can connect to your personal Aigent living at <https://aigents.com/> (and still accessible by means of Web user interface) in two alternative ways. Use Facebook Aigents bot at <https://www.messenger.com/t/aigents> or Telegram Aigents bot at



Agent finds, extracts and delivers information with relevance assessed.



Aigents Topics Sites 8 News Friends Chat Election Tracker

Input new site link or URL

- ☒ <http://edition.cnn.com/>
- ☒ <http://www.cbr.ru/>
- ☒ <http://www.nytimes.com/>
- ☒ <http://www.reuters.com/>
- ☒ http://www.tesis.lebedev.ru/sun_flares.html
- ☒ <https://lenta.ru/>
- ☒ <https://news.yandex.ru/>
- ☒ <https://www.gismeteo.ru/city/daily/4368/>
- ☒ <https://www.gismeteo.ru/city/daily/4690/>
- ☒ <https://www.wired.com>






Try it at <https://aigents.com>

Free online demo accounts available, default monitoring on world leaders and AI news.

Screenshot of the Aigents website interface showing a search for "trump" and a list of news articles.

The interface includes a navigation bar with links: Aigents, Topics, Sites, News (6), Friends, Graph, Chat. There is a "Login & Registration" button and social media icons for Google+, Facebook, and VK.

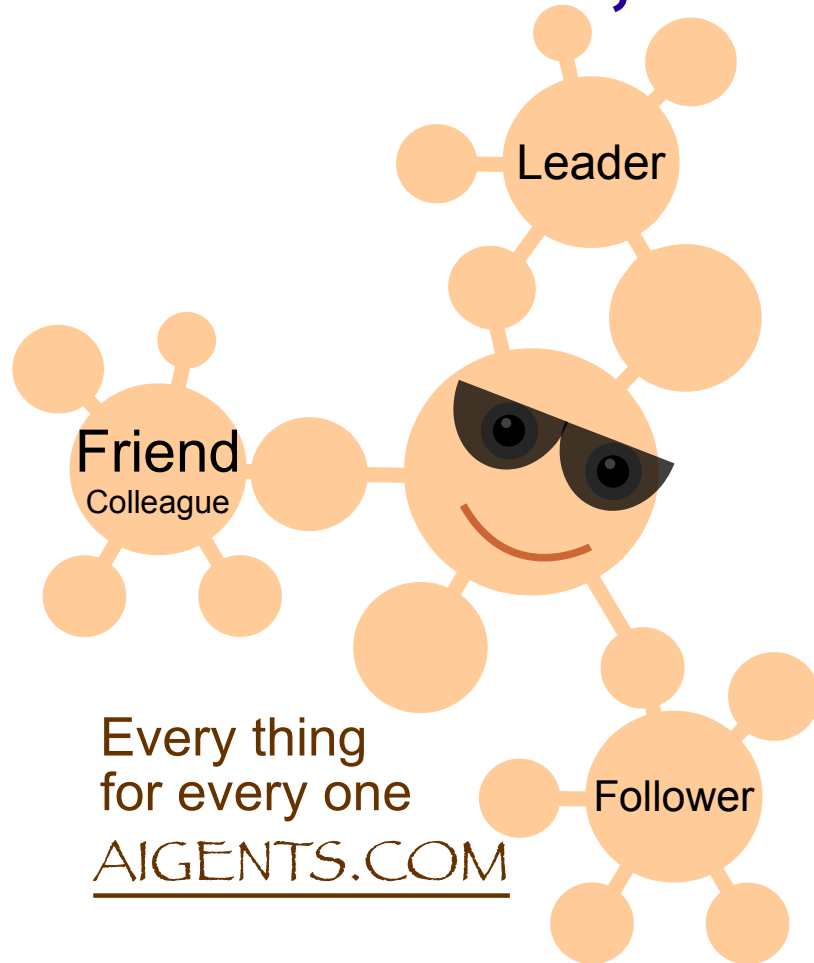
The search results are displayed in a list format, categorized by date:

- today**
 -  clapper was one of four top security and intelligence officials who put their names behind a january 6 report that said russian president vladimir put behind a complex effort of hacking and misinformation to influence the 2016 election in trump's favor
<http://www.digitaljournal.com/news/world/hollywood-stars-ex-spies-launch-russia-investigation-campaign/article/502876>
 -  sections business markets world politics tech commentary breakingviews money life pictures reuters tv discover thomson reuters financial go solutions legal reuters news agency risk management solutions tax & accounting blog: answers on innovation @ thomson reuters directory of contact support featured shock tactics the garage science behind tasers immigration policy trump administration red tape tangles up visas for foreigners
<http://www.reuters.com/theWire>
 -  the more intense scrutiny comes after president donald trump called for a review of the controversial program
<http://www.reuters.com/video/2017/09/20/red-tape-ties-up-h-1b-visas-for-skilled?videoId=372572112&videoChannel=1>
- yesterday**
 -  and is examining any financial entanglement between russia and president trump his associates
<http://www.nytimes.com/>
- 2017-09-14**
 -  president trump came under sharp attack on thursday for appearing to set aside a border wall fight while reaching a deal on daca immigrants
<http://www.nytimes.com/>
- 2017-09-10**
 - lawrence kravos on trump's...

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Problem #2 that we solve

Make personal online communications more useful, safe and efficient.



Helping to find right leaders in social media, while interacting online under conditions of information overflow.

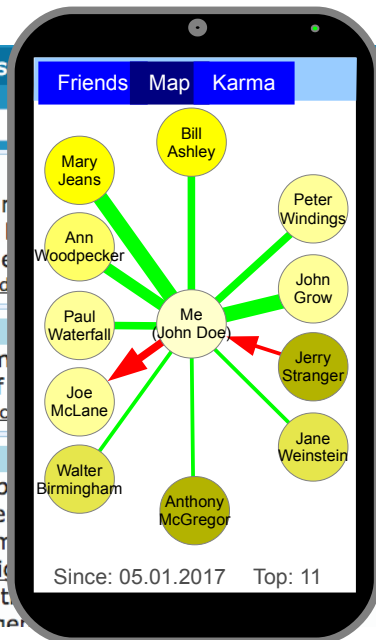
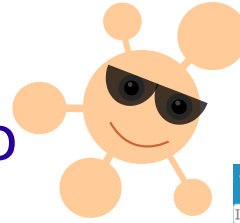
Helping to improve multiple relationships with friends and colleagues, getting rid on annoying connections.

Helping to find target audience for personal and business promotion and improve loyalty – for everyone.

What is actual solution



I connect my “virtual agent” to my social networks and communication channels and tell it about my preferences.



“Agent” extracts information from networks and online communications automatically, analyses my posts, comments and messages and alerts once there is an important change.

How to get started



Hi, I am your Aigent.
What do you want to know?

- ☐ My interests
- ☐ My sites
- ☒ My friends/colleagues
- ☐ My followers
- ☐ Who I follow
- ☐ Who is similar to me
- ☒ My social map
- ☒ My "Karma"
- ☐ My mood
- ☒ Chat with Aigent



Ok, let me know - where
can I get that information?

- ☒ My email
- ☒ My text messages
- ☒ My Web navigation
- ☒ My Web search
- ☒ My Facebook
- ☒ My Google+
- ☒ My Twitter
- ☒ My VKontakte
- ☒ My Steemit
- ☒ My Golos





Great, finally, can you tell about
yourself and your preferences?

Email

Name

Surname

Secret

Answer

Maximum news(\$)

History days (\$)

Update hours (\$)

☒ Keep data private (\$)

☐ Send notifications (\$)

1

Specify your needs

2

Select your sources

3

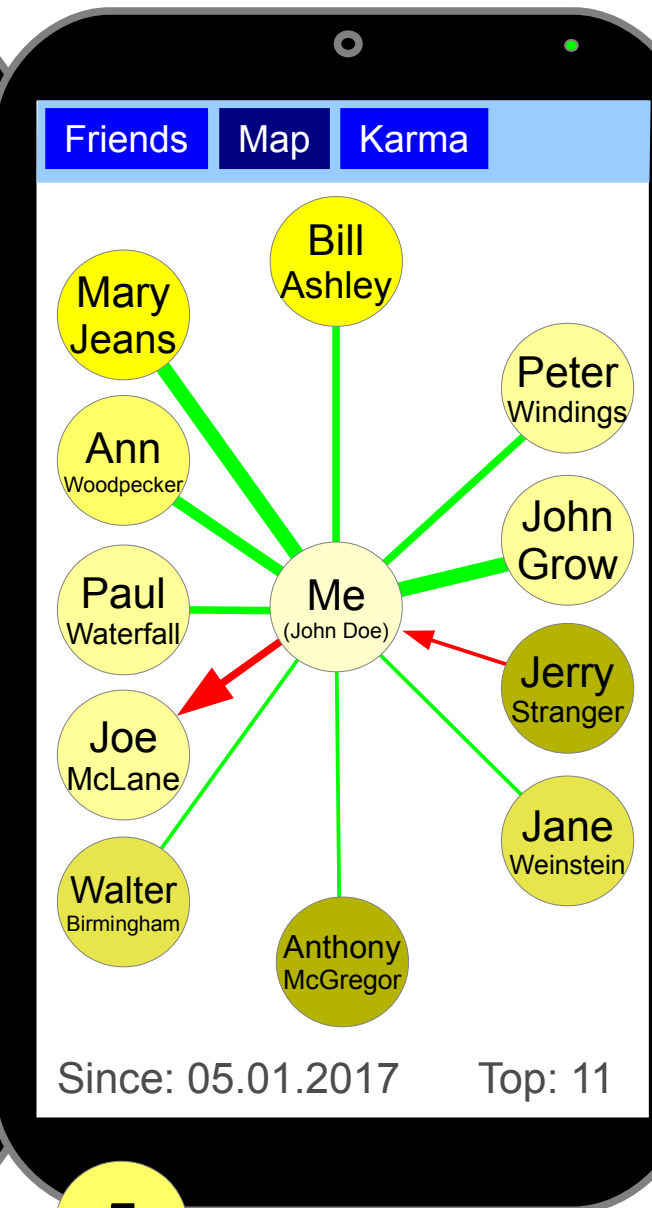
Set up preferences

What is delivered



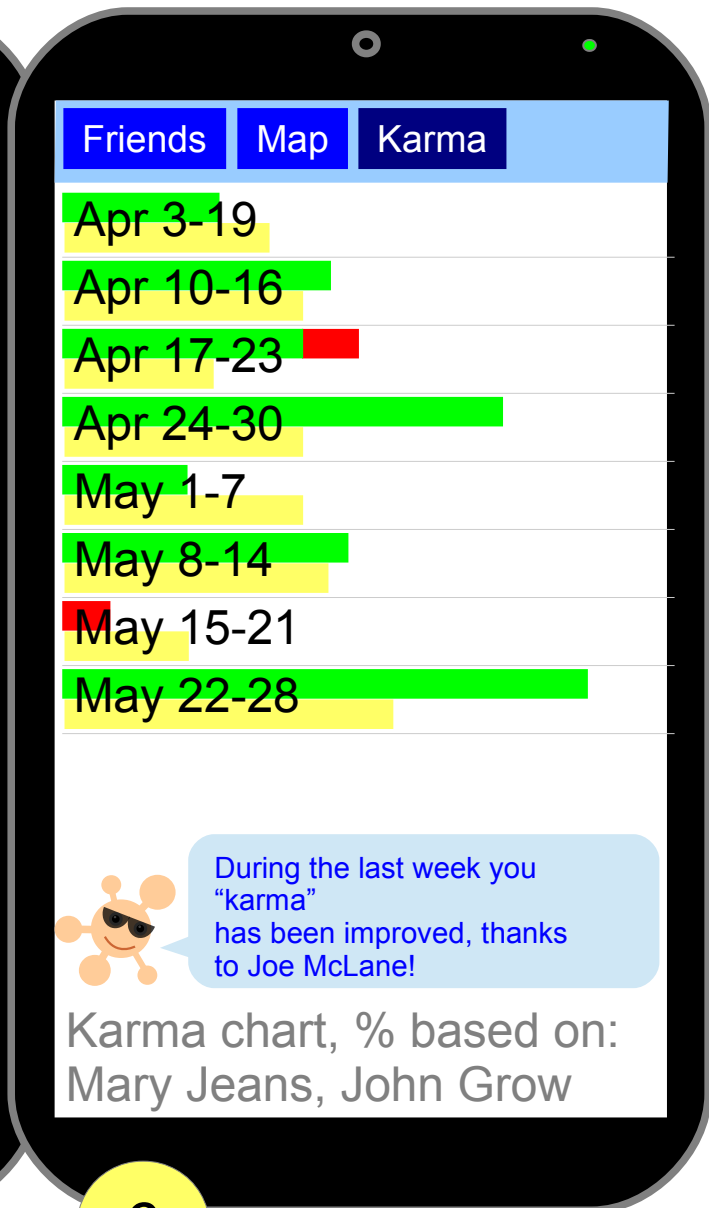
4

Watch your friends



5

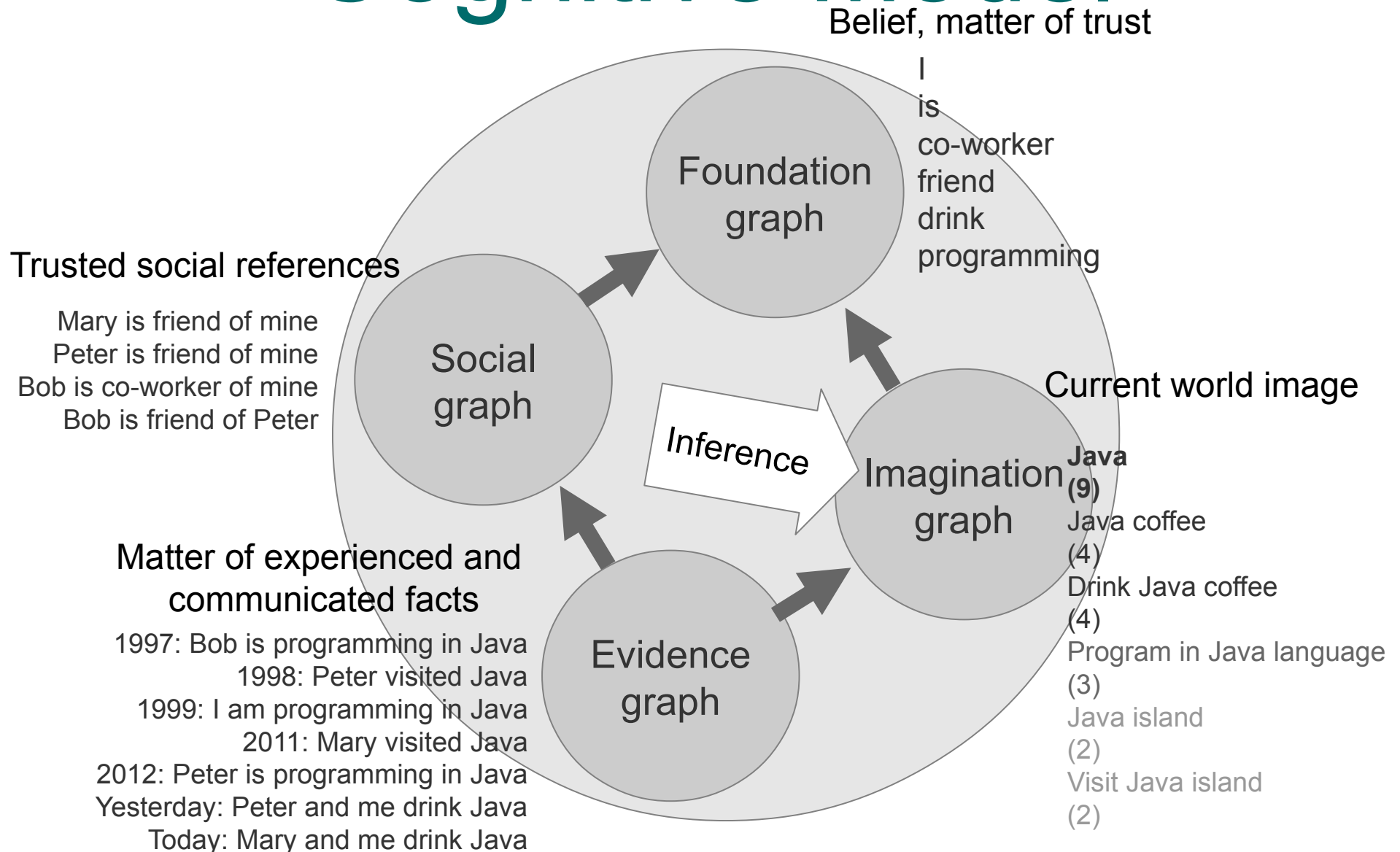
Study your environment



6

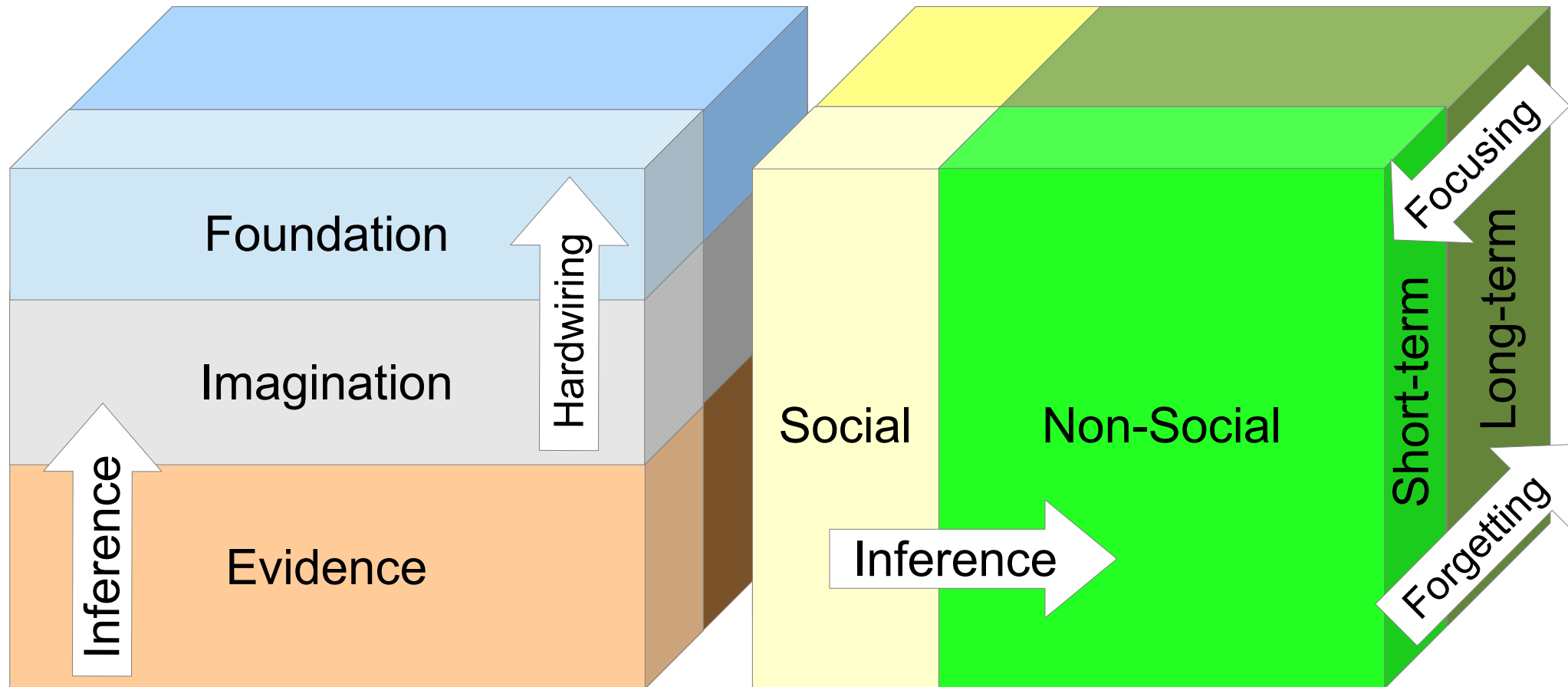
Improve your "karma"

Social Evidence-based Cognitive Model



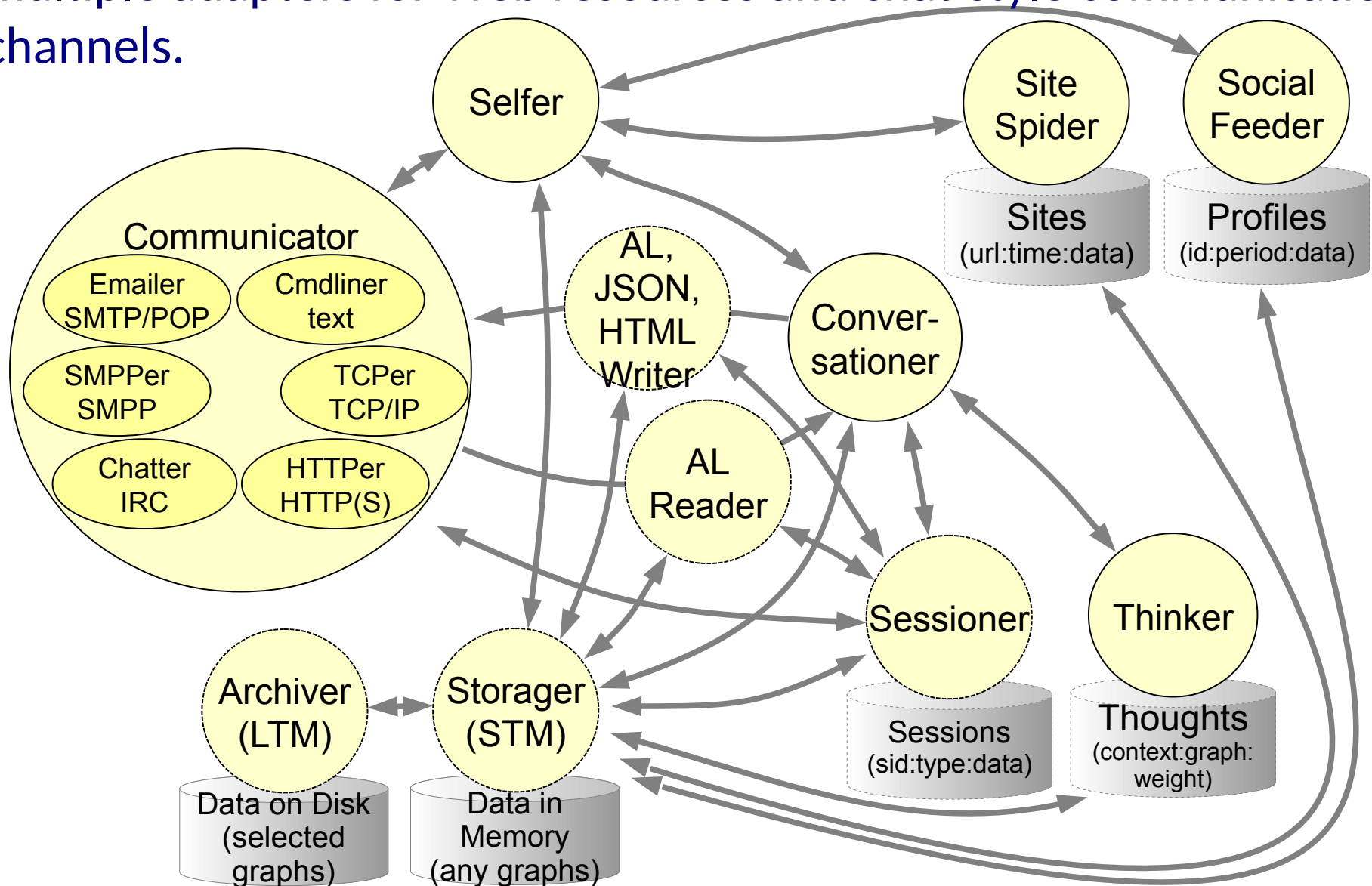
Cognitive Architecture Approach

Social evidence-based resource-constrained approach with temporally and socially scoped evidence, supported with short-term and long-term memory capabilities.



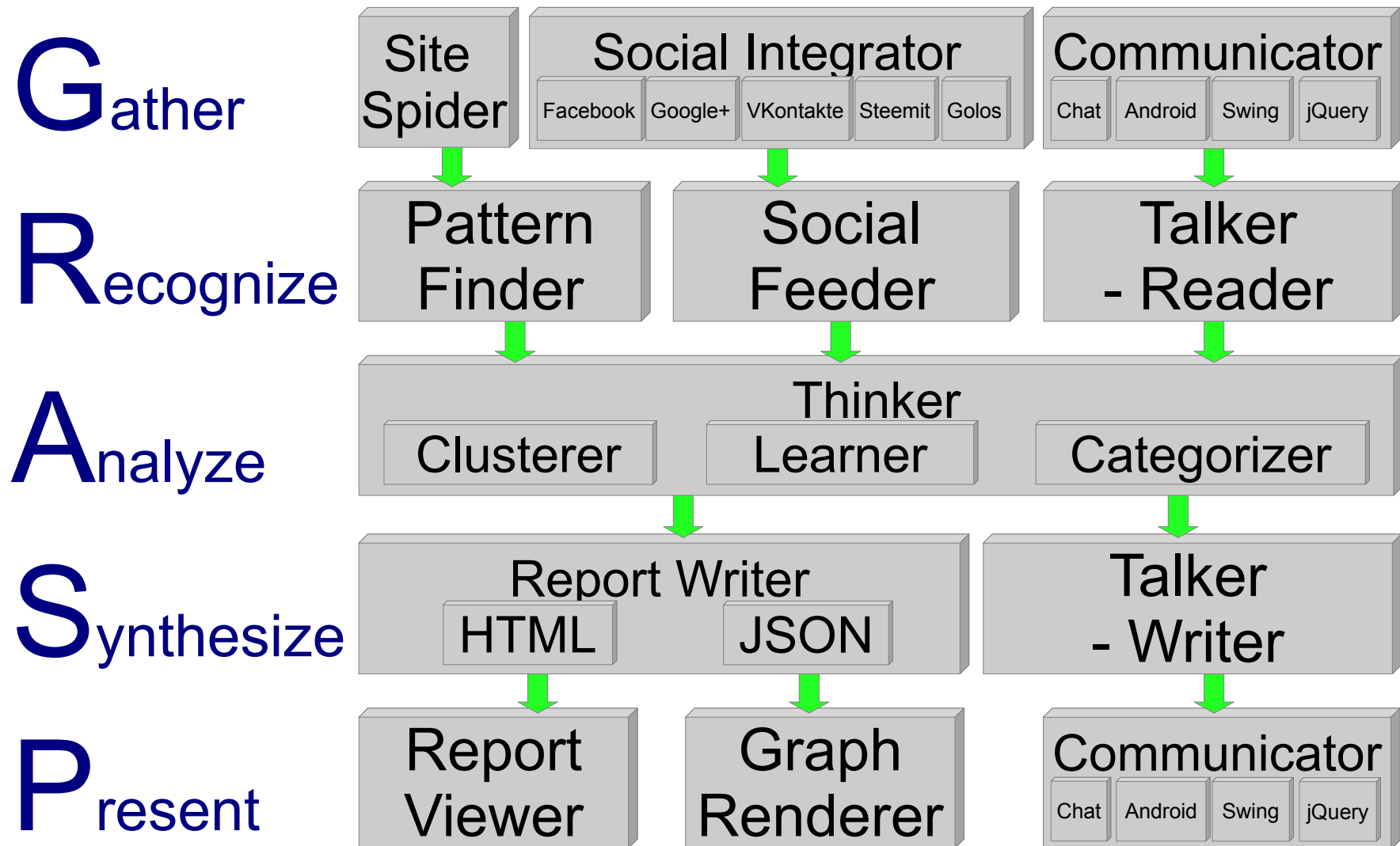
Overall Architecture (2015)

Autonomous long-term storage with in-memory short-term storage, multiple adapters for Web resources and chat-style communication channels.

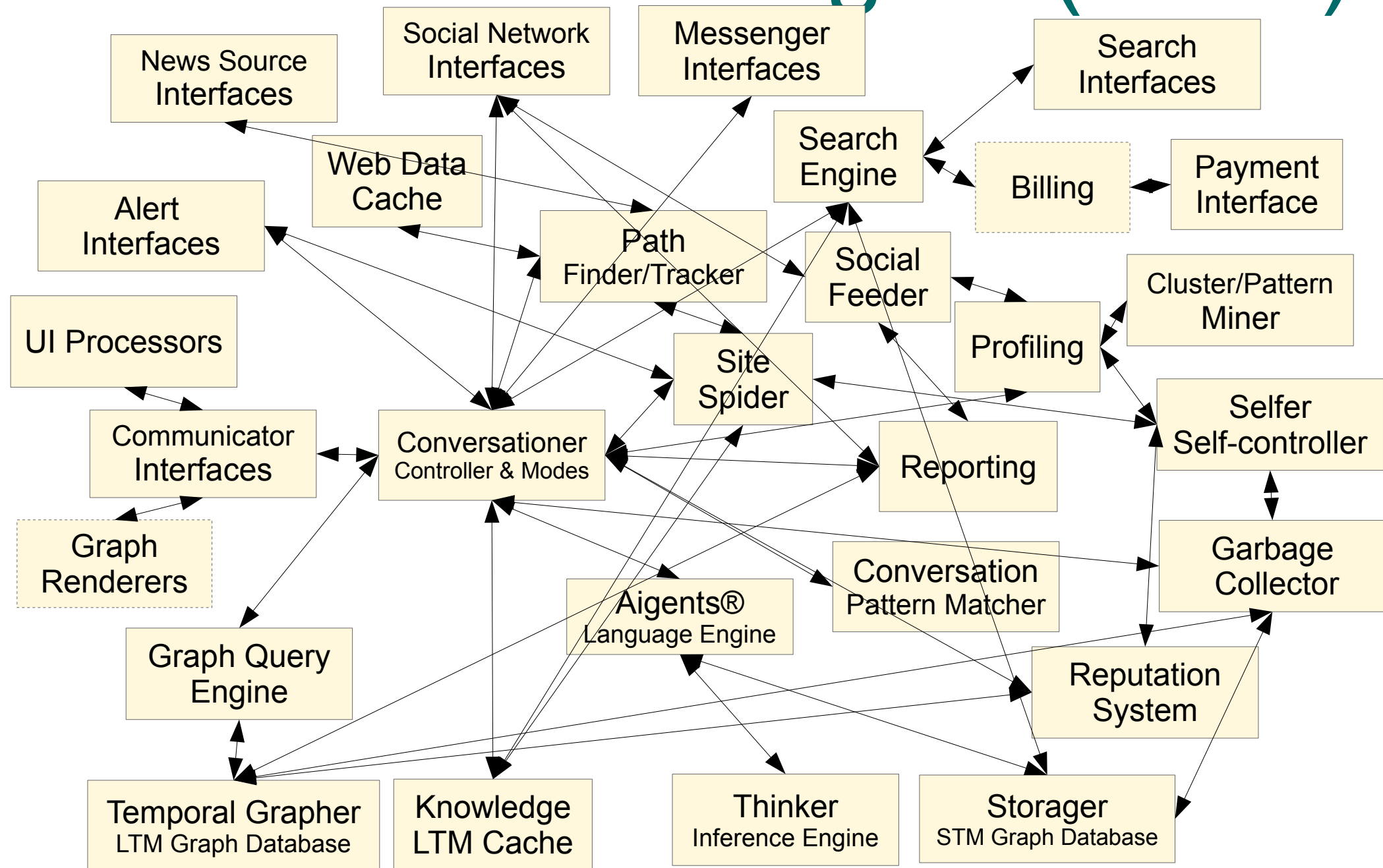


Cognitive Architecture (2016)

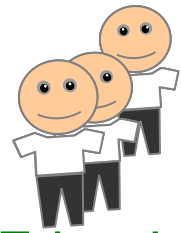
Pipeline of 5 processing layers for gathering, recognizing, analyzing, synthesizing and presenting (performing). Fed with online HTML data or dynamic chat sessions. Emits HTML reports, semantic graphs or dynamic conversations.



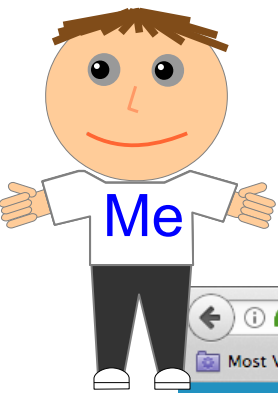
Sum of Technologies (2020)



Use Case 1: Provide users with more valuable information assessed with **personal** and **social** relevances got by experience and social media.



Friends



Browser screenshot showing the Aigents website interface. The search bar contains the text "wired". The results list includes several articles from Wired, dated 2017-02-01 and 2017-01-30. The first result is highlighted with a green bar, and a green arrow points to it from the "Friends" icon. A blue arrow points from the "Me" icon to the search bar.

Browser address bar: <https://aigents.com>

Navigation bar: Aigents Topics Sites 8 News Friends Chat Election Tracker

Search results:

- ☒ 2017-02-01 <https://www.wired.com/2017/02/trump-tech-finds-troll-cant-ignore>
apparently out of a commitment to "freedom of speech with clear limits." and the day after the election facebook ceo mark zuckerberg famously dismissed the impact of fake news as a red herring that betrayed a lack of faith in democracy
<https://www.wired.com/2017/02/trump-tech-finds-troll-cant-ignore>
- ☒ 2017-02-01 <https://www.wired.com>
artificial intelligence inside the poker ai that out-bluffed the best humans
<https://www.wired.com>
- ☒ 2017-02-01 <https://www.wired.com/2017/02/trump-tech-finds-troll-cant-ignore>
facebook ceo mark zuckerberg famously dismissed the impact of fake news as a red herring that betrayed a lack of faith in democracy
<https://www.wired.com/2017/02/trump-tech-finds-troll-cant-ignore>
- ☒ 2017-02-01 <https://www.wired.com/2017/02/trump-tech-finds-troll-cant-ignore>
fake news overtook facebook
<https://www.wired.com/2017/02/trump-tech-finds-troll-cant-ignore>
- ☒ 2017-02-01 <https://www.wired.com/category/business>
social media facebook reboots trending topics—again—as fake news festers
<https://www.wired.com/category/business>
- ☒ 2017-01-30 <https://www.wired.com>
artificial intelligence google's go-playing ai opens the door to robots that learn
<https://www.wired.com>
- ☒ 2017-01-30 <https://www.wired.com/2017/01/review-kz-ate-hi-fi-earphones>
in a world full of fake news spin
<https://www.wired.com/2017/01/review-kz-ate-hi-fi-earphones>

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Aigents® “Deep Patterns” - Text Mining

<set> := <disjunctive-set> | <conjunctive-set> | <M-skip-N-gram>
<disjunctive-set> := { <pattern> * }
<conjunctive-set> := (<pattern> *)
<N-gram> := [<pattern> *]
<pattern> := <token> | <regexp> | <variable> | <set>

Variables may have domain restrictions
in ontology and/or refer to other
patterns as subgraphs

Example:

{[\$description catheter] [\$coating coating] [\$inner-diameter
diameter inner-diameter]} [\$tip tip] [\$pattern pattern]}

X

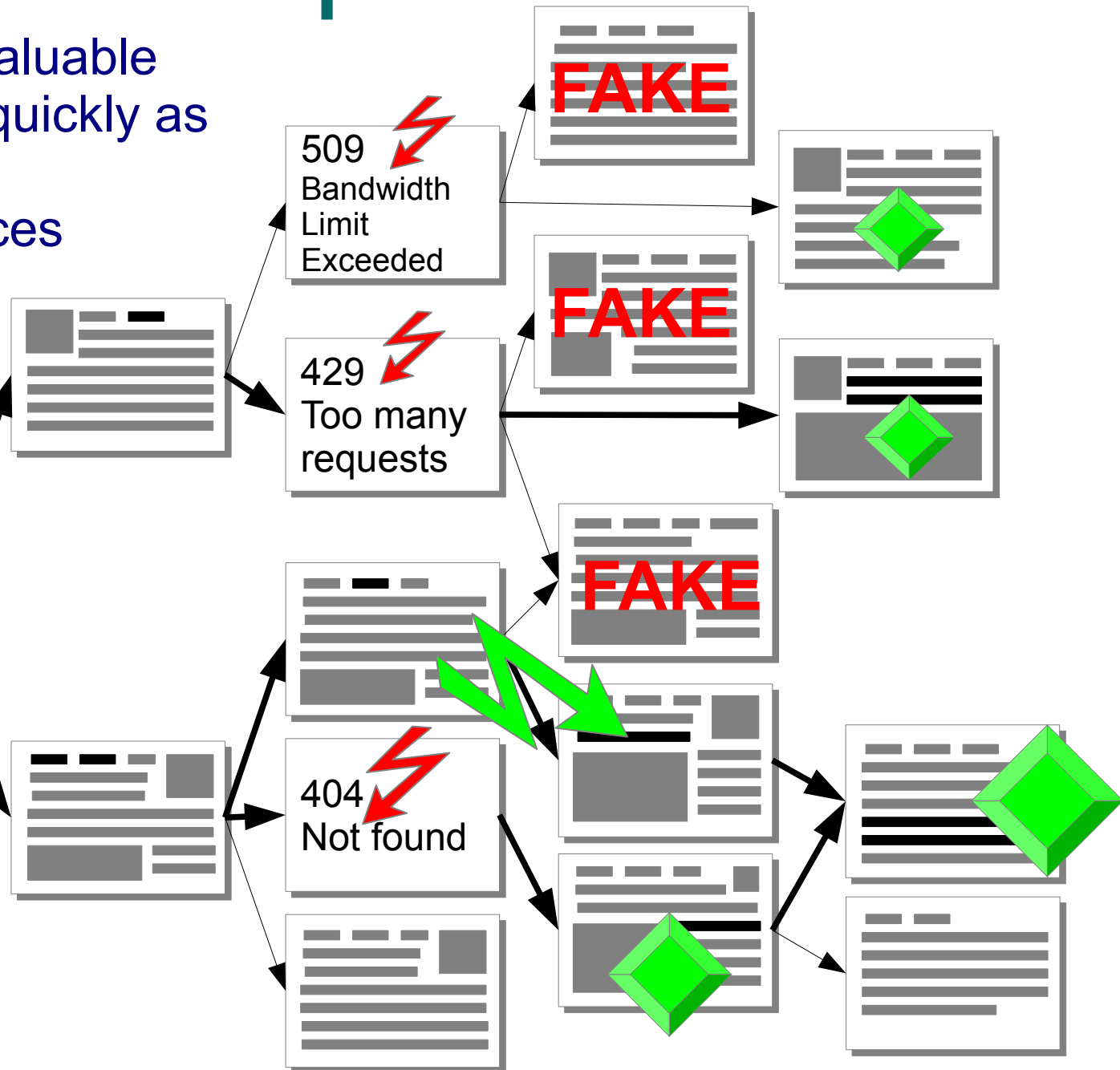
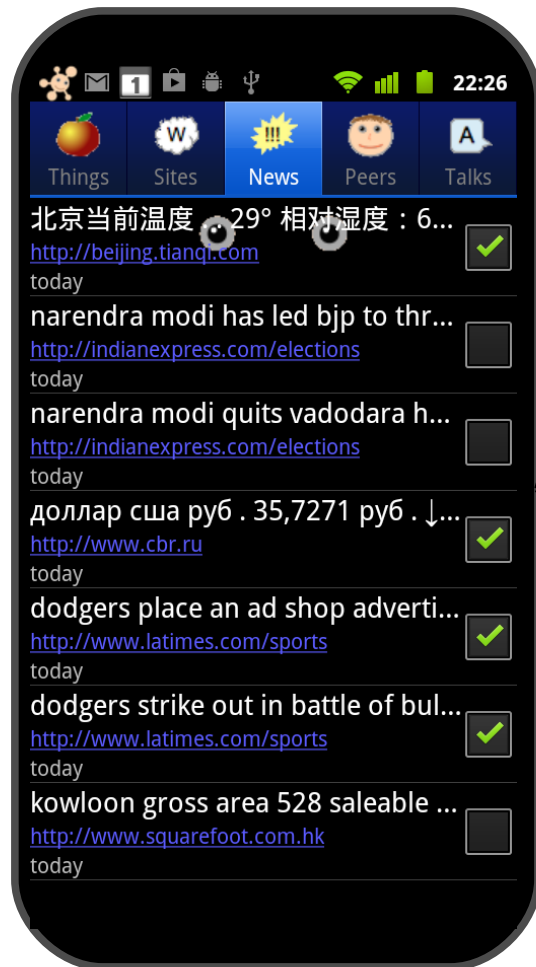
“Convey Guiding Catheter. Unique hydrophilic coating.
Small atraumatic soft tip. Ultra-thin 1 × 2 flat wire braid pattern”

=

{ **coating** : "hydrophilic", **description** : "convey guiding",
pattern : "ultra-thin 1 × 2 flat wire braid", **tip** : "soft" }

Targeted Adaptive Search

Search for the most valuable information found as quickly as possible given limited computational resources



Case 2: Helping users to improve their social capital (“karma”) over time, monitoring dynamics of its change correlated with online communications, topics and connections changing over time.

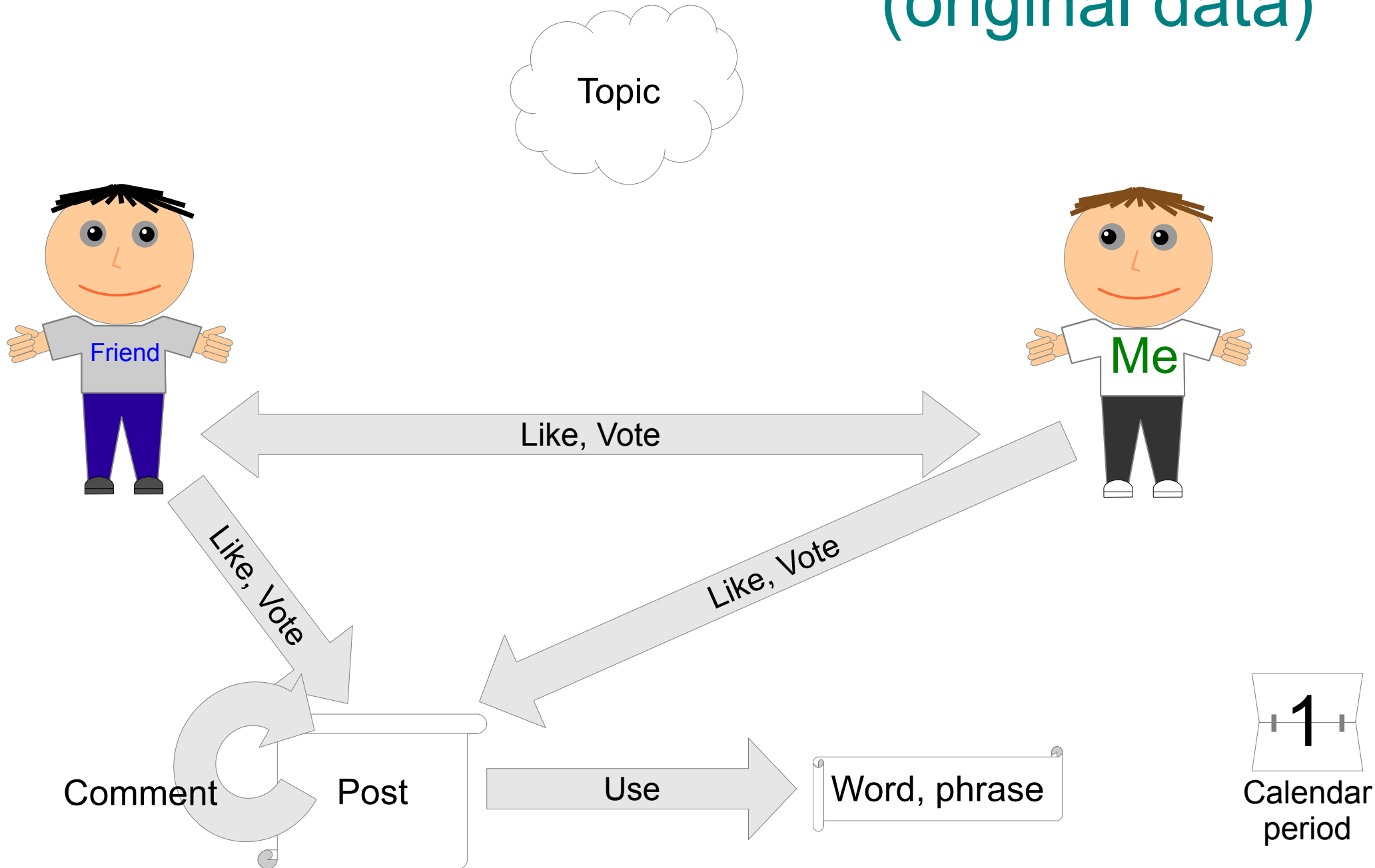
| My words by periods | | | | |
|-------------------------|---------|-------|----------|---|
| Period | Karma,% | Likes | Comments | Words |
| 2018-03-16 - 2018-03-17 | 29 | 25 | 4 | сибирь boss like robots since kids |
| 2018-03-09 - 2018-03-16 | 54 | 45 | 9 | mind agent сибирь awareness social soul сегодняшний до |
| 2018-03-02 - 2018-03-09 | 67 | 56 | 11 | source буду opencog open развития slides agi агенты project hr-менеджеров ру |
| 2018-02-23 - 2018-03-02 | 28 | 26 | 2 | agi ai conference prague human-level intelligence field event please области general works русски агентов question chair founded vaclav искусственного great интеллектуальных off серверную franz вопсы th готовьте series exciting версии |
| 2018-02-16 - 2018-02-23 | 94 | 87 | | |
| My friends by periods | | | | |
| Period | Karma,% | Likes | Comments | Friends |
| 2018-02-09 - 2018-02-16 | 20 | 18 | | |
| 2018-03-16 - 2018-03-17 | 29 | 25 | 4 | Dmitry Prokhorov Anna Brusnitsina Ryhwei Yeh Anna Chernykh-Tesakova Виктор Голиков Misha Kolonin Ilya Nenashev Николай Коротич Tatyana Erofeeva Николай Гинзберг Evgeny Kanashin Mikhail Nikolskiy Lyudmila Kolonina Сергей Нефедов Vladimir Kirilenko Daria Kolyakina Garin Evgenii Vladimir Ponikarovski Enrico Mariotti Дарья Долотенкова Константин Бакулев Serge Gluschnev Mike Duncan Ольга Полунина Ирина Карлинер Andy Sharovalov |
| 2018-02-02 - 2018-02-09 | 33 | 28 | | |
| 2018-01-26 - 2018-02-02 | 21 | 17 | | |
| 2018-01-19 - 2018-01-26 | 43 | 40 | | |
| 2018-01-12 - 2018-01-19 | 35 | 28 | | |
| 2018-01-05 - 2018-01-12 | 25 | | | |
| 2017-12-29 - 2018-01-05 | 100 | 87 | | |
| 2017-12-22 - 2017-12-29 | 47 | 41 | | |
| 2018-03-09 - 2018-03-16 | 54 | 45 | 9 | Aigents Елена Ступина Pierre de Lacaze Ольга Полунина Lev Vertgeym Ryhwei Yeh Anna Chernykh-Tesakova Дмитрий Кошелев Виктор Голиков Georg Vertiprachov Ольга Ускова Misha Kolonin Yulia Kolonina Дмитрий Пучков Vyacheslav Ananyev Yury Nebieridze Vasyi Luts Artem Vital'evich Николай Гинзберг Natalia Lukovnikova Yulia Danilova Victor Smirnov Anna Brusnitsina Olga Stoyanovskaya Vanya Vanchez Dmitry Zhuravlev Andrei Klimov Mikhail Nikolskiy Inga Yurovskaya Mykola Rabchevskiy Raymond de Lacaze Nataly Bright Daria Kolyakina Arseniy Kolonin Валерий Берд Алина Рябина Elvira Ko مديحه لياقت Enrico Mariotti Дарья Долотенкова Пир Сибирь-2018 Александр Гришуленок Danila Akimov Vadim Filippov Константин Бакулев Evgeniy Pavlovskiy Ерлан Байжанов Simone Says |
| 2018-03-02 - 2018-03-09 | 67 | 56 | 11 | Lyudmila Kolonina Yulia Kolonina Николай Гинзберг Pierre de Lacaze Raymond de Lacaze Daria Kolyakina Anya Danilova Enrico Mariotti Сергей Шумский Yury Nebieridze Scott Jones Anna Brusnitsina Mark Watson Ольга Полунина Виктор Голиков Elena Rozhkova Елена Ступина Ekaterina Vronskaya Gabriel Axel Natalya Konopleva Christopher Preece Игорь Замятин Mikhail Svjatogor Gleb Protoporov Arseniy Kolonin Дарья Долотенкова Tina Naer Константин Бакулев Alexandr Kychakov Andrew Shell Denis Sosnovtsev Сергей С. Дмитрий Кошелев Alexey Vesnin Misha Kolonin Chernyakov Maxim Vyacheslav Ananyev Aigents Ilya Zarezenko Kat Von B Philip McMaster Mikhail Nikolskiy Inga Yurovskaya Marcello Mari Mykola Rabchevskiy Валерий Берд Alexander Dubynin Serge Gluschnev Olga Tabunschikova Алексей Еремин Mikhail Tumaykin Ryhwei Yeh |
| 2018-02-23 - 2018-03-02 | 28 | 26 | 2 | Ryhwei Yeh Enrico Mariotti Виктор Голиков Misha Kolonin Andrey Kharugin Андрей Лебедев Андрей Толстихин Наталья Баранова Yury Nebieridze Alexander Matveyev Anton Baltsevich Scott Jones Anatoly Tkachev Katya |

Personal Social Analytics

Start using at <https://aigents.com/> today!



Personal Social Analytics Domain Model (original data)



Personal and social analytics - relationships

Best friends

$$B_{ij} = L_{ij} * (L_{ji} + C_{ji}) / \text{Max}_{j=1,J} (L_{ij} * (L_{ji} + C_{ji}))$$

Fans

$$F_{ij} = ((L_{ji} + C_{ji}) / (1 + L_{ij} + C_{ij})) / \text{Max}_{j=1,J} ((L_{ji} + C_{ji}) / (1 + L_{ij} + C_{ij}))$$

Like and comment me

$$F'_{ij} = (L_{ji} + C_{ji}) / \text{Max}_{j=1,J} (L_{ji} + C_{ji})$$

Authorities

$$A_j = ((L_{ij} + C_{ij}) / (1 + L_{ji} + C_{ji})) / \text{Max}_{j=1,J} ((L_{ij} + C_{ij}) / (1 + L_{ji} + C_{ji}))$$

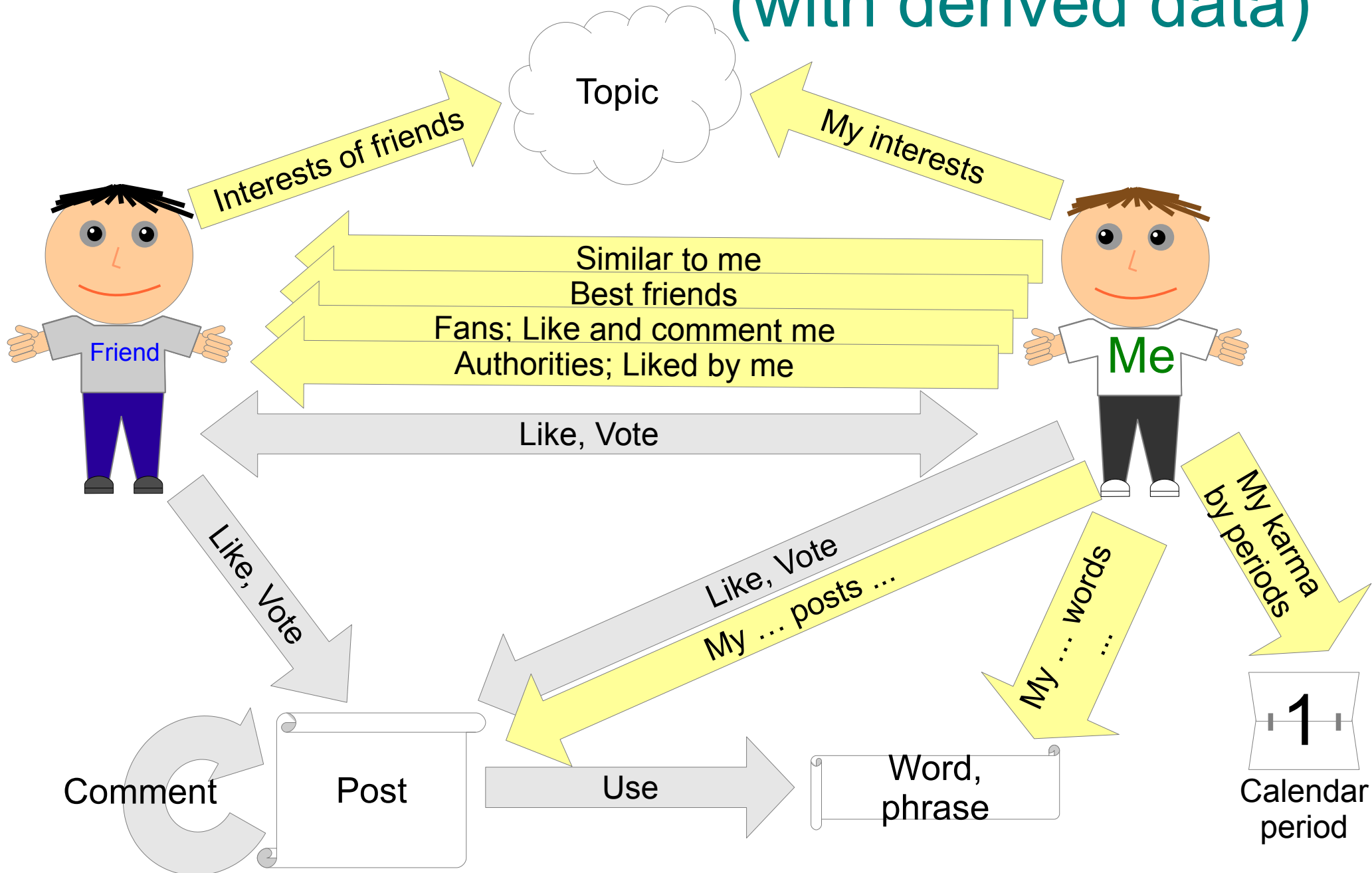
Liked by me

$$A'_j = (L_{ij} + C_{ij}) / \text{Max}_{j=1,J} (L_{ij} + C_{ij})$$

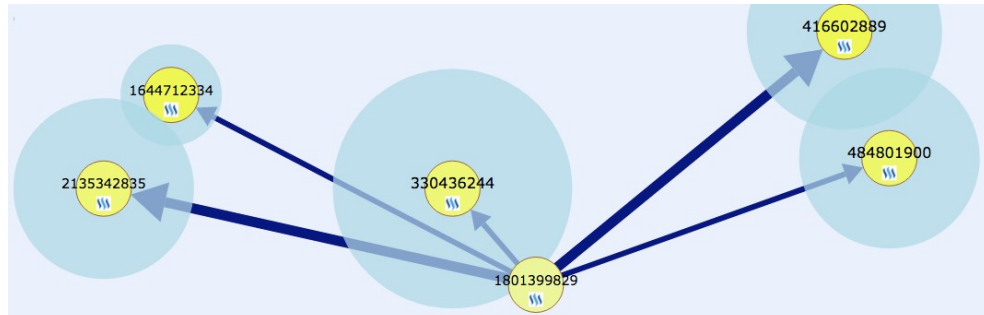
My karma by periods

$$K_{it} = \sum_{j,t} (L_{ij} + C_{ij}) / \text{Max}_{t=1,T} \sum_{j,t} (L_{ij} + C_{ij})$$

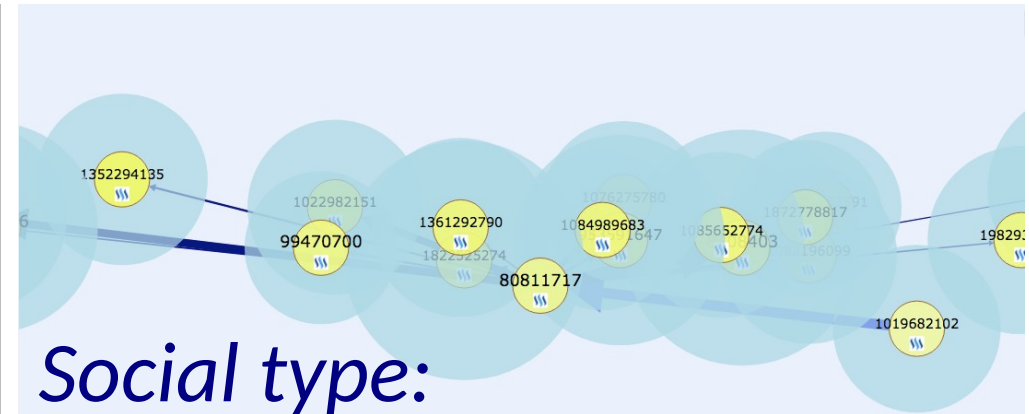
Personal Social Analytics Domain Model (with derived data)



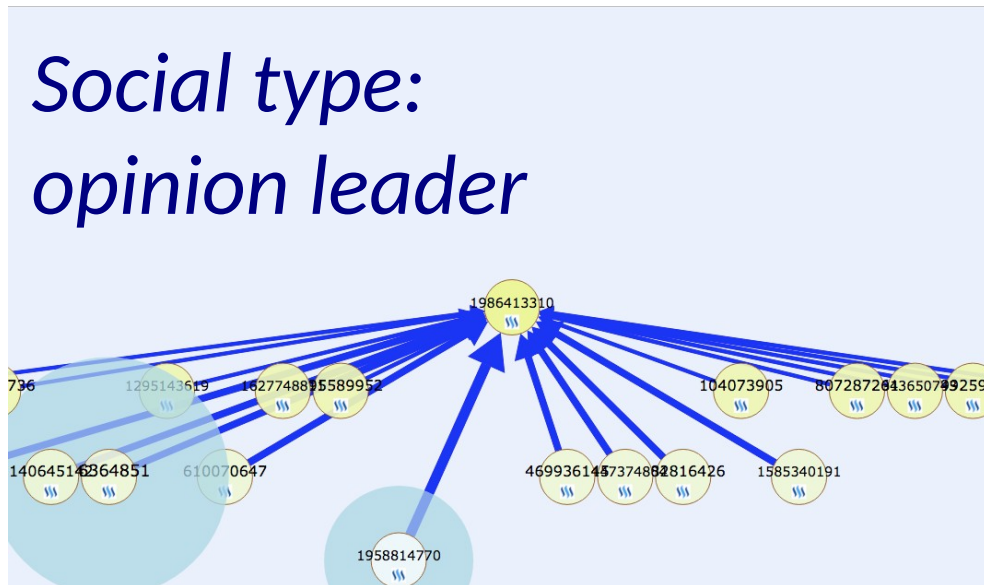
Case 2: Helping users to understand themselves better and perform more efficiently online – using their tracks in social networks and online resources, capture their interests, relationships, communication patterns and social structures.



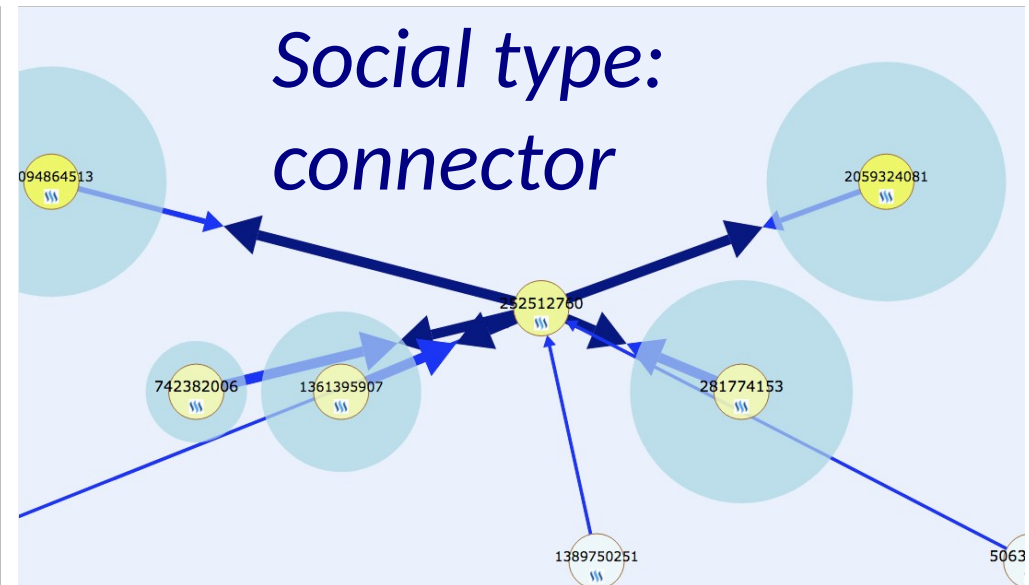
*Social type:
follower*



*Social type:
peer*

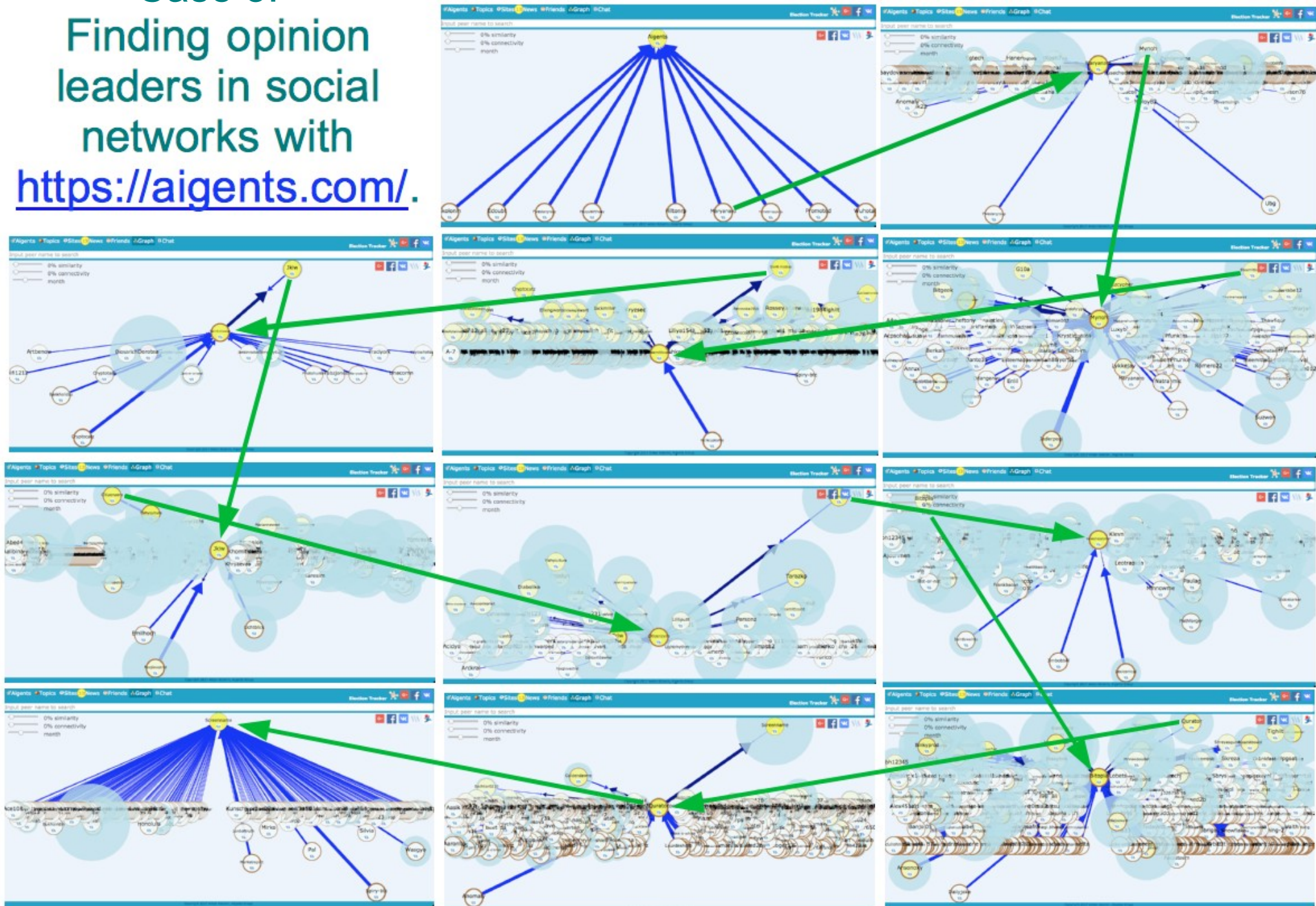


*Social type:
opinion leader*

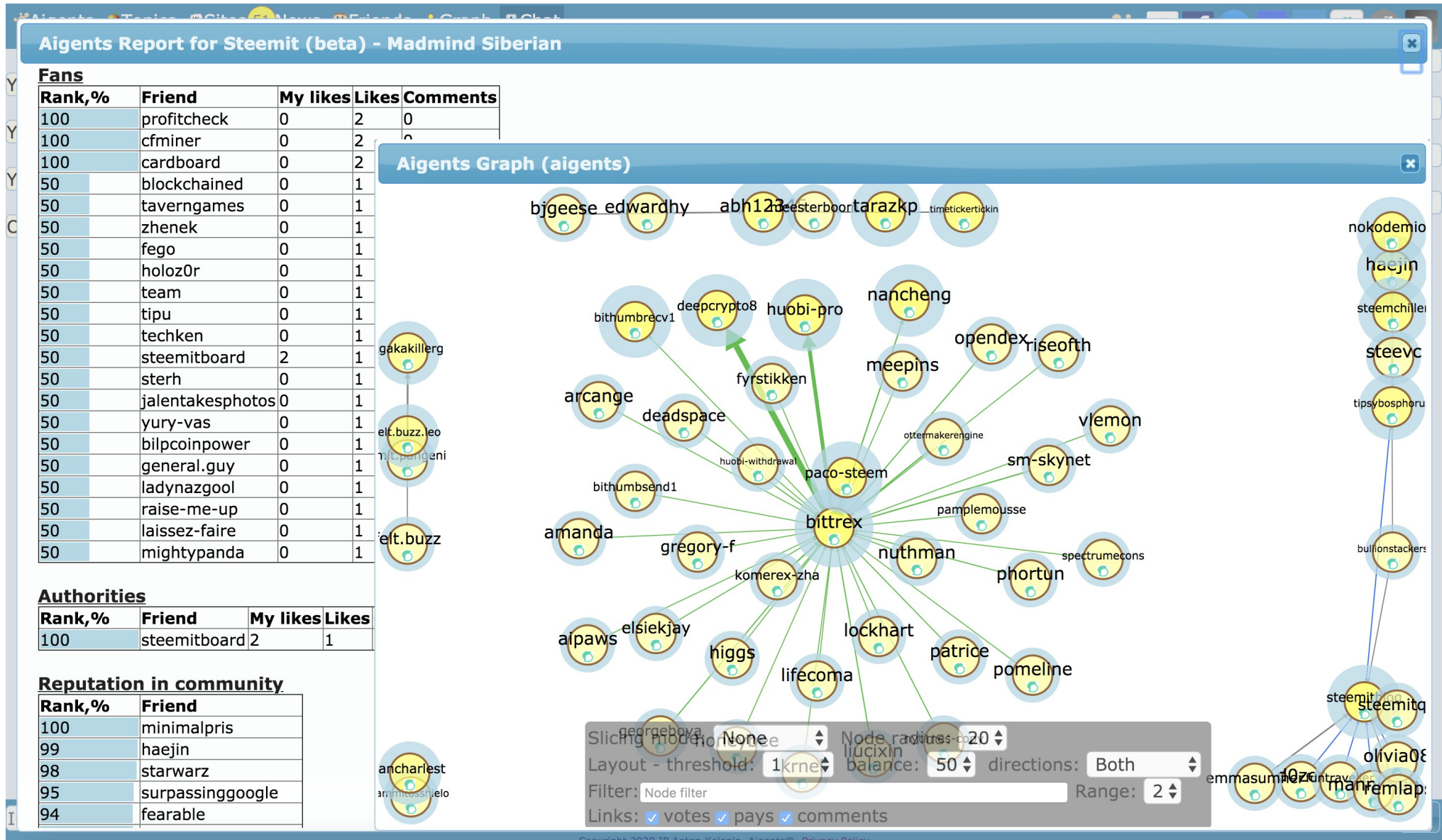


*Social type:
connector*

Case 3: Finding opinion leaders in social networks with <https://aigents.com/>.

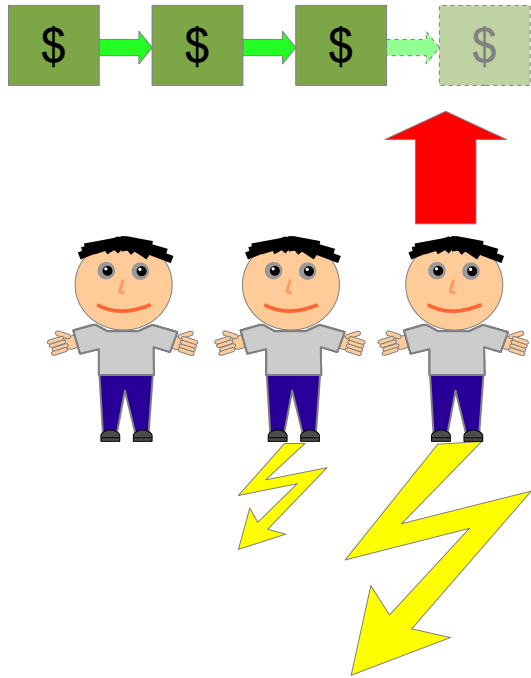


Case 4: Assessing Reputation in large-scale communities based on “weighted liquid rank” algorithm implementing concept of “liquid democracy” to find true opinion leaders, preventing scams reputation gaming by means of “decentralized KYC”.



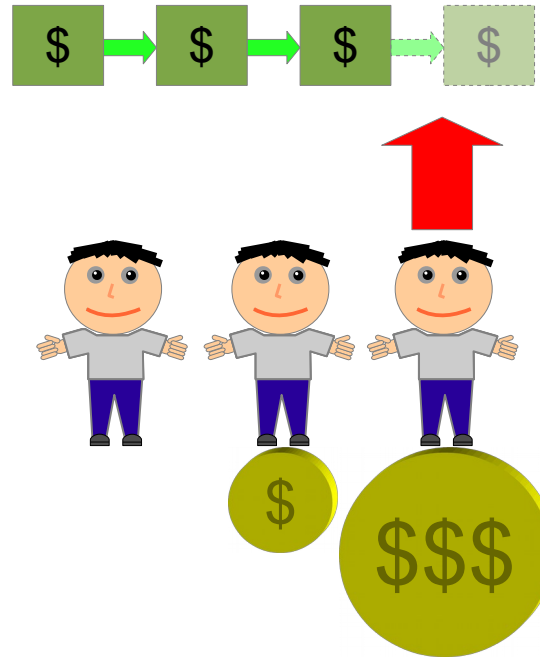
Consensus – technology to govern distributed multi-agent systems such as blockchains or societies, resistant to takeover and scam.

Proof-Of-Work



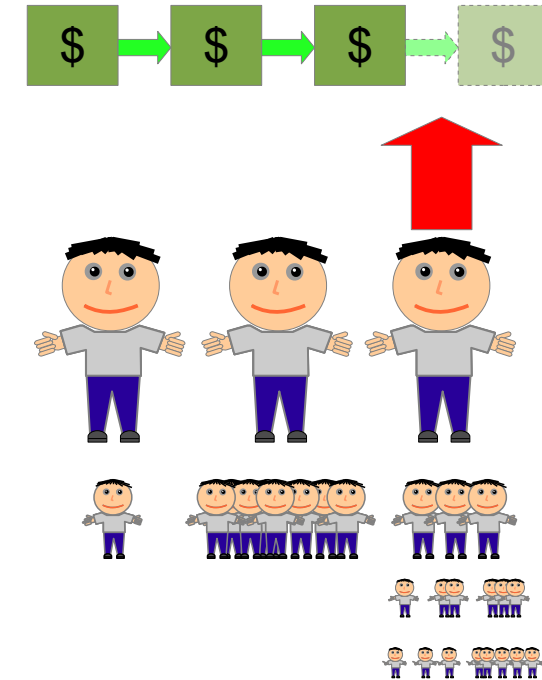
Force is Power:
Those who own more computing resources govern the network.

Proof-Of-Stake



Money is Power:
Those who have more money govern the network.

Proof-Of-Reputation



Reputation is Power:
Those who earn a better reputation and a greater long-term audience base govern the network.

$$R_i = \sum_t \sum_j (R_j * V_{ijt})$$



SingularityNET

<https://singularitynet.io>

Reputation System for Marketplaces:

Using Reputation System for protection from scam identifying dishonest suppliers.



Ranks of Suppliers, dishonest Supplier (including alias) in red and honest suppliers in blue

Past Roadmap

- Concept of personal network agent - intellectual property registration (2013)
- Aigents Language - design and implementation (2014)
- Desktop Java application for news discovery prototype (2014)
- Android mobile application for news discovery prototype (2014)
- Web application for news discovery prototype and web site launch (2014)
- Web and Android applications – alpha versions (2015)
- Support for Facebook, Google+ and VKontakte social networks (2015)
- Aigents software registration in Russia (2015)
- Targeted adaptive search for content discovery (2016)
- Support for chat in Telegram and Facebook Messenger (2016)
- Web site re-branding and user experience re-design (2017)
- Support for blockchain network analysis – Steemit, Golos and Ethereum (2017)
- Graph visualization and analysis for news and network data (2018)
- Web application – beta version (2018)
- Open source under MIT license (2018)
- Reputation System – internal implementation (2019)
- Chat monitoring for Telegram, Slack, and Facebook Messenger (2019)
- Deep latent information search and extraction (2019)
- Aigents® trademark registration (2019)
- Aigents software registration in USA (2019)
- Aigents software registration in China (2019)
- Steemit and Golos new discovery (2019)
- Reddit integration for news discovery and basic network analysis (Jan 2020)
- Discourse forums news discovery, network analysis and reputation computation (Feb 2020)
- Google Search API and SerpAPI integration and support for paid subscriptions (Mar 2020)
- Telegram Reports and Reputation Computation (Mar 2020)
- Reputation system built-in into the Aigents core service (Apr 2020)
- Steemit, Golos.id, Ethereum and Discourse Reputation Computation (Apr 2020)
- RSS and Twitter support (May 2020)
- Sentiment Analysis support for English and Russian (May 2020)

Future Roadmap

- Integration of Reputation System with News Discovery (Jun-Jul 2020)
- Twitter social analytics (Jun-Jul 2020)
- Google Pay Support (Jun-Jul 2020)
- Telegram reactions and sentiment annotation (Jul-Aug 2020)
- Chat patterns development and mining (Jul-Aug 2020)
- Content highlighting based on word/term/pattern relevance (Jul-Aug 2020)
- Better summarization for news subject and body parts (Aug-Sep 2020)
- Smarter topic discovery and template formation (Sep-Oct 2020)
- Reddit social structure and reputation study based on comments (Nov 2020)
- Social graph exploration based on internal data (Dec 2020)
- Offline mobile Android application - autonomous & private (Jan-Feb 2021)
- Structured content production based on topic discovery (Mar 2021)
- Unstructured content production based on topic discovery (Q2 2021)
- Organic Ads - native integration of profile-based controlled offerings (Q3 2021)
- Android offline mobile application - autonomous & private (Q4 2021)
- Browser plugin (Q1 2022)
- IOS offline mobile application (Q2 2022)
- Support for QQ, WeChat, LinkedIn, Medium (Q3 2022)
- WT.Social, Wikipedia, Wikidata, DBPedia (Q4 2022)
- Mac/OSX Desktop offline application - autonomous & private (Q1 2023)
- Windows Desktop offline application - autonomous & private (Q2 2023)
- Cross-platform multi-agent knowledge sharing (Q3-Q4 2023)



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References:

<http://aigents.com/en/references.html>

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GitHub: <https://github.com/aigents>

Facebook: <https://www.facebook.com/aigents>

Youtube: <https://www.youtube.com/aigents>

Reddit: <https://reddit.com/r/aigents>

Medium: <https://medium.com/@aigents>

Twitter: <https://twitter.com/@aigents>

WT.Social: <https://wt.social/wt/aigents>

Steemit: <https://steemit.com/@aigents>

Golos.id: <https://goles.id/@aigents>

Golos.io: <https://goles.io/@aigents>

Minds: <https://www.minds.com/aigents/>

Vkontakte: <https://vk.com/aigents>

Facebook Messenger: [Aigents](#)

Telegram Messenger: [@AigentsBot](#)

