HunchWorks Recommendations

Project overview

HunchWorks is a place where people can create and discuss hypotheses about what's happening in the world to help solve global problems. These 'hunches' allow researchers to discover anomalies that trigger further investigation and analysis work.

HunchWorks supports the dialogue surrounding hunches, and uses that dialogue as a means to help move people to action and address crises before they happen.

Challenges

We are helping shape the product by identifying the core needs of HunchWorks, and collaboratively designing solutions to specific challenges through four weekly design sprints.

- The first week we looked at the challenge of building and supporting a new community of users.
- The second week we examined how users establish trusted relationships within HunchWorks, and explored how hunches can support healthy conversation towards verifying their credibility.
- The third week we set the groundwork for the interactions and flows that happen when creating and evolving hunches.
- The fourth week we continued to examine hunch evolution in all its forms by sketching out the evolution process.

Project focus

- Creating a reliable network of support for contributors.
- Supporting hunch exploration and action.
- Outlining the complexities of hunch credibility and verification.
- Exploring and defining how hunches evolve over time.

Who needs to be supported?

- There are four main user groups that the system can help support: experts, hunch creators, actors, and the informed public.
    - **Experts** are needed to build confidence in the community, confirm hunches and evidence, and contribute credible information.
    - **Hunch creators** provide the ideas for hunches. They need to be able to easily create, gain support for, and contribute to hunches. Not all creators will contribute equally. Some will be very hands-on: contributing in the form of data, questions,

and providing ideas or outlines for action. Others may only create, never contributing.
    - **Actors** are people that are part of HunchWorks with the sole purpose of taking action on items. This should be supported and encouraged.
    - **The informed public** should be involved in HunchWorks in a way that encourages contribution. Consideration should be given to how browsing helps people see what skills and abilities they can contribute, not just what is trending. As contributors, they provide the brunt of the evaluation process, and as a collective whole can help to provide a well-rounded picture of hunch credibility. Contributor and community evaluation of hunches, and all their various parts, is the most important part of verification.
- The community should bear the burden of building confidence and evaluating content. Experts, concerned citizens or any other form of contributor will be the driving force behind identifying progress, issues, recommendations, validating evidence, and supporting the action taking place within hunches. The community needs to be reliable, helped by attracting, supporting, and promoting topical experts.
- HunchWorks needs to be simple enough to support a person submitting time-sensitive evidence who has 5 minutes in an internet cafe, but robust enough to support a researcher who has spent a year working on this hunch.

Hunch Description

What is a hunch?

- A hunch is an anecdote, musing, observed connection, or hypothesis which may or may not have evidence or research backing it. Hunches are claims about something happening, or about to happen, in the world.
- Hunches should publicly identify problems, help build the critical mass needed to act, and drive effective, proactive action through accurate diagnosis of early warning signs.
- A hunch can be based on a number of initial motivations. A hunch could be an idea ("*I think there might be something here. Who wants to help investigate?*"), an itch to be scratched ("*I have a nagging feeling about something and I want to share it with the community to gauge its likelihood.*"), a problem-solving tool ("*Something needs to be done about XYZ. I may not know what's causing the issue, but I know what could be done to address it.*"), or whistle-blowing ("*I know this is happening, I have the evidence but need the exposure. How can I fix it?*").
- A hunch is created to facilitate conversation around it, obtain evidence to support it, gain credibility, prompt discussion around the appropriate response to it, and spur people to take action to help the situation.

Hunch Structure

- A hunch is based on three primary types of content: an **observation**, argument or anecdote to frame the problem and focus thinking around it; **evidence** for support and validation of ideas, and **action** which can also be used as a method of establishing credibility, and is one of the most important functions of a hunch.
- Each of these three pieces should be connected with one another. This will help outline the interconnected nature of hunches and help community members frame their arguments in different ways.
- Credibility is an outline of how much confidence people have in a hunch. It is an estimate based on all information contributed.
- Hunches will evolve over time, and the tracing of this evolution will need to be visible and easily understandable; this evolution drives verification, action, trending, and also helps determine future directions for how hunches can be supported.
- Hunch evolution is driven by the community and by contributors' discussions, participation and verification as well as subject matter expert participation and hunch content and credibility.
- Discussion and conversation surrounding each piece of the hunch is important. Giving users the ability to both comment and rate comments will help monitor popular or important topics as well as give credibility to individual contributors as well as the hunches themselves.
- The content and metadata shown to users at various points in the system needs to be informed by how and why they work on hunches. It should be relevant, help them make informed decisions and ultimately be decided by observing what information users need to see and how they use it to work on a hunch, not just dictated to them.

Visualizations

- Due to the complexity of hunches, information visualization takes on an important role in clarifying changes over time, distilling evaluation to a shape, and creating a visual network of hunch connectivity. It offers the advantages of efficiently displaying concepts that are intuitive, but become complex when put into words, replacing explicit verification with pattern-spotting, and reducing the burden of evaluation on users.

Hunches Over Time

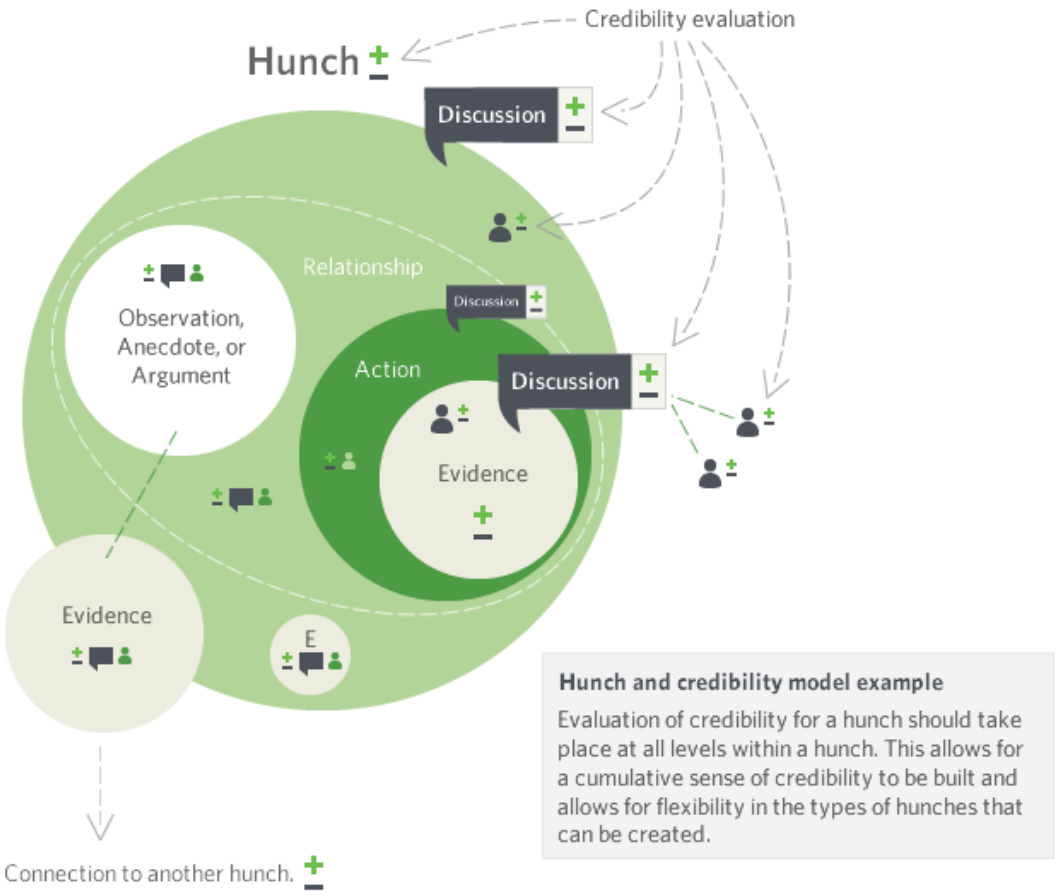
Hunch Evolution

- Hunches can fall somewhere on a spectrum from extremely complex and dense networks of data to simple anecdotes needing outside support. All of these hunches will change over time and grow in complexity as they change.
- As hunch complexity grows, a focus should be maintained on the full history of activity on the hunch, showing a complete overview of contributions to the hunch including their impact on the hunch, and emphasizing the main contributors toward hunch credibility.

- It is important to focus on telling the story of the hunch including what it is, what it intends to do, what makes it worth looking into, and what it did.

Hunch credibility

Confidence in a hunch and determining what is more truthful or correct can really only be accurately done through a complex system of credibility. This image illustrates the complexity that arises when examining hunch credibility.



- *Human evaluation of hunches is key, as hunch credibility lives and dies by community feedback.*
- Positive reinforcement of ideas will go a long way toward helping build credibility and keeping contributions high. To this end, it is important to emphasize constructive criticism and support in dialogue to supplement ratings.
- Credibility and confidence in a hunch should be treated differently at each of these levels *(Note that these are not comprehensive lists, just suggestions. The actual metrics used should depend on what the people creating hunches actually need.)*
    - *Arguments* should have a different method of evaluation than evidence.

        - Does this argument support the hunch / evidence? (refutes/supports)
        - Do you support this argument? (disagree/agree)
    - *Evidence* needs its own credibility.
        - Evidence can be shared, and credibility will be important when looking for or adding existing supporting evidence.
        - Evidence and the hunch itself both need a type of scientific / academic evaluation.
            - Does this evidence support or refute the claim made by the hunch?
            - Is this evidence credible / reliable?
            - Severity if true.
            - Time sensitivity.
        - Voting should support a level of nuance as to be semi-open for interpretation. Likert-scale 5 point scoring could help this.
        - Actions can also be seen as a form of evidence.
    - *Discussions* will also be important to establishing credibility.
        - Does this argument/observation/anecdote support the hunch?
        - Does the evidence and discussion support the claim made?
        - Is this valuable to the hunch, or is this discussion headed nowhere fast?
    - *Comments* can help build user credibility within the system.
        - Comment ratings can begin with a simplistic sort of positive rating in support or opposition...
            - Good references of examples include the StackExchange ratings system, Engadget, and Digg.
        - ...but they will primarily need to be evaluated based on their support of the hunch piece they exist within. If that discussion (comment string) is part of evidence, action as evidence, or an argument, it should be evaluated accordingly.
            - Is this valid? Argumentative? Does this support the argument or is it off-topic?
        - Any rating system for comments should ultimately aim to support hunch credibility and encourage action on the hunch. If the system for rating comments does not support this goal, it could easily just create noise and remove focus from the hunch.
- A useful solution that presented itself is to create a flexible analysis system, similar to a wish list outlining the evaluation or actions needed.
    - This would allow people to set realistic expectations on hunches as well as evaluate them accurately.
    - Not every hunch is the same, so it may be wise not to evaluate every hunch in the same way.
    - Flexible validation should feed into the Credibility rating, which would provide a glimpse of how well supported the hunch is and how confident people feel in its content.

- Credibility can be shown over time, graphs, charts, simple ratings like +/- or %. By showing credibility in a graph or chart, it may actually help remove the need for explicit verification, and could help show trending patterns and help with hunch verification.
- Human/social factors that will play a large role in establishing credibility.
    - Who created the hunch?
    - What sort of reputation do they have?
    - Where did the evidence come from?
    - Does this person have a history of being argumentative?
    - These could often times dictate the initial credibility of the hunch/evidence more than the content of the hunch/evidence itself.

Voting on hunches, evidence and comments

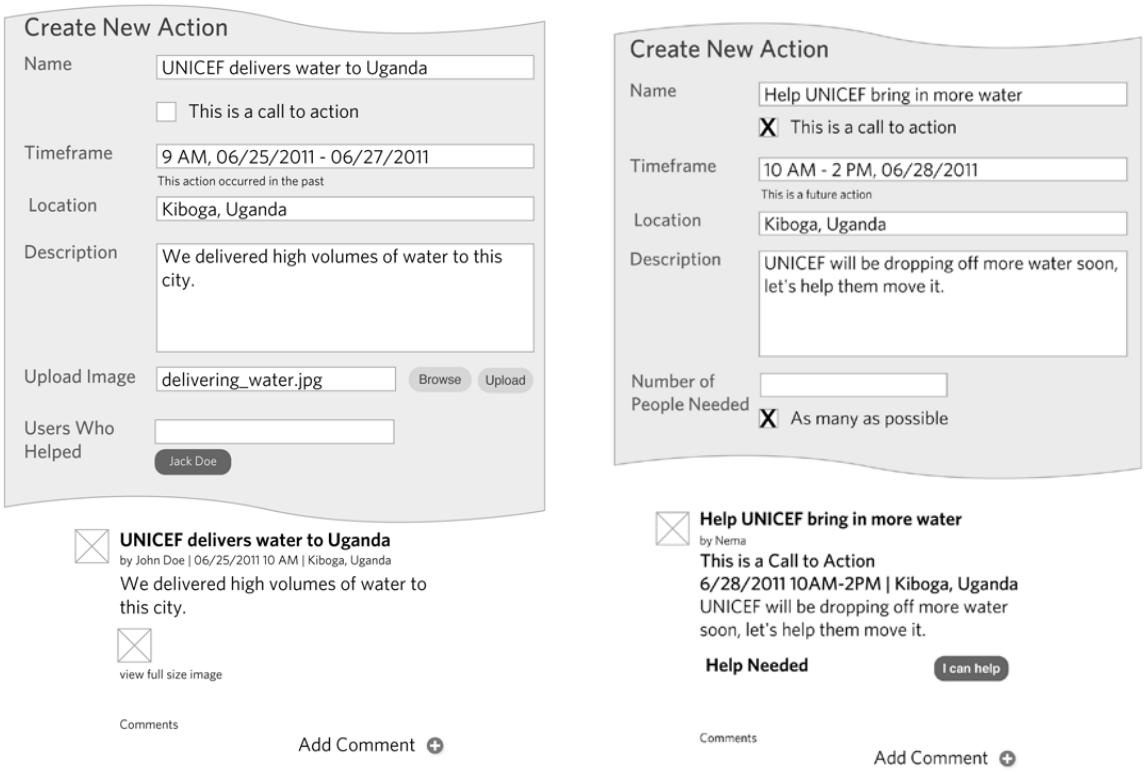
- The mechanism of voting will be a key interaction towards creating credibility of hunches, evidence and other forms of contribution such as comments. Voting should serve two purposes:
    - Provide data to support hunch credibility and increase participation, to assist evolution, and encourage action in response to a hunch.
    - Create a feedback system to help the community quickly determine if the subject (hunch, evidence, etc.) is considered promising, and if not, what needs improvement/alteration.
- Due to the complexity and ambiguity of the subject matter, simple scores or an up-or-down voting system will not suffice. A vote either in favor or in opposition should carry some weight, and the process of submitting it should reflect that. Scoring hunches, evidence or comments by its likelihood will potentially be a better fit than an “I approve”/”I disapprove” model. Lastly, giving users the ability to score with greater granularity could begin to create a stronger explanation as to reasoning for their approval/disapproval of the subject.
- Voting should serve as a feedback mechanism for the author in order to provide a clear path towards gaining more support and consensus around a hunch. If a hunch has potential but is lacking in some important elements to gain traction, it behooves Global Pulse and its community to provide that information.
- Often times, the actual vote will be less valuable to the discussion and evolution of the hunch than the thinking behind it. Answering *why a vote was made the way it was* should be a primary part of the voting process.
- If voting is to be a rigorous and weighty interaction, the metrics of voting will need to be custom-fit for each subject matter (hunch, evidence, comment, etc.). As HunchWorks evolves and the structure/organization of hunches, evidence and comments becomes more solid, the necessary metrics for each subject will become more clear.

Taking action on a hunch

- Action is a key component of the hunch system because it allows the information that is generated to be put to use in a rapid and meaningful way. Because of this importance,

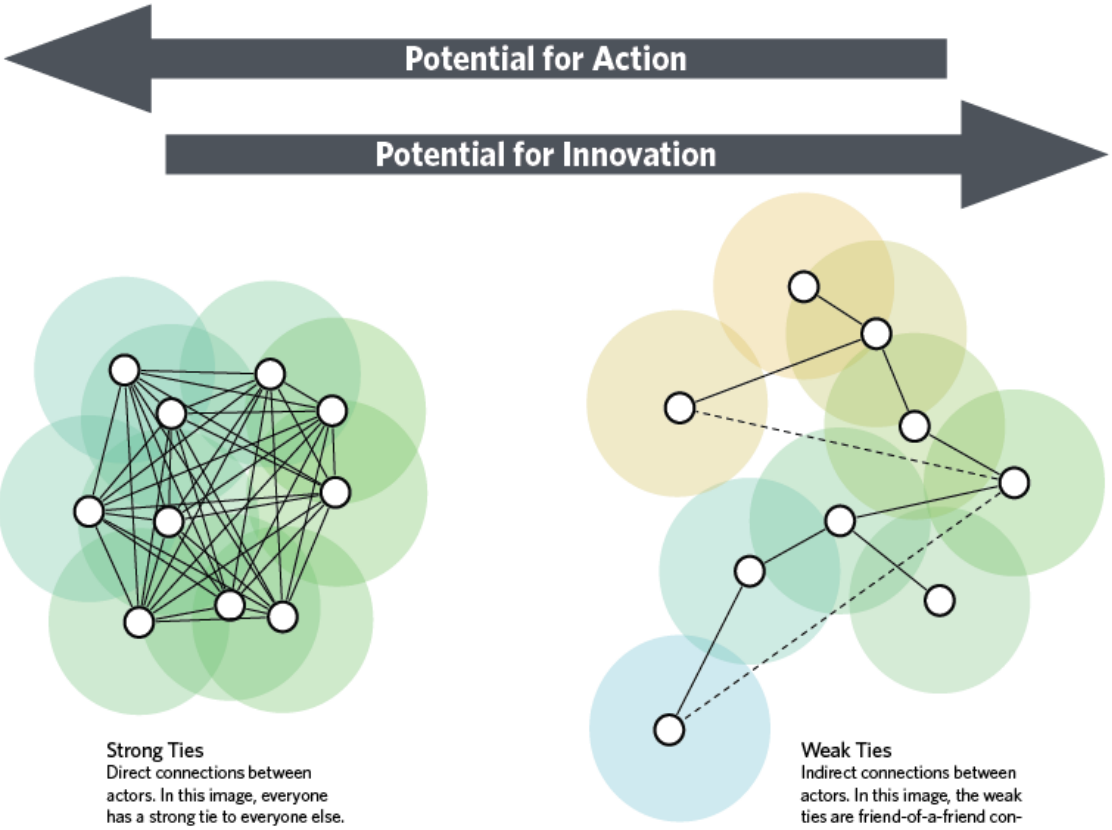
HunchWorks should support involvement for people whose primary goal is to act on hunches, be that taking action on verified hunches, exploring evidence or otherwise.

- There are two types of actions that the system should be able to accommodate: past actions and calls to action.
    - Past actions would be a record of something that was done relating to the hunch as a means of providing evidence for that hunch. For example, in a hunch relating to a water shortage, UNICEF delivering water would lend credibility to the hunch.
    - Calling people to action should be strongly supported and possibly highlighted externally when there is a way for users to give aid after a situation has occurred and a means to avoid a potential problem (or lessen its impact). Taking action will help provide support to the hunch akin to evidence, and deliver meaningful aid in a rapid way.



- Action is best supported by strong ties between people; this is an idea originally posed by Mark Granovetter in The Strength of Weak Ties: A Network Theory Revisited. However, many of the ties in HunchWorks will be made in a weak, ad hoc fashion to increase innovation and sharing of new material.
- To help support action, the system should encourage calls to action where the user will already have strong ties (location based), recommending someone with strong ties to assist with the call to action, and strong support and involvement of topical experts and action-focused groups when acting on hunches.

- Action may be time sensitive. By placing a time frame on actions, an important sense of urgency can be established. The system will need to take timing into consideration when organizing hunches and be agile enough to handle short time frame hunches.
- Since it may be unclear what action specifically will benefit a situation most, it is important to allow users the ability to create and evaluate different courses of action. One way of doing this is to allow people to post what they believe the best course of action to be and then have a vote to determine the official course of action. Another possibility would be to allow for multiple courses of action and then allow users to choose which one(s) they believe best fit what they believe will help and what they are able to contribute.



Strong Ties
Direct connections between actors. In this image, everyone has a strong tie to everyone else.

\+ Any actor should be able to initiate the action of any other actor

\- The potential for innovation becomes limited as "group-think" takes effect

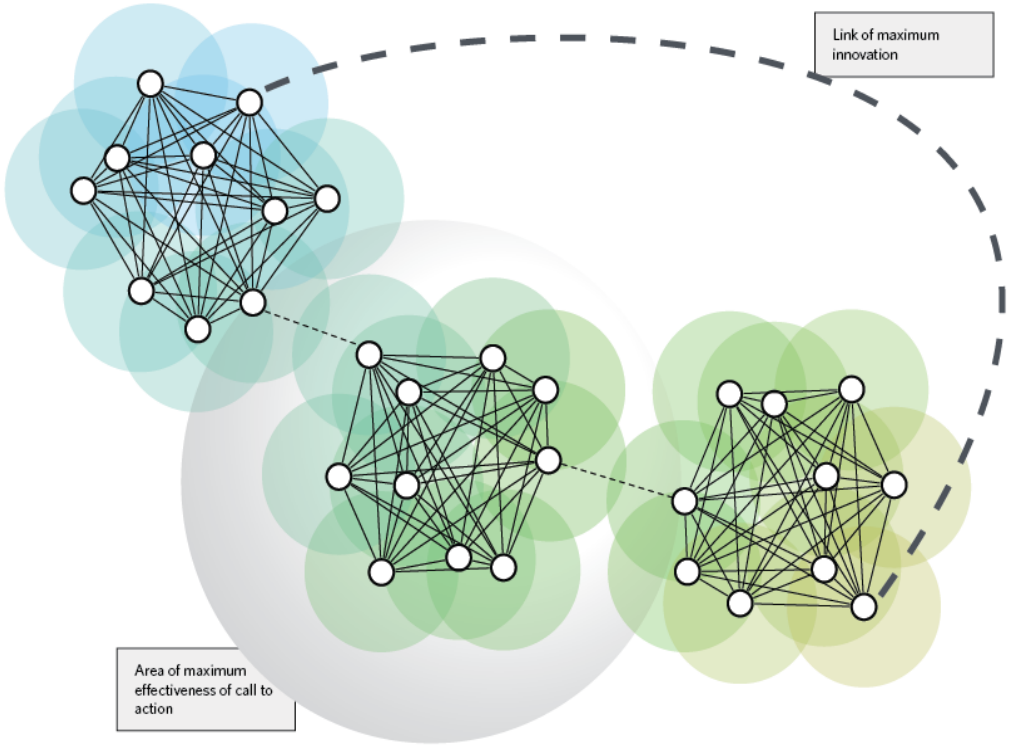
DIFFERENT COLORS REPRESENT DIFFERENT INFORMATION

OVERLAP SHOWS INFLUENCE THROUGH SIMILAR THINKING

Weak Ties
Indirect connections between actors. In this image, the weak ties are friend-of-a-friend connections shown by dashed lines.

\+ Greater possibility of innovation as the sharing of new information increases.

\- Weak ties generally cannot cause someone to take action



Hunch Verification

- Hunch verification is difficult since hunch structure and content can vary, changing the definition of what it means to be verified. The messy nature of the verification process requires human involvement to handle verification: either explicitly by a moderator or implicitly through system representations interpreted by the audience.
    - Explicit verification would mean that a hunch is either literally or metaphorically given a stamp of approval that deems it to be true. Verification may take a form similar to academic/scientific review, though peer review alone would likely not be enough. Moderators would need to authorize verification as a form of quality control. Problems with this system include an absence of moderators in unofficial instances and narrowing of the concept of value for a hunch.
    - Implicit verification is more flexible than explicit verification, but also puts more of the responsibility onto the audience. Rather than having an outside authority dictate the validity of a hunch, those that are reading a hunch have the burden of making a judgment themselves. Problems with this system include putting the burden on the audience and difficulty making apples-to-apples comparisons of hunches.
- To support the audience in evaluating hunches, it would be necessary to determine what people would want from different styles of hunches and how that information could be

easily and rapidly conveyed to ease the burden of that responsibility. By visually showing the progression of certain aspects of the hunch in a graph, it would become easier to show the verification of a hunch as credibility changes over time. A visualization that showed an increase in confidence accompanied by a decrease in discussion over time could serve as one means showing verification indirectly.

- It is important to define what verification means for a hunch. Absence of this concept makes it difficult to construct an idea of how confidence should be built - without an end-goal it's hard to construct the means.
    - While the explicit and implicit methods of verification aren't mutually exclusive, it is important to note how measures of confidence are handled for these different situations. For example, to create compelling visualizations for communication to a diverse audience, a more robust system of quantifiable evaluation would be necessary.
- Moderators would help maintain order in HunchWorks while making sure that contributors and their contributions are credible, reliable, and to provide value to hunches. They help verify hunches and maintain content credibility, help identify and manage time-sensitive hunches, and take some of the role of hunch evaluation, depending on scale.
- After verification, the ability to add evidence, comments or evaluations should taper off, since the hunch has credibility, but should remain open. The contributors, description, history, and evidence of the hunch should all remain accessible for future use.

Location considerations

- Many hunches will be very tightly connected to regions, cities or countries, and a method of working with hunches that HunchWorks needs to support at its core.
- Not every hunch needs to have a physical location, but those that do will need location-based support. Finding related hunches, evidence or other information can be greatly improved by searching via location on a map. This will also support finding hunches and exploration of problems for those contributors that help take action.
- Location tracking should allow people to add location-based information to support various types of location-based information.
    - Precise selection (pin), e.g. a city.
    - Rough selection (draw an area), e.g. following a migratory path.
    - Regional selection (select an area), e.g. country, region, county.

Multiple Hunches

Hunch Organization

- Pieces of the hunch puzzle take three forms:

    - Descriptive pieces such as time and place, details, descriptions, and information outline specifics and provide framing.
    - Contributing pieces are the primary points around which a hunch is structured, discussed and evolved.
        - Evidence
        - Action
        - Discussions / Arguments / Observations
    - Rank pieces are items that help with hunch evaluation and establishment of credibility, creating relationships between hunches, establishing methods of filtering, and helping to support people in creating action.
        - Credibility
        - Contributing elements
        - Contributors
        - Connections to other content
            - Type of connection and amount of activity should determine contribution
                - Strong vs. weak ties
        - Health of discussions
- Methods of viewing and finding information will be supremely important. The ability to find relevant information easily will be key to building reliable hunch relationships and connected networks of content.
    - An overview of information should be provided, showing ranked content which could be applicable to a person's expertise or followed hunches.
    - Filter relevant content from, and including, other hunches, to help identify existing data in support of a new hunch, identify trending, and disseminate useful knowledge.
    - Search to find terms or concepts that may not fall under filtering, covering all aspects of the hunch, including discussions.
    - Recommendations of relevant content should occur throughout hunch evolution.
        - When working on a hunch, relevant hunches, evidence, and other content should be provided to help support hunches, build overall credibility, and reduce redundancy.
        - When beginning to browse, part of any item's rank will be based off of its matching the user's profile.
    - Evolution of a hunch needs to be displayed to outline how the hunch has changed over time and to help identify how the credibility of a hunch and its contributing content has fluctuated.
- Organization of evidence, actions, discussions, comments, etc. will need to be examined separately from hunches. Hunches grow from these contributions, which can themselves be clustered, branched, and used across many hunches. Depending on the scale of a HunchWorks instance, this organization will also be key to finding contributing existing evidence.

Clustering and merging hunches

- Clustering is a means of creating ties among hunches to help with information sorting, and provide a means for users to aggregate information meaningful to their hunch. It also assists in tracking similar hunches while minimizing duplication of information and data.
    - Making elements of other hunches selectable helps to minimize information loss from merging as well as supporting hunch branching more robustly within the same IA model.
    - Conversations should be an all-or-nothing copy, as without context they aren't that meaningful. Avoid misquoting people.
    - Handles communication and updates between similar hunches
    - Connections are voluntary, not automated
- Allow strong and weak connections to other hunches. This allows for multiple models of evaluation as well as supporting multiple styles and scopes hunches can take.
    - Strong connection:
        - Direct connection in which actions from Hunch A directly impact Hunch B
        - One instance of dialogue surrounding the piece of evidence
        - The hunches will always share some evidence, discussion threads, or arguments in common.
    - Weak connection:
        - Connection in which actions from Hunch A can help inform Hunch B
        - Two instances of the dialogue surrounding the evidence, the latter being a snapshot of the former
        - Shared evidence, discussions, and arguments are optional and recommended, but not required.

Hunch connection examples

Content connections

- Content connections should function similarly to hunch connections, but are not necessarily dependent on two hunches being connected.
- Again, allow both strong and weak connections to content. Evidence, conversations, actions, could individually be connected within a hunch.
    - Strong connections:
        - Updates to E1 are directly updated within H1 and H2
        - One piece of evidence, one discussion and rating system surrounding it.
    - Weak connections:
        - E1 is copied to E2 for H2, updates can optionally be provided in both directions.
        - One piece of evidence, two discussions and rating systems occurring, one in each hunch.
    - Connected content should provide notifications to all hunches using that evidence, if updates are chosen to be shown by the user connecting it.

Content connection examples