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introducing the collective intelligence design playbook
what is this playbook for?

This playbook was designed by Nesta to help you design and deliver a collective intelligence project.

It will help you understand how to harness the best ideas, information and insight (aka. intelligence) to address a complex issue.

It will introduce you to activities you can use to orchestrate diverse groups of people, data and technology to achieve your goals.

We call this collective intelligence design.

We think of it as 21st century common sense.

who is it for?

We created this playbook for innovators around the world working on complex challenges.

You might work in an international organisation, a public institution, a business or a non-profit. You’re probably familiar with other innovation approaches, and you may already have used some methods included in this playbook. But you’re likely still grappling with slow or failed progress on a big social, environmental, economic or political issue. You know that you need to find fresh insights, more effective solutions, and create new collaborative approaches to drive real change.
how do we use it?

The playbook is designed to be used by teams or groups working through the activities and exercises together. We recommend allocating a facilitator to take responsibility for helping keep the group on track, and we provide facilitator notes throughout the guide to help with this task.

We have created a number of new tools and activities specifically for this playbook, but many others are curated or adapted from other toolkits we admire. All contain references to the original, so it is easy to trace back if you wish to dive deeper.

“We’re new to the idea of collective intelligence and want to understand more.”


• Introduce your group to a quick exercise to bring the concept of collective intelligence to life (see section 8).

“We want some inspiration.”

• Look at the case study selection in section 2, p.20.

• Check out our Trello boards which list many more collective intelligence projects and tools (links provided in the ‘More resources’ section at the end of this playbook)

“We’ve got some important meetings and workshops coming up, how can use collective intelligence to make them better?”

• Discuss the collective intelligence design principles on p.40. How might applying these change the way you currently do things?

• Try out some of the workshop activities in section 7 to boost your event’s collective intelligence.

• Read the Overcoming Biases Guide (Activity D2 on page p.152) to be aware of potential pitfalls.

• Review the ORID, Generative Decision Making, Open Space and Group Dialogue Guides and experiment with these formats.
| “We want an overview of what collective intelligence design involves.” | • Read the section ‘An introduction to collective intelligence design’ on p.34.
• Look through the key design questions, and the prompt cards. |
| --- | --- |
| “We want to design a collective intelligence project.” | • Agree your main purpose for wanting to design a collective intelligence project and find the correct navigation page in section 4 of this playbook: understand problems on p.52; seek solutions on p.56; decide and act on p.60; learn and adapt on p.64.
• Print out the collective intelligence design canvas template (A3 or A2), as well as the specific design questions relevant to your purpose.
• Use the navigation page to see which activities are suggested, and pick those that you think will be most useful for your group and project. You should use them to explore the design questions in greater depth.
• Print out any prompt cards or worksheets you need.
• Work through the design questions set out at each stage with your group. Identify someone to be the group facilitator.
• Populate your canvas as your group answers the design questions. Allow time for reflection and iteration.
• Use activities such as prototyping to bring your project to life and identify any aspects that are missing or need to be changed. |
| “We want to make suggestions on how you could add to or improve this playbook.” | • Drop us a line at collective.intelligence@nesta.org.uk
• Comment or suggest directly on the playbook using the Google Doc version |
### We want to...

- **Understand problems**
  - A1. challenge definition
  - A2. issue map
  - A3. stakeholder map
  - A4. cover story
- **Seek solutions**
  - B1. data mapping
  - B2. data cards
  - B3. gather data method cards
  - B4. data ethics
- **Decide and act**
  - B5. solutions brief
  - B6. solution readiness
  - B7. mapping solutions
  - B8. finding solutions
- **Learn and adapt**
  - C1. unique perspectives
  - C2. people cards
  - C3. engagement plan
  - C4. personas
  - C5. incentives & retention
  - C6. challenge call to action

### We need to...

- **Define challenge**
- **Gather data, information, ideas**
- **Mobilise people**

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**Questions:** how can we see at a glance which activities are relevant?
“We want to…”

**Understand problems**
- D1. connect method cards
- D2. overcoming biases
- D3. crowd facilitation
- D4. data flow
- D5. interpret method cards
- D6. visualizing citizen-generated data

**Seek solutions**
- D1. connect method cards
- D3. crowd facilitation
- D5. interpret method cards
- D7. collective decisions
- D6. visualizing citizen-generated data

**Decide and act**
- D1. connect method cards
- D2. overcoming biases
- D3. crowd facilitation
- D5. interpret method cards
- D6. visualizing citizen-generated data

**Learn and adapt**
- D1. connect method cards
- D2. overcoming biases
- D3. crowd facilitation
- D5. interpret method cards
- D6. visualizing citizen-generated data

**Create change**
- E1. create change method cards
- E2. prototyping techniques
- E3. prototype testing
- E4. theory of change
- E5. collaboration agreement
- E6. dataset nutrition label

**Connect & Interpret**
- D

**Create change**
- E

**ORID framework**
- D8

**Generative decision-making**
- D9

**Open space**
- D10

**Group dialogue**
- D11

**Study circle**
- D12

**Theory of change**
- E4
help this playbook!

This is our beta-version of the Collective Intelligence Design Playbook.

It’s a first attempt to bring together some core resources to help innovators design for collective intelligence. We know there’s probably a lot that we’ve missed but hope you’ll help us out with identifying those omissions. It’s a living collection – please help us make it better for future versions.

Help us create version 2.0! Please send us:

1. Corrections and edits of errors.
2. Additions for the collective intelligence design sections:
   a. New activities that can help to answer the design questions.
   b. Suggestions for key design questions that we missed.
   c. Suggestions for new prompt cards.
   d. Top tips.
3. Your filled in versions of the design canvas.

Collective intelligence design is modular so there are infinite possibilities depending on the challenge you want to address. We hope you’ll share your design blueprints so that we can continue building an open repository of collective intelligence projects to inspire others.

This version of the playbook is aimed at relative newcomers to collective intelligence, but we want to keep adding more advanced techniques too.

Please leave your suggestions as comments in the Google Doc draft of the main text or directly on the Google slides (for activities & guides). You can follow a link to these on the Nesta website page for this playbook.

Please send suggestions for additional activities, or your versions of hacked activities and completed canvases to collective.intelligence@nesta.org.uk with ‘CI Playbook: Version 2.0’ as the subject line.

Tell us what you’ve done or what you’d suggest and you’ll get a credit in our updated version (as well as our gratitude).

 nesta.org.uk/cidplaybook
what is collective intelligence?
greater than the sum of the parts

Collective intelligence is created when people work together, often with the help of technology, to mobilise a wider range of information, ideas and insights to address a social challenge.

As an idea, it isn't new. It's based on the theory that groups of diverse people are collectively smarter than any single individual on their own. The premise is that intelligence is distributed. Different people hold different pieces of information and different perspectives that, when combined, create a more complete picture of a problem and how to solve it.

Humans have of course been working together since the dawn of time. But since the start of the digital age, collective intelligence has really evolved.

How is technology amplifying collective intelligence?

1. Technologies such as the internet now help us to pool ideas in entirely new ways, and connect people across huge distances. Through this, we can bring more brains together - like Wikipedia does.

2. Smart technologies help us generate new sources of data. We can use satellite imagery or mobile phone data, for example, to create new intelligence on our world and societies.

3. Machine intelligence can enhance our human intelligence. Technologies like AI can analyse large volumes of data to help us make better predictions or more quickly understand lots of unstructured information.
COLLECTIVE INTELLIGENCE IN HISTORY

19TH CENTURY
In the 19th century, the Oxford English Dictionary was produced through the collaboration of thousands of volunteers who submitted words and their etymologies to its editors.

20TH CENTURY
In the early 20th century, the statistician Francis Galton observed a competition to guess the weight of a cow at a country fair. He found that the individual answers varied widely, but when he added all the answers up and found the average, it was just 1lb different to the cow’s real weight.

1920s
In the 1920s Gandhi used a challenge prize to reward designers – from anywhere – who could design a precisely specified cheap cloth loom.

1990s
In the 1990s, Porto Alegre in Brazil pioneered a new approach to allocating public spending. The municipal government allowed citizens to debate and vote on how public funds should be spent in a process called participatory budgeting that has since been adopted all around the world.

COLLECTIVE INTELLIGENCE TODAY

WIKIPEDIA
Thousands of individuals around the world contribute their knowledge and improve on each other’s work.

ZOONIVERSE
Over a million people are using the platform to analyse satellite images of space to help identify new stars.

WAZE
Combines location data from mobile phones of commuters and crowdsourced information on accidents or hazards to create real-time traffic maps.

The big message is that we can now make the most of human intelligence at scale, novel data, and clever technology to help us solve complex problems.
By bringing together diverse groups of people, data, and technology, we can create a collective intelligence that is greater than the individual parts in isolation. And by doing this, we can achieve things far beyond what any individual human or machine could achieve alone.

This playbook is designed to show you how to do this in practice.

why do we need collective intelligence?

Have you ever wondered how we managed to put people on the moon, but can’t sort out how to care for our ageing population? Or how we can create machines that beat the world’s best chess players, but are struggling to stem the tide of online hate?

The difference is in the nature of those challenges. Humans (and machines) are very good at solving complicated technical challenges, where logical thought and linear thinking can get us to the finish line. But solving complex social, environmental, economic or political challenges is much harder. These challenges are often multi-dimensional and decentralised. They usually can’t be fixed with a silver bullet solution or by a single organisation. Often they emerge or change at a faster rate than our ability to act - especially when the environment is unpredictable.

The most critical challenges facing us today are complex challenges. The Sustainable Development Goals are an example of this type of challenge: interconnected, transboundary and requiring change at multiple levels from policies to institutions and individual behaviour.

Solving complex problems requires new approaches to problem solving: using new sources of data to rapidly understand the dynamics of what is happening; harnessing collective brainpower to generate multiple solutions much more quickly; facilitating space to think, reflect and decide collectively on a new course of action; and the capacity to harness data for real-time adjustments and orchestrating knowledge that enables others to act too.

To do this, organisations and communities need to become skilled in mobilising intelligence of all kinds - data, information, insights and ideas. In the 21st century, we believe this will matter as much as mobilising money or power. The Collective Intelligence Design Playbook is our first attempt to help organisations do this well.

Note: even if there are already well-proven solutions, or if one group of experts has all the relevant knowledge, there may still be value in using collective intelligence tools. For example, getting heart surgeons in the UK and parts of India to share their methods and regularly review data on survival rates sharply improved their performance, turning them from hundreds of individual experts into something more like a collective intelligence.
how can collective intelligence help us?

Collective intelligence is a *multiplier* that brings new insights and ideas. When you incorporate collective intelligence into your way of working, it can help you to innovate and address problems more effectively.

Here is an overview of four ways that collective intelligence can help you:

1. **Better understanding of problems:** through crowdsourcing, using novel data, or combining existing data sets to generate insights, facts, information or predictions. Examples of this are PetaBencana³, a platform that crowdsources reports of flooding in Jakarta from citizens on Twitter to create real-time flood maps used by citizens; and Haze Gazer⁴, a crisis analysis and visualisation tool that provides real-time situational information by combining multiple data sets to enhance disaster management efforts.

2. **Finding solutions to a problem:** either through tapping into the collective brainpower of citizens, a wider pool of innovators, or seeking out tested solutions from elsewhere. Examples of this are Wefarm³, a free SMS peer-to-peer information service for small-scale farmers in East Africa; or BlockByBlock⁴, where citizens can co-create their community space. Tools like AllOurIdeas allow citizens to contribute their ideas about what their city should look like⁵.

3. **More informed and inclusive decisions:** by bringing together a diverse range of people and relevant actors to discuss, prioritise and implement ideas. An example of this is vTaiwan, a hybrid online and offline consultation process to crowdsourcing citizen priorities and achieve consensus among competing perspectives.⁶ Tools like Loomio⁷ and Pol.is⁸ are enabling online group decision-making at scale on policies, budgets, planning and more.

4. **Learning and sharing what works:** through crowdsourcing information and creating shared repositories of knowledge. Examples include Public Lab’s work to hold BP accountable for the Gulf oil spill clean-up through citizen monitoring, and the creation of open source tools to help other community groups monitor environmental changes.⁹ The Human Diagnosis Project crowdsources and ranks diagnostic advice from thousands of doctors to provide ongoing training for health professionals and medical students.¹⁰

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¹ petabencana.id  
² hazegazer.org  
³ wefarm.co/what-is-wefarm  
⁴ blockbyblock.org  
⁵ allourideas.org  
⁶ vtaiwantw  
⁷ loomio.org  
⁸ pol.is/home  
⁹ publiclab.org  
¹⁰ humandx.org/context/background
understand problems

Generate contextualised insights, facts and information on the dynamics of a situation.

Monitor the implementation of initiatives by involving citizens in generating data, and share knowledge to improve the ability of others.

learn and adapt

seek solutions

Find novel approaches or tested solutions from elsewhere. Or incentivise innovators to create new ways of tackling the problem.

Make decisions with, or informed by, collaborative input from a wide range of people and/or relevant experts.

decide and act

You can use collective intelligence at any stage in a typical innovation process, for policy design or designing new products and services in business.
case studies
case study: ramani huria

why?
In Dar es Salaam, Tanzania, the rainy season can bring devastating floods that wipe out roads and buildings. The damage caused by these floods could be prevented with adequate planning, but much of the city is made up of unplanned and informal settlements.

what?
Ramani Huria helps communities to map residential areas, roads, streams, floodplains, and other relevant features, aiming to bring disaster prevention and response to areas that were previously off the map.

how?
The project trains teams of local university students and community members to use OpenStreetMap to create sophisticated and accurate maps. Residents of Tandale, an informal settlement in Dar es Salaam, first mapped key local features on OpenStreetMap in 2011. This map was updated and improved in 2015 using aerial drone imagery. The maps are combined with other data in InstaSAFE, a free software that enables users to run realistic natural disaster scenarios for better planning and response. Maps data are publicly available online and in print with an open license, making it easier for government, researchers and people to freely and openly use and redistribute them.

so what?
The data collected is enabling people across all levels of society to improve flood mitigation plans and raise awareness and resilience to natural threats. In 2015 it helped public authorities responding to an unexpected outbreak of cholera, providing detailed information on water points and sanitation data.
case study: crowdsourcing
mexico city
constitution

why?
In 2016, the Mexican federal government granted Mexico City the ability to adopt its own citywide constitution, but the process allowed very little input by the people (assuming the draft would be provided exclusively by the Mayor).

what?
In order to build trust and gather fresh ideas, Mayor Ángel Mancera decided to crowdsource the constitution from local residents. He appointed a 28-person drafting committee made up of Mexico City residents, supported by technical staff to translate ideas into legal language.

how?
To solicit ideas for the constitution, the City set up a survey called Imagina tu Ciudad (Imagine Your City) to gather local people’s visions for the city. The survey was made available online and offline, with one strategy including the recruitment of 200 student volunteers, armed with tablets to gather responses from citizens in public spaces. In addition to the survey, the City also worked with Change.org so people could petition for specific articles to be included in the constitution. Any ideas gaining 10,000 signatures or more were given the chance to present to the drafting committee.

so what?
By the end of the process the City had collected 26,000 survey responses, and 280,000 signatures on 357 petitions on issues including LGBTI rights, river and lake revitalization and universal internet access. The constitution was formally approved in February 2017 with crowdsourced components providing an important influence on policy. For instance, one provision allows transgender people to change their gender on official documents without having to go through a judicial process.

citiesofservice.org

ISSUE
SDG 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

PURPOSE
seek solutions
decide and act

METHODS
Crowdsourcing, Surveys, Petitions, Deliberation

PEOPLE
Local residents

DATA
Citizen-generated data (ideas and proposals)
case study: citymart

why?
Procurement is how every city buys goods and services that it cannot obtain internally, but often the process can be top-down, or overly prescriptive, in a way that excludes some of the most innovative or cost-effective solutions.

what?
Citymart helps cities to get more competitive and more innovative ideas in their procurement processes through diversifying cities’ vendor pools and involving more SMEs.

how?
Citymart crowdsources solutions to specific urban problems through competition. Cities post their requirements on a crowdsourcing platform (BidSpark), which matches the requirements to thousands of potential vendors. Vendors can then apply, or rate the procurement, providing feedback to the City. The huge vendor database of 27,000 solutions also allows cities to retrieve and search information about existing projects that other cities are trying to implement. This way, they can learn from other projects before starting a search for their own solution.

so what?
More than 130 governments in 35 countries have used Citymart to date. In San Francisco Citymart delivered 50 previously unknown proposals for an open standards street light system. In Detroit, it found over 1,600 matching vendors for the government’s Smart City Strategy.

Citymart.com
ISSUE
SDG 3: Ensure healthy lives and promote well-being for all at all ages

PURPOSE
seek solutions
learn and adapt

METHODS
Online forums, Peer-to-peer exchange, Crowdsourcing, Citizen science

PEOPLE
Patients with rare diseases

DATA
Sensor data (from wearables), Citizen-generated data (experiences)

why?
Peer-support among patients living with a chronic health condition can help people better manage their conditions, share knowledge and provide a level of ongoing assistance where formal healthcare cannot.

what?
PatientsLikeMe is a patient network and real-time research platform with over 600,000 members, through which patients connect with others who have the same disease or condition and track and share their own experiences.

how?
Patients can use the platform to ask questions, learn how others manage their symptoms and learn about or discover treatments that might work for them, or use tracking tools that help them better understand their health and make more informed decisions. The website now provides information on more than 1,000 life-changing illnesses from multiple sclerosis to autism to cancer. In 2016 PatientsLikeMe began connecting patient-reported information with biological data, to find new clues about causes of different diseases reported on the platform.

so what?
The platform’s members have generated more than 43 million data points about diseases, creating one of the largest repositories of patient-reported, cross-condition data available today. Its data forms the basis of more than 100 publicly accessible peer-reviewed scientific studies and has helped researchers to refute traditional randomized clinical trials, model multiple diseases, validate quality measures and shed new light on medication adherence.

patientslikeme.com
why?
In developing countries, citizen engagement in the rapid growth and development that many cities are experiencing is not a priority, and when it is, finding methods that effectively do this are often quite challenging.

what?
With Block by Block, UN-Habitat, Microsoft and Mojang, makers of popular online game Minecraft, are exploring how the game could be used to find out how people want to see their cities develop in the future.

how?
Each project starts with drawing up a 3D model in Minecraft of a public space that needs regenerating. UN-Habitat then runs workshops in which they teach participants how to use the game and get them to brainstorm ideas of what they’d like the final design to look like.

so what?
Since the project’s creation, more than 25,000 people have now been involved in workshops around the world, helping the renewal of urban neighbourhoods in more than 30 countries.

In Haiti, the project worked with a group of fishermen who couldn’t read or write and had never used a computer. They used the program to visualise the changes they would like to see in an area that had been badly affected by flooding. Using Minecraft they built a new seawall as well as adding public toilets to the area. This was then turned into a plan by architects.
why?
In the aftermath of the BP oil spill on the Gulf Coast in 2010, an alliance of activists sought to track information about the spill and the extent of natural disaster. Due to its distance at sea, common tools and methods of aerial mapping were not easily applicable.

what? how?
Using simple DIY tools - such as balloon mapping to capture aerial imagery - a collective of more than a hundred volunteers worked together to gather data and visualise the extent of the environmental damage. This dataset was not otherwise publicly available and empowered the local community to take action against polluters and regulators.

so what?
Since 2010, Public Lab has grown into a global community who share tools, methods and other resources online to investigate environmental concerns. Using a combination of online documentation, iterative adaptation of open source tools and community building through both distributed and face-to-face processes, Public Lab has been adapted to local contexts across the US and far beyond. Use cases range from efforts to monitor the clean-up of local waterways in Gowanus (Brooklyn) to the mapping of settlements in Israeli refugee camps to enable community cohesion.
case study: global fishing watch

why?
Hundreds of millions of people depend on the oceans for their livelihoods; more than a billion people rely on fish as their primary source of nutrition. But today, threatened by illegal fishing, overfishing, and habitat destruction, the global fish population is in crisis; some species’ numbers have dropped by a staggering 90 per cent.

what? who?
Global Fishing Watch is a remote vessel tracking system launched by Google in partnership with other organisations that aims to address this. Through greater transparency of global commercial fishing activity, the project is committed to advancing ocean sustainability and stewardship.

how?
The system works by combining government data on commercial fishing fleets with data from automatic identification systems (AIS) that large ships use to broadcast their position in order to avoid collisions. Ground stations and satellites pick up this and other information about the vessels’ identity, course and speed. Vessel tracking information is made available through an interactive online map and downloadable data, aimed at members of the public and journalists as much as researchers, campaigners and governments. Partnerships with countries to share and combine data are also key to making monitoring cheaper and more effective for everyone.

so what?
In 2018 Global Fishing Watch published a ‘live’ global view of likely transshipping at sea (a legal but poorly regulated activity), and led to the first ever global assessment of transshipment published in a scientific journal.

globalfishingwatch.org
case study: wefarm

why?
Over 1 billion smallholder farmers produce 80 per cent of the world’s food, and four of the five most traded commodities on earth, yet the vast majority lack access to the internet and even basic information to help them solve problems or share ideas.

what?
Wefarm is a free peer-to-peer service that enables small-scale farmers in Kenya, Uganda, and Tanzania to share information via SMS, without the internet and without having to leave their farm.

how?
Wefarm’s network allows small-scale farmers to ask each other questions on anything related to agriculture and then receive crowdsourced bespoke content and ideas from other farmers around the world within minutes. The questions can be asked in any language and messaging is free of charge.

If farmers don’t have internet access, which is often the case in rural communities, they can access Wefarm via SMS on their mobile phones. Wefarm’s machine learning algorithms then match each question to the best suited responder. The natural language processing model can identify three regional African languages – Kiswahili, Luganda, and Runyankore – in addition to English. The fact that Wefarm users don’t need proficiency in English increases reach and access.

so what?
Farmers connect with one another to solve problems and share ideas. It’s now the world’s largest farmer-to-farmer digital network, with more than 1 million farmers using it in Kenya and Uganda, sharing more than 40,000 questions and answers daily.

wefarm.co

ISSUE
SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

PURPOSE
seek solutions

METHODS
Peer-to-peer exchange, Natural Language Processing

PEOPLE
Smallholder farmers in East Africa

DATA
Citizen-generated data (questions and solutions)
what are the unique benefits of collective intelligence?

In addition to helping you understand problems, find solutions, make decisions and learn, there are some particular benefits of using collective intelligence as an approach.

These include:

1. **improved ability to respond to issues in a more timely and effective way**

   For many organisations, responding to complex problems is often made difficult by a lack of current or useful data, slow innovation pipelines and disagreement on how to proceed. Using collective intelligence to mobilise new sources of data (from sensors to citizen-generated information) and ideas will generate more comprehensive and up-to-date insights, and more appropriate solutions for action. Collective intelligence can also help stakeholders, experts and affected communities come to greater agreement on priorities for action.

   - AIME can predict the location of the next outbreak of dengue fever up to three months in advance. It does this by combining data on confirmed cases of dengue from doctors, with multiple datasets on the factors that affect the spread of dengue.11
   - Resilience Dialogues was a set of facilitated discussions between experts and communities in the US. Combining their ideas led to more robust local climate action plans.12

2. **increased power and ability of citizens to act**

   Collective intelligence often involves people in generating information and opens up information for people to use. People’s ability to make decisions and power to act is increased when they have relevant and timely information about their situation and options. This enables citizens to share responsibility in tackling social problems.

   - Madam Mayor, I have an idea is a participatory budgeting exercise that allows Paris residents to have a say in how the City’s local investment budget is spent. The government has allocated 500 million Euros over five years for projects to be decided in this way.13
   - Peta Bencana creates real-time flood maps from citizen reports on Twitter, enabling residents of Jakarta to make informed decisions about how to navigate around the city.14

3. **smarter cities and communities**

   When collective intelligence projects integrate different types of available information they can help to coordinate and influence the activities of people and organisations in new ways. By doing this, collective intelligence initiatives can act like a central nervous system for cities or local communities - helping them to react, remember, think and plan.

   - The ET CityBrain15 system deployed in a handful of cities in Asia integrates data from a network of sensors across the city to coordinate traffic and optimise public service delivery.
   - Waze16 Connected Citizens project crowdsources input from people moving around a city and public data on top of Google Maps to improve the efficiency of day-to-day operations.

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4. [https://petabencana.id/](https://petabencana.id/)
5. [https://www.alibabacloud.com/et/city](https://www.alibabacloud.com/et/city)
what are the three forms of collective intelligence?

As the case studies illustrate, collective intelligence projects can take many different shapes, and they can use a wide range of different methods.

Here is an overview of the three main forms of collective intelligence. Each brings people and/or data together in different ways.

what are the three forms of collective intelligence?

connecting data with data

This form of collective intelligence often brings together multiple and diverse datasets to help generate new and useful insights. Data collaboratives, data warehouses and open APIs are some of the methods that are typically used in these data-driven collective intelligence projects.

• VAMPIRE is an early-warning system for climate impacts.17 It combines multiple datasets on population and socioeconomic data from household food security surveys with data on rainfall anomalies and vegetation health. The system then maps economic vulnerability and exposure to drought to anticipate the areas where people might need most help.

connecting people with people

This form of collective intelligence is the oldest. It can facilitate distributed information production, problem-solving, co-creation and prediction-making. Methods can include crowd forecasting, deliberation and peer-to-peer exchange.

• DARPA’s red balloon challenge placed ten red weather balloons around the US and tasked entrants with finding them all. A team from MIT won the competition by leveraging online networks and offering monetary prizes incentives.18

• Nesta’s 2019 crowd prediction challenge asks individuals to assign probability forecasts to major events related to Brexit.19 These forecasts are then aggregated to produce a ‘wisdom of the crowd’ score. The crowd correctly predicted that the UK’s exit from the EU would not happen as originally planned at the end of March 2019.

connecting people with data

This form of collective intelligence brings both people and data together. It often involves crowds generating, categorising, cleaning, sorting or tagging unstructured data, photos or PDFs. Citizen science, crowdsourcing, and crowdmapping are typical methods to achieve this.

• Earth Challenge 2020 aims to engage millions of global citizens in collecting one billion data points on air and water quality, pollution and human health.20 Citizen science volunteers around the world, working with professional scientists, will collect and share data of their local communities on an unprecedented scale, providing new insight on the state of our environment.

• The Missing Maps project engages thousands of volunteers tracing areas where official maps are limited or do not exist at all.21 This first phase of mapping is carried out by volunteers working remotely at home who trace satellite imagery into OpenStreetMap. Next, community volunteers add local detail such as neighborhoods, streetnames, and evacuation centres. Humanitarian organizations then use mapped information to plan risk reduction and disaster response activities that save lives.

17 https://pulselabjakarta.id/vampire/
19 https://www.nesta.org.uk/project/crowd-predictions/
20 https://earthchallenge2020.earthday.org/
21 https://www.missingmaps.org
what is not collective intelligence?

In some respects all of human civilisation is an expression of collective intelligence. But there are lots of examples of practices that are the opposite of what we see as good collective intelligence. Such as:

- Closed organisations that make no use of the ideas and experience beyond their boundaries.
- Dictators and autocrats making decisions alone, or just relying on their intuition.
- Crowds that lack any common language or frames and so become a cacophony of voices and views without any mutual listening (like much contemporary social media).
- Crowds joined together by belief, ideology and dogma, and resistant to new information or ideas.
- Markets shaped by incentives that encourage myopia in relation to risks.
- Using collective intelligence methods to surveil participants or manipulate behaviour and outcomes.
- Extracting data from a crowd without offering any reciprocal benefits to contributors or failing to act on the insights generated.

These examples demonstrate that collective intelligence is far from the default in society. It is only through careful and deliberate design choices that we can get closer to making the most of the different resources of intelligence available.
introducing collective intelligence design
what is collective intelligence design?

Collective intelligence design is the art and science of bringing together diverse groups of people, data (including information or ideas) and technology.
when should we use collective intelligence design?

You can use collective intelligence design at any stage in a typical innovation, product development, policy design or service design process. You might use collective intelligence at just one of the stages in your process, or across multiple stages.

Use the table opposite as a guide to how collective intelligence design can help you address your challenge. Your starting point - the reason you decide to use collective intelligence design - will lead to different results, and the projects you design will have different characteristics. A brief summary is provided in the table.

<table>
<thead>
<tr>
<th>EXAMPLES OF COMMON ISSUES</th>
<th>PURPOSE FOR USING COLLECTIVE INTELLIGENCE</th>
<th>COMMON CHARACTERISTICS</th>
<th>EXAMPLE OUTPUTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;I have poor/incomplete information about this issue, or it is changing rapidly.&quot;</td>
<td><strong>understand problems</strong> Generate contextualised insights, facts and information on the dynamics of a situation.</td>
<td>• Connects multiple types of data (e.g. satellite data with crowdsourced mapping of a location). &lt;br&gt;• Uses novel data sources or proxy data (e.g., light source data to measure GDP). &lt;br&gt;• Often involves crowdsourcing data (e.g. experiences or information) from people. &lt;br&gt;• May use machine intelligence to analyse combined datasets or create models.</td>
<td>Real-time data dashboard. &lt;br&gt;Open map of local level (granular) data. &lt;br&gt;Predictive model. &lt;br&gt;Early warning alerts.</td>
</tr>
<tr>
<td>&quot;I understand the problem I'm working on, but I don't know how to best tackle it.&quot;</td>
<td><strong>seek solutions</strong> Find novel approaches or tested solutions from elsewhere. Or incentivise innovators to create new ways of tackling the problem.</td>
<td>• Searches academic/scientific literature for proven approaches. &lt;br&gt;• Connects with other organisations/individuals who might already be working on this issue. &lt;br&gt;• Invites a wide range of potential innovators to find a new/better solution. &lt;br&gt;• Sometimes using machine learning tools (including text analysis) to sift data more quickly and/or rank results.</td>
<td>A register or prioritised list of new or existing solutions to adopt, adapt or test. &lt;br&gt;Prototypes for scaling and/or further investment.</td>
</tr>
<tr>
<td>EXAMPLES OF COMMON ISSUES</td>
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</tr>
<tr>
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</tr>
<tr>
<td>I want to share ownership for the decision(s) I need to make.</td>
<td><strong>decide and act</strong>  Make decisions with, or informed by, collaborative input from a wide range of people and/or relevant experts.</td>
<td>• Brings together a diverse range of stakeholders who are affected and/or knowledgeable about an issue.  • Often involves online or in-person group deliberation on an issue.  • May include voting and ranking of peer ideas or organisational policies.  • May be combined with collaborative group exploration to understand the problem and seek solutions.  • Sometimes uses machine learning tools such as natural language processing to cluster or summarise information.</td>
<td>Participant-ranked list of proposed actions/ideas for implementation.  Clarity on majority or consensus view on a given topic or course of action.  Collective agreement on next steps.</td>
</tr>
<tr>
<td>I need other people to act with me on this issue.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I want to track if this project/policy is working the way it is intended.</td>
<td><strong>learn and adapt</strong>  Gather data to monitor the implementation of initiatives, and share knowledge to improve the ability of others.</td>
<td>• Mobilises data generated by citizens - either actively through crowdsourcing or passively (e.g. through call detail records).  • Combines multiple sets and types of data.  • Creates open repositories of data and/or tools.  • May use machine learning algorithms to identify patterns in data and automate adjustments.</td>
<td>Open source repository e.g. of tools, designs or software.  Experiment results made available to others.  Formalised hubs of knowledge on ‘what works’.  Online learning programmes/exchanges that are personalised or enhanced based on others’ experiences.</td>
</tr>
</tbody>
</table>

You might have one primary purpose for collective intelligence that you focus on, or you might incorporate two or more purposes in your project. You can introduce it in a modular and flexible way.
An example of a project which combines multiple uses (or categories) of collective intelligence is Regen Network, which aims to reward positive changes to our ecosystems.

Regen Network uses satellite, sensors and on-the-ground observation data to understand current ecological conditions.

A network of farmers around the world are incentivised to experiment with new approaches to improving things like carbon sequestration, cleaning waterways or increasing biodiversity. They are paid as ecosystems improve and conditions set out in ecological protocols are achieved.

Ecological protocols are crowdsourced from relevant experts which stipulate the improvements needed for any particular ecosystem.

The satellite, sensor and on-the-ground observation data help farmers to monitor progress in real-time and learn which experiments are working best.

regen.network
how do we know if collective intelligence design is right for us?

Use the following flowchart to help you decide if collective intelligence is right for your challenge and if your team or organisation is ready to use it.
collective intelligence design principles

The collective intelligence design principles are pieces of advice to help you design your project. They are guidelines and considerations to take into account - more like a compass than a definitive roadmap.

Apply them when you select, create and organise elements in your project.

1. increase diversity of the people you involve and the opinions you listen to.

   Research shows diversity of people and perspectives can enhance the collective intelligence of a group. In fact, diverse groups often outperform groups of like-minded experts and the brightest individuals too. Don’t just include the ‘usual suspects’ in your project. Bring together people with different experiences, ways of understanding, interpreting and solving problems (this is known as cognitive diversity) to help you address your challenge more successfully.

2. enable people to contribute views and ideas independently and freely.

   You’ve successfully brought together a diverse group of thinkers and solvers. But groups can still be dominated by the loudest person, minority views can often be ignored, and groupthink can lead you to the wrong answer. Enable people to contribute their intelligence freely and independently, taking care to think about how you manage group dynamics and behaviour to mitigate against biases and make sure every voice is heard.

3. integrate different types of data to unlock fresh insights.

   The emerging variety of real-time, ‘ground-truth’ and novel data sources is helping us to build better models of the world. Think carefully about which data and information can help you to measure or describe the problem you’re interested in, from proxy indicators to inputs from those most closely affected by the problem. Select, test and combine new sources of insight to improve the timeliness and appropriateness of your response.

4. be citizen-centered: data empowerment, not data extraction.

   Start with the problems that matter to people not a particular technology. Don’t just use people to extract the information you want, but make sure they can access and use the collective intelligence that is created. Involve people in producing and using data by working with them as agents of change not passive beneficiaries. Ensure people understand and can determine how their data is used. Create for the public commons where possible - opening up information and technology for others to use. Applying this principle will help you avoid some of the potential risks of using collective intelligence.
collective intelligence design process

At the heart of the playbook are four purposes for using collective intelligence design: to understand problems; seek solutions; decide and act; and learn and adapt. In this playbook, we’ll also refer to them as categories of collective intelligence.

The starting point for collective intelligence design is to have clarity on what you want to use collective intelligence for. Select a purpose, informed by the issue you’re seeking to address. This is the guiding star of how your group will design collective intelligence, and how you will navigate this playbook.

There is no hierarchy among the different purposes of collective intelligence, nor do they have to be used sequentially. They can, however, be used in combination. The case studies illustrate how this modular approach has been adopted by many examples of collective intelligence in practice.

Tip: If you are just starting out with collective intelligence design, we suggest focusing on designing one use to begin with. Over time, you may find that you want to use collective intelligence in other ways as part of your project or initiative.

PUBLIC LAB

Public Lab initially engaged 100 volunteers in community mapping activities to understand the problems caused by the Gulf oil spill and track BP’s clean-up efforts. As the community matured it wanted to share its knowledge with other community groups. To do this, it created an open source repository of DIY community monitoring tools so that other groups could learn and adapt for their own purposes.
collective intelligence design canvas

The Collective Intelligence Design Canvas is a template for people wanting to design a collective intelligence project.

As you design your project, you should print out and populate the canvas with the choices you make and the elements relating to your project. This will give you an overall picture of your project, and help you see all the relevant components at-a-glance.

Whether you’re designing to Understand Problems, Seek Solutions or one of the other categories of collective intelligence, there is a specific canvas for you. There are also worked examples for your reference. These can be found behind the main navigation page for the category of collective intelligence that you are designing for.
collective intelligence design stages

The collective intelligence design canvas is made up of five sections, which relate to the five key design stages of collective intelligence design.

STAGE: DEFINE CHALLENGE

What is our issue and our purpose for using collective intelligence?
The first step is to clarify the issue you are addressing and why it is important. You should also spell out your reason for using collective intelligence - is it to understand a problem, find a solution, make a decision or to learn/share what’s working? Being clear on purpose and the change you want to see will help you keep focused on achieving your outcome.

STAGE: GATHER DATA, INFORMATION & IDEAS

What data/information/ideas do we need to find, and how will we do it?
Any project needs to start with a good understanding of the information it already has, what it can access and what it needs. This stage is about exploring uncommon sources of data and insight that might illuminate your issue in a new way, and the methods you can use to gather them effectively.

STAGE: MOBILISE PEOPLE

Who might be able to help, and how can we best engage them?
Collective intelligence design can help you tap into distributed experience and expertise to answer your questions. For this to happen, the goal needs to be clear, ‘the crowd’ needs to be carefully defined and targeted, and the motivations and incentives of those participating need to be considered.

STAGE: CONNECT & INTERPRET

How will we bring together people and/or data, and make sense of the results?
In this design stage, you will design how people will contribute and interact when they’re brought together, considering how to manage group dynamics to draw out the best from your crowd. You’ll also think about how you will store and process any data you’ve collected. Finally, you’ll need a plan for turning often messy data or unstructured text into useful results and insights.

STAGE: CREATE CHANGE

Who do we need to act, and what do they need to do this?
Here you’ll design how to turn the results of collective intelligence into action in the real world. You’ll create a prototype and testing plan, and make sure you have thought about how you’ll feedback to participants and open up information for them to use.
collective intelligence design questions

Each design stage has a number of key design questions. These will help guide you to find the right answers for your challenge.

There is a set of design questions for each of the four different purposes of collective intelligence. You can find them on the relevant navigation page - your starting point once you have selected whether you want to understand a problem; seek solutions; decide and act; or learn and adapt.

Example: Design questions for understand problems.

You should attempt to answer all these design questions as best you can. We suggest you work through them sequentially stage-by-stage. You should also allow time for reflection and iteration. As you work, you may find that answers to previous questions need to change - so pause to check and refine periodically.

For each purpose of collective intelligence, there is an associated canvas pre-populated with the specific design questions relevant to your purpose. Print out a copy of this canvas for reference, alongside a blank one for your team to fill in (printing it out on A2 or A1 size will make it easier for your group to work on collectively).

<table>
<thead>
<tr>
<th>A</th>
<th>DEFINE CHALLENGE</th>
<th>B</th>
<th>GATHER DATA, INFORMATION, IDEAS</th>
<th>C</th>
<th>MOBILISE PEOPLE</th>
<th>D</th>
<th>CONNECT &amp; INTERPRET</th>
<th>E</th>
<th>CREATE CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/ What is the issue we want to understand?</td>
<td>6/ What do we specifically need to know/find?</td>
<td>10/ Who could help us understand our problem?</td>
<td>14/ How will people interact and share information?</td>
<td>19/ Who do we need to act on the collective intelligence, and what do we want them to do?</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2/ Who does the issue affect?</td>
<td>7/ What data might help us understand our problem?</td>
<td>11/ What do we want them to do?</td>
<td>15/ How will we ensure everyone gets a chance to contribute?</td>
<td>20/ What do they need to see or know in order to do this?</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3/ What is the change we want to bring about?</td>
<td>8/ How will we collect this data?</td>
<td>12/ How will we reach those people?</td>
<td>16/ How will we bring together our data (store/clean/process)?</td>
<td>21/ How will we open up this data/information to citizens?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/ What is our timeframe for action?</td>
<td>9/ Are there any ethical issues with collecting or using this data?</td>
<td>13/ What might motivate them to be involved?</td>
<td>17/ How will we make sense of the data we’ve collected?</td>
<td>22/ How will we feedback to participants?</td>
<td></td>
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</tr>
<tr>
<td>5/ What are our constraints?</td>
<td></td>
<td></td>
<td>18/ What biases might there be in our data?</td>
<td>23/ How will we know if we’re on track and creating change?</td>
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</table>
PROMPT CARDS

collective intelligence methods and tactics

Included in this playbook are six different decks of prompt cards.

These prompt cards contain a variety of popular collective intelligence methods or tactics.

Each card provides a summary of the tactic or method, and a short case study that illustrates its use in practice.

The combination of methods and tactics that you choose to use are highly important. They are the means to your end goal of collective intelligence. Some might be new or less familiar to you, while others have existed for decades.

You should be prepared to experiment with combinations until you find what works best.

The prompt cards are just a selection to help you get started, they are not exhaustive. Don't be restricted by them - instead use them as a basis for exploring a range of approaches and select the most appropriate combination.

The decks and cards are clearly labelled so you know which design stage they relate to, and which categories of collective intelligence projects they are usually found in.

You should print these out double-sided before beginning your design activity.
<table>
<thead>
<tr>
<th>ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>mix and match worksheets and guides</td>
</tr>
</tbody>
</table>

Each stage contains a series of worksheets and guides to help deepen or stretch your thinking on particular design questions. Many have been curated from toolkits that we admire, while others have been created especially for this playbook.

You don’t need to try all of these activities at every stage every time you design a collective intelligence project. Select a few that you think will be most useful.

If you have just one day, you will probably be designing at a very high-level, using only 2-3 additional activities beyond the canvas and design questions. If you have a week, or longer, you may want to dive deeper and complete a larger number of the exercises together.

Each activity and exercise has a suggested timing and group size to help you select appropriately. We also signpost which design question and design stage it relates to.

As you become familiar with the playbook, we hope you will find the activities that work best for you, adapt them further, or even add your own.

You will find all activities grouped together in the relevant design stage section of this playbook. For quick reference, refer to the navigation page for Understand Problems, Seek Solutions, Decide and Act, and Learn and Adapt. These will give you the page numbers of relevant activities.
the pointers for discussion or reflection

Each design stage includes a number of pointers that you should discuss or reflect on as a team. They are based on existing research and practice from the collective intelligence field. We suggest you do this at the outset of moving into each design stage.
design your collective intelligence project
Now you’re ready to start designing your collective intelligence project, here’s how to get going.

• With your group, identify which collective intelligence purpose will help you tackle your challenge.

• Find the correct navigation page in the playbook:
  ▶ understand problems on p.52;
  ▶ seek solutions on p.56;
  ▶ decide and act on p.60;
  ▶ learn and adapt on p.64.

• Print out the collective intelligence design canvas template (A3 or A2) and the specific design questions relevant to your selected purpose.

• Use the navigation page to see which activities are suggested, and pick those that you think will be most useful for your group and project. You should use them to explore the design questions in greater depth.

• Print out any prompt cards or worksheets you need.

• Work through the design questions set out at each stage with your group. Identify someone to be the group facilitator.

• Populate your canvas as your group answers the design questions. Allow time for reflection and iteration.

• Use activities such as prototyping to bring your project to life and identify any aspects that are missing or need to be changed.
collective intelligence design canvas template
collective intelligence project design canvas
This canvas will help you paint a quick picture with your team of the main elements of your collective intelligence project.

- **GATHER DATA, INFORMATION, IDEAS**
  What data/information/ideas do we need to find, and how will we do it?

- **CREATE CHANGE**
  Who do we need to act, and what do they need to do this?

- **CONNECT & INTERPRET**
  How will we bring together people and/or data, and make sense of the results?

- **MOBILISE PEOPLE**
  Who might be able to help, and how can we best engage them?

**DEFINE CHALLENGE**
What is our issue and our purpose for using collective intelligence?
understand problems

Use these pages to find relevant design questions and activities for your collective intelligence project design session.

purpose:

• Use collective intelligence to Understand Problems by generating contextualised insights, facts and information on the dynamics of a situation.

common characteristics:

• Connects multiple types of data (e.g. satellite data with crowdsourced mapping of a location).

• Uses novel data sources or proxy data (e.g. light source data to measure GDP).

• Often involves crowdsourcing data (e.g. experiences or information) from people.

• May use machine intelligence to analyse combined datasets or create models.

design questions:

• Answer these design questions to complete the collective intelligence design canvas to Understand Problems.

activities:

• Mix and match activities that will help you to answer the design questions if you’re stuck or if you want to explore in more depth. The table shows which are relevant if you are designing for Understand Problems. You can find these organised by design stage in this playbook.
understand problems key questions
This guide provides some key design questions that your team will need to answer.

**GATHER DATA, INFORMATION, IDEAS**
What data/information/ideas do we need to find, and how will we do it?

- What do we specifically need to know/find?
- What data might help us understand this problem?
- How will we collect this data?
- Are there any ethical issues with using this data or involving people?

**DEFINE CHALLENGE**
What is our issue and our purpose for using collective intelligence?

- What is the issue we want to understand?
- Who does the issue affect?
- What is the change we want to bring about?
- What is our timeframe for action?
- What are our constraints?

**CREATE CHANGE**
Who do we need to act on the collective intelligence, and what do we need them to do?

- Who do we need to act on?
- What do they need to see or know in order to do this?
- How will we open up this data/information to citizens?
- How will we feedback to participants?
- How will we know if we’re on track and creating change?

**MOBILISE PEOPLE**
Who might be able to help, and how can we best engage them?

- Who could help us understand this problem?
- What do we want people to do?
- How will we reach those people?
- What might motivate them to be involved?

**CONNECT & INTERPRET**
How will we bring together people and/or data, and make sense of the results?

- How will people interact and share information?
- How will we make sure people can contribute independently and freely?
- How will we bring together our data (store, clean, process, share)?
- How will we make sense of the information we collect?
- What biases might there be in our data?
**CASE STUDY: PETABENCANA.ID**

PetaBencana.id, is a project that combines data from hydraulic sensors with citizen reports over social media including via Twitter, to produce a flood map for cities in Indonesia. The system is programmed to react when someone in Jakarta tweets the word ‘banjir’ (flood) and tags @PetaJkt. PetaBencana.id automatically replies, and asks them to confirm the tweet with geotagged photos. The platform then combines all incoming reports with official data from the city government to build up-to-the-minute, online flood maps, which are then made publicly available. Through producing real-time maps of urban flooding, PetaBencana.id represents a major advance on previous static PDF maps.

The page opposite provides an illustration of a project design canvas using the example of PetaBencana. It is not exhaustive, but is intended to give you an idea of how to start filling in the canvas.
**GATHER DATA, INFORMATION, IDEAS**
What data/information/ideas do we need to find, and how will we do it?

**What we need to know:** location, severity and time of flooding

**Data sources:** Twitter and official government data

**Method for gathering data:**
- use Twitter API to scrape Tweets that use #banjeri (floods); citizen-generated reports to @PetaJkt
- data collaborative with government disaster agency

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**DEFINE CHALLENGE**
What is our issue and our purpose for using collective intelligence?

**Our problem is that...** Jakarta is vulnerable to flooding which affects the daily life of citizens (from traffic disruption to school closures)

**We want to ...** help Jakarta city residents and the disaster response agency better understand where flooding is happening across the city so that they can respond appropriately

---

**CREATE CHANGE**
Who do we need to act, and what do they need to do this?

**Who will act:** national management disaster agency to prioritise response - ensure software meets agency's SOP

**Opening up the data:** website and app for residents to see and report flooding in real time

---

**MOBILISE PEOPLE**
Who might be able to help, and how can we best engage them?

**Who can help:** residents of Jakarta

**Motivation:** people already trying to help each other by sharing info on floods on Twitter (purpose). Peta Bencana makes that more effective

---

**CONNECT & INTERPRET**
How will we bring together people and/or data, and make sense of the results?

**How people interact:** residents submit and verify flood reports with geo-location tagged photos

**Storing/processing data:** CognityCityOSS

**Making sense of information:** real-time online flood map (GIS)
Navigation Page

**seek solutions**

Use these pages to find relevant design questions and activities for your collective intelligence project design session.

**purpose:**

- Use collective intelligence to Seek Solutions by finding novel approaches or tested solutions from elsewhere. Or incentivise innovators to create new ways of tackling the problem.

**common characteristics:**

- Searches academic/scientific literature for proven approaches.
- Connects with other organisations/individuals who might already be working on this issue.
- Invites a wide range of potential innovators to find a new/better solution.
- Sometimes using machine learning tools (including text analysis) to sift data more quickly and/or rank results.

**design questions:**

- Answer these design questions to complete the collective intelligence design canvas to Seek Solutions.

**activities:**

- Mix and match activities that will help you to answer the design questions if you’re stuck or if you want to explore in more depth. The table shows which are relevant if you are designing for Seek Solutions. You can find these organised by design stage in this playbook.
**seek solutions key questions**
This guide provides some key design questions that your team will need to answer.

**GATHER DATA, INFORMATION, IDEAS**
What data/information/ideas do we need to find, and how will we do it?

- What solution(s) are we looking for?
- Where might solutions already exist?
- What methods will we use to find solutions?
- Are there any ethical issues to consider?

**DEFINE CHALLENGE**
What is our issue and our purpose for using collective intelligence?

- What is the issue we want to solve?
- Who does the issue affect?
- What is the change we want to bring about?
- What is our timeframe for action?
- What are our constraints?

**CREATE CHANGE**
Who do we need to act, and what do they need to do this?

- Who will adopt successful solutions or help them scale?
- What will be our approach to partnership or intellectual property?
- How will we feedback to contributors?
- How will we know if we’re on track to creating change?

**MOBILISE PEOPLE**
Who might be able to help, and how can we best engage them?

- Who could create a solution?
- What do we want people to do?
- How will we reach those people?
- What incentive(s) will we offer to people for sharing their solutions?

**CONNECT & INTERPRET**
How will we bring together people and/or data, and make sense of the results?

- What is the process for people to share their solutions?
- How can we support people to contribute ideas effectively?
- Who will judge which ideas to support or test?
**CASE STUDY: WEFARM**

Wefarm is a free peer-to-peer service that enables small-scale farmers in Kenya, Uganda, and Tanzania to share information via SMS, without the internet and without having to leave their farm. Wefarm’s network allows small-scale farmers to ask each other questions on anything related to agriculture and then receive crowdsourced bespoke content and ideas from other farmers around the world within minutes. The questions can be asked in any language and messaging is free of charge. It’s now the world’s largest farmer-to-farmer digital network, with more than 1 million farmers using it in Kenya and Uganda, sharing more than 40,000 questions and answers daily.

The page opposite provides an illustration of a project design canvas using the example of Wefarm. It is not exhaustive, but is intended to give you an idea of how to start filling in the canvas.

<table>
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<th>A</th>
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<th>CONNECT &amp; INTERPRET</th>
<th>E</th>
<th>CREATE CHANGE</th>
</tr>
</thead>
</table>
seek solutions project design canvas
Example: WeFarm

**B** GATHER DATA, INFORMATION, IDEAS
What data/information/ideas do we need to find, and how will we do it?

**Where might solutions exist:** peer-to-peer knowledge, creating a bank of solutions to common issues facing smallholder farmers.

**Ethical issues:** all data needs to be aggregated and anonymised for security.

**C** MOBILISE PEOPLE
Who might be able to help, and how can we best engage them?

**Who will use the solutions:** smallholder farmers in remote rural areas.

**How will we reach them:** SMS for simple, low barrier to entry and accessible interface.

**Motivation:** ‘ASK ME’ command, offers rewards for farmers who contribute the most solutions (glory)

**A** DEFINE CHALLENGE
What is our issue and our purpose for using collective intelligence?

**Our issue is that ...** The vast majority of smallholder farmers lack access to relevant information to help them solve problems or increase productivity.

**We want to ...** help farmers to share solutions and learn from one another without needing to leave their farm.

**D** CONNECT & INTERPRET
How will we bring together people and/or data, and make sense of the results?

**Process for sharing solutions:**
- machine learning determines language, content and intent of incoming messages and matches with relevant solution.
- volunteers help to translate questions into different languages.

**Who will adopt:** multiple solutions sent back to the farmer by SMS.

**Tracking impact:** data can also be used to monitor key issues affecting regions, e.g. disease, ripening periods, or soil conditions.

**E** CREATE CHANGE
Who do we need to act, and what do they need to do this?

**Who will use the solutions:** smallholder farmers in remote rural areas.

**How will we reach them:** SMS for simple, low barrier to entry and accessible interface.

**Motivation:** ‘ASK ME’ command, offers rewards for farmers who contribute the most solutions (glory)

**Our issue is that ...** The vast majority of smallholder farmers lack access to relevant information to help them solve problems or increase productivity.

**We want to ...** help farmers to share solutions and learn from one another without needing to leave their farm.

**Process for sharing solutions:**
- machine learning determines language, content and intent of incoming messages and matches with relevant solution.
- volunteers help to translate questions into different languages.

**Who will adopt:** multiple solutions sent back to the farmer by SMS.

**Tracking impact:** data can also be used to monitor key issues affecting regions, e.g. disease, ripening periods, or soil conditions.
Decide and Act

Use collective intelligence to Decide and Act by making decisions with, or informed by, collaborative input from a wide range of people and/or relevant experts.

Common characteristics:

- Brings together a diverse range of stakeholders who are affected and/or knowledgeable about an issue.
- Often involves online or in-person group deliberation on an issue.
- May include voting and ranking of peer ideas or organisational policies.
- May be combined with collaborative group exploration to understand the problem and seek solutions.
- Sometimes uses machine learning tools such as natural language processing to cluster or summarise information.

Design questions:

- Answer these design questions to complete the collective intelligence design canvas to Decide and Act.

Activities:

- Mix and match activities that will help you to answer the design questions if you’re stuck or if you want to explore in more depth. The table shows which are relevant if you are designing for Decide and Act. You can find these organised by design stage in this playbook.
**GATHER DATA, INFORMATION, IDEAS**
What data/information/ideas do we need to find, and how will we do it?
What do we specifically need to know or find to make this decision?
How will we collect this information?
Are there any ethical issues we need to consider?

**DEFINE CHALLENGE**
What is our issue and our purpose for using collective intelligence?
What is the decision we need to make?
Who is affected by this decision?
What is the change we want to bring about?
What is our timeframe for action?
What are our constraints?

**CREATE CHANGE**
Who do we need to act, and what do they need to do this?
Who will need to act on the ideas and information, and what do we need them to do?
What do they need to see or know in order to do this?
How might we share this information with citizens to enable them to act on this issue?
How will we know if we're on track to creating change?

**MOBILISE PEOPLE**
Who might be able to help, and how can we best engage them?
Who do we need to involve in the decision?
What do we want people to do?
How will we reach those people?
What might motivate them to be involved?

**GATHER DATA, INFORMATION, IDEAS**
What data/information/ideas do we need to find, and how will we do it?
What do we specifically need to know or find to make this decision?
How will we collect this information?
Are there any ethical issues we need to consider?

**CONNECT & INTERPRET**
How will we bring together people and/or data, and make sense of the results?
What type of decision do we need?
(e.g., consensus, majority)
How will we bring together people to share opinions and ideas?
How will people contribute or interact?
What do people need to know or have to contribute effectively?
(e.g., will we provide factual information on the subject and guidelines for participation?)
How will we make sure people can contribute independently and freely?
How will we make sense of all the information or ideas we receive?

**MOBILISE PEOPLE**
Who might be able to help, and how can we best engage them?
Who do we need to involve in the decision?
What do we want people to do?
How will we reach those people?
What might motivate them to be involved?

**CREATE CHANGE**
Who do we need to act, and what do they need to do this?
Who will need to act on the ideas and information, and what do we need them to do?
What do they need to see or know in order to do this?
How might we share this information with citizens to enable them to act on this issue?
How will we know if we're on track to creating change?

**CONNECT & INTERPRET**
How will we bring together people and/or data, and make sense of the results?
What type of decision do we need?
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**CASE STUDY: vTaiwan**

vTaiwan is a hybrid online and offline consultation process used by the Taiwanese government to crowdsource citizen priorities and achieve consensus among competing perspectives. It does this by creating several stages, including an initial ‘objective’ stage for crowdsourcing facts and evidence, and a ‘reflective’ stage using mass deliberation tool Pol.is, which encourages the formation of ‘rough consensus’. Finally, key stakeholders are invited to a live-streamed, face-to-face meeting to draw up specific recommendations. vTaiwan’s achievements to date include: a crowdsourced bill successfully passed through parliament on Closely Held Company Law; the resolution of a disagreement between civil society activists on the topic of internet alcohol sales; and the ratification of several items on ridesharing (Uber) regulations.

The page opposite provides an illustration of a project design canvas using the example of vTaiwan. It is not exhaustive, but is intended to give you an idea of how to start filling in the canvas.
**GATHER DATA, INFORMATION, IDEAS**

What do we need to know: statistics and key facts about ridesharing from different government departments.

Method for gathering data:
- create live documents containing key definitions to avoid misunderstanding.
- ask ministries to publish data in user-friendly format.

---

**DEFINE CHALLENGE**

What is our issue and our purpose for using collective intelligence?

Our problem is that: ridesharing is causing disruption of the local taxi industry in Taiwan. It is also largely unregulated.

We want to: help ministers to decide on new regulations for ridesharing that achieve consensus among diverse stakeholders affected by the industry.

---

**CREATE CHANGE**

Who do we need to act, and what do they need to do this?

Who will act: recommendations sent to relevant government department for final decision

Sharing information: all information from the consultation made fully open (e.g. transcripts, videos, open data) to improve legitimacy and trust

---

**MOBILISE PEOPLE**

Who might be able to help, and how can we best engage them?

Key stakeholders: taxi drivers, Uber drivers, unions, business representatives and passengers.

How do we reach those people: use newsletter, digital marketing (e.g. Facebook Ads) and online forum to recruit participants and raise awareness.

Motivation: targeted audiences have a stake in the issue (purpose)

---

**CONNECT & INTERPRET**

How will we bring together people and/or data, and make sense of the results?

Bringing people together: participants asked to reflect on facts gathered in the previous stages

How people interact: use online deliberation tool Pol.is to gather reflections, ideas and suggestions from key stakeholders.

Type of decisions: highest consensus statements on Pol.is (80 per cent or more) taken forward to live-streamed face-to-face discussion with key stakeholders

---

**Example: V Taiwan**

Method for gathering data:
- create live documents containing key definitions to avoid misunderstanding.
- ask ministries to publish data in user-friendly format.

Sharing information: all information from the consultation made fully open (e.g. transcripts, videos, open data) to improve legitimacy and trust.

Who will act: recommendations sent to relevant government department for final decision

Motivation: targeted audiences have a stake in the issue (purpose)
Navigation Page

learn and adapt

Use these pages to find relevant design questions and activities for your collective intelligence project design session.

**purpose:**

- Use collective intelligence to Learn and Adapt by gathering data to monitor the implementation of initiatives, and share knowledge to improve the ability of others.

**common characteristics:**

- Mobilises data generated by citizens - either actively through crowdsourcing or passively (e.g., through call detail records).
- Combines multiple sets and types of data.
- Creates open repositories of data and/or tools.
- May use machine learning algorithms to identify patterns in data and automate adjustments.

**design questions:**

- Answer these design questions to complete the collective intelligence design canvas to Learn and Adapt.

**activities:**

- Mix and match activities that will help you to answer the design questions if you’re stuck or if you want to explore in more depth. The table shows which are relevant if you are designing for Learn and Adapt. You can find these organised by design stage in this playbook.
What specifically do we need to know?
What data might help us answer these questions?
How will we collect this information?
Are there any ethical issues we need to consider with using this data or involving people?

Who do we want to act on the knowledge we create, and what do they need to do?
How will we document our knowledge and make it available for others to use?
How will we know if we're on track to creating change?

What knowledge do we want to create?
Who are we creating knowledge for?
What is the change we want to bring about?
What is our timeframe for action?
What are our constraints?

Who might be able to help, and how can we best engage them?
Who might be able to help us answer our questions?
What do we want people to do?
How will we reach those people?
What might motivate them to be involved?

Who might be able to help?
What do we want people to do?
How will we reach those people?
What might motivate them to be involved?

How will people contribute or interact?
How will we make sure people can contribute independently and freely?
How will we bring together our data (store, clean, process, share)?
How will we make sense of the data and knowledge we collect?
What biases might there be in our data?

How will we bring together people and/or data, and make sense of the results?
### COLLECTIVE INTELLIGENCE DESIGN ACTIVITIES TO LEARN AND ADAPT

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### CASE STUDY: HUMAN DX

The Human DX is an online platform that aggregates and ranks medical expertise about medical cases and possible diagnoses. It crowdsources teaching cases and advice from thousands of doctors and also asks them to rank each other’s entries to identify those that the community find most useful to learn from. Cases are collected using structured data entry to capture the clinical decision making process in a standardised format. This is used to train a machine learning system and make the information easily searchable. The cases are turned into quizzes for medical students to help them test, learn and improve their diagnostic reasoning. The project is already impacting both medical training and clinical decision-making.

The page opposite provides an illustration of a project design canvas using the example of HumanDx. It is not exhaustive, but is intended to give you an idea of how to start filling in the canvas.
**collective intelligence design playbook**

**GATHER DATA, INFORMATION, IDEAS**
What data/information/ideas do we need to find, and how will we do it?

*Data / information needs:*
- a diverse set of medical cases with symptoms
- possible diagnoses for submitted cases
- info on learning habits and needs of medical students

*Method for gathering data:*
online crowdsourcing of diagnoses and medical cases

---

**DEFINE CHALLENGE**
What is our issue and our purpose for using collective intelligence?

*Our problem is that...* Global medical knowledge on medical cases, symptoms and diagnosis is distributed and siloed, which leads to inconsistent clinical decision making.

*We want to:* help physicians and medical students worldwide learn and improve diagnostic capabilities, and empower others with the world’s collective medical insight.

---

**CREATE CHANGE**
Who do we need to act, and what do they need to do this?

*Who will act:*
- doctors contribute cases and diagnoses, review cases submitted by others through platform
- students use the app to improve diagnostic ability with quizzes

*Make available for others:* searchable open repository of cases and diagnoses. Use API to develop new uses

---

**MOBILISE PEOPLE**
Who might be able to help, and how can we best engage them?

*Who can help:*
doctors, medical students, professional healthcare bodies, medical schools

*Methods:*
gamification to improve learning experience of users

*Motivation:*
- improving diagnostic capabilities (purpose), supporting training throughout medical careers (expertise), peer recognition (glory)

---

**CONNECT & INTERPRET**
How will we bring together people and/or data, and make sense of the results?

*How people interact:*
upvoting or peer-ranking to interpret the relevance of diagnoses

*Bring data together:*
moderation and peer review to ensure the quality of submissions

*Interpret:*
machine learning analysis to identify patterns of learning

---

**Example: Human Dx**

Data / information needs:
- a diverse set of medical cases with symptoms
- possible diagnoses for submitted cases
- info on learning habits and needs of medical students

Method for gathering data:
online crowdsourcing of diagnoses and medical cases

Who will act:
- doctors contribute cases and diagnoses, review cases submitted by others through platform
- students use the app to improve diagnostic ability with quizzes

Make available for others:
searchable open repository of cases and diagnoses. Use API to develop new uses

Who might be able to help:
doctors, medical students, professional healthcare bodies, medical schools

Methods:
gamification to improve learning experience of users

Motivation:
- improving diagnostic capabilities (purpose), supporting training throughout medical careers (expertise), peer recognition (glory)
collective intelligence design activities
In this section of the playbook you will find all of the collective intelligence design activities (worksheets, guides and prompt cards) organised by design stage.
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**Key Assumptions**
- What resources will be needed and who will supply these?
- What is the primary nature of the relationship between individuals and their tasks?
- E.g. Peer to peer communities
- Individuals are motivated by the prospect of helping to move an idea or area couldn't alone.
- Commitment they are making.

**GATHER DATA, INFORMATION, IDEAS**
- Step 1: Gather stakeholders remotely related
- Step 2: To verify that we will
- Step 3: Are you going to be sharing data?
- Step 4: Define challenge
- Step 5: Create change
- Step 6: Solutions brief

**MOBILISE PEOPLE**
- C6. Challenge call to action
- C5. Incentives & retention
- C4. Personas
- C3. Engagement plan
- C2. People cards
- C1. Unique perspectives

**CONNECT & INTERPRET**
- D6. Visualizing citizen-generated data
- D5. Interpret method cards
- D4. Data flow
- D3. Crowd facilitation
- D2. Overcoming biases
- D1. Connect method cards

**CREATE CHANGE**
- E6. Dataset nutrition label
- E5. Collaboration agreement
- E4. Theory of change
- E3. Prototype testing
- E2. Prototyping techniques
- E1. Create change method cards

**DATA CARDS**
- Official data provide a long-term understanding of one another’s views to arrive at more consensus-driven and informed set of solutions. Official data might include census data, electoral registers, or other population data. Official data can be expressed in being more positive and helpful towards one’s in-group, at the same time. Anchor bias: Interpreting all new evidence as confirmation of existing belief/theories, or rejecting evidence that causes, influences, or affects it. The tendency for group members to spend more time and energy discussing topics in which they are interested or views they hold, can be expressed in being more positive and helpful towards one’s in-group, at the same time. Anchoring bias: Interpreting all new evidence as confirmation of existing belief/theories, or rejecting evidence that causes, influences, or affects it. The tendency for group members to spend more time and energy discussing topics in which they are interested or views they hold, can be expressed in being more positive and helpful towards one’s in-group, at the same time.
STAGE: DEFINE CHALLENGE
**What is our issue and our purpose for using collective intelligence?**

This stage will help you spell out your reason for using collective intelligence and help you to articulate the goal of your project. It is important because it will help you craft a guiding purpose for your project, which is necessary if you need to inspire others to join you. Collective intelligence involves many different approaches, methods and tools, and it can be easy to get caught up in simple technical fixes. Completing this stage will help you keep focused on the outcome.

**Pointers for reflection and discussion:**

- Try to do some desk-based research about your issue before commencing your collective intelligence project. It might be that the solutions you want, or the information you need has already been created by someone else.

- Consider what is the purpose of your collective intelligence project and review the relevant navigation guidelines in section 4 (Understand Problems, Seek Solutions, Decide and Act, Learn and Adapt).

- Once you are clear about the problem that needs to be worked on, an important step is to describe, at least roughly, how it works as a system. What are the key factors that may be feeding into the problem? How much do we know about them? Who has the power to influence them?

- The Issue Map and the Stakeholder Map can help a team and others to get a fuller sense of the issue. All of these can be thought of as hypotheses to be tested, partly through looking at the data and partly through talking to relevant people in the system. The mappings can be repeatedly returned to as a shared mental model of the problem, its causes and potential solutions. Don't skip over this stage.

- Try to describe your challenge using the following formula. Our problem is that...[insert a short description of your problem]. We want to understand/find a solution to/decide/learn (delete as appropriate) [what?]
INSTRUCTIONS:
1. Quickly review the Challenge Definition Worksheet questions.
2. Answer each question by capturing responses on post-it notes. Stick your answers in the appropriate sections.
   a. Regarding question 2 use a Stakeholder Map Worksheet (A3) and People Prompt Cards (C2) if you need help to identify the right people.
   b. Regarding question 3 use the Issues Map Worksheet (A2) if you need help to identify the underlying factors.
   c. Regarding question 4 use the Data Mapping Worksheet (B1) and Data Prompt Cards (B2) to consider what data is, or could be relevant.
   d. Regarding question 5 use the format “Our challenge is that…” we want to help [who?] to understand/find/decide/learn [what?] or use the Challenge Call to Action Worksheet (C6).
   e. Regarding question 6 use the Cover Story Worksheet (A4) to help you consider what is the purpose of your collective intelligence project?
   f. Regarding question 7 sketch out a quick timeline and budget.
3. When you’ve completed your first draft of the worksheet review the post-its and write up your final answers to the questions directly on the worksheet. However, if you need some reflection time, review the post-its at a later date or share with others before writing up.
4. When you’ve completed your first draft of the Challenge Definition Worksheet transfer the main points onto your Collective Intelligence Project Design Canvas in the Define Challenge stage.

challenge definition

The Challenge Definition Worksheet is used to help you clearly define the challenge to be addressed. It helps you examine your issue from a number of angles, as well as articulate the wider context. The key aim is to capture, compare and discuss different viewpoints before focusing on a clear challenge on which you can base the rest of your collective intelligence project. Consider working on the Challenge Definition Worksheet with a diverse range of other stakeholders, as this will usually bring up different perspectives and insight than just working with immediate team members.

TIME FRAME
60 - 90 mins

GROUP SIZE
4 - 8 people

MATERIALS
Challenge Definition Worksheet, 1 - 2 markers, bluetack

REFERENCE:
ADAPTED FROM NESTA DIY TOOLKIT, PROBLEM DEFINITION STAGE: DEFINE CHALLENGE
challenge definition
Key questions to consider when defining and designing your collective intelligence project.

1. What is the issue you want to address?
2. Who does your issue affect and how?
3. What factors shape this issue and have the greatest impact?
4. What evidence do you have about this issue?
5. Now reframe your initial issue as a collective intelligence challenge.
   
   Our problem is that…
   
   We want to help [who] to understand/find a solution to/decide/learn (delete as appropriate) [what].

6. If we are successful, what is the change we will have brought about?

7. What is your timeline, milestones, budget and constraints?

REFERENCE: ADAPTED FROM NESTA DIY TOOLKIT, PROBLEM DEFINITION

STAGE: DEFINE CHALLENGE
INSTRUCTIONS:

1. Start with making a (very) large canvas by sticking a 8-10 flipchart sheets together - see the layout on the next page.

2. At the edges put some labels that represent broader categories of potential drivers (e.g. political, economic, social, technology, environmental, legal).

3. Then write the issue you would like to explore in the middle (e.g. urban flooding in informal settlements).

4. You may assign two participants who will map out the drivers (as a facilitator you should guide the conversation).

5. Then ask participants: “What's driving or causing this issue?” - one person at a time may give a suggestion. To avoid the group being dominated by loud/confident people we suggest you enforce a ‘turn taking rule’. After one person has made one suggestion, the next person may then make one. This means everyone can have their say.

6. When a participant mentions a possible cause, the mappers draw a line from the category (you may also ask participants what category it goes under) to the centre, and add a brief description. Encourage groups to write a short phrase rather than a single word or two. “Sustained economic growth in China” gives a better sense of change than “the economy”.

7. It is important to mention that there is no right or wrong answer, all drivers mentioned are relevant for consideration as a potential cause.

8. Once all the drivers are mapped out, you may ask participants to vote for what they consider to be the key drivers (the most important). Depending on group size, they may select 2 or 3. They can use sticky dots to indicate their choices. Have a brief discussion about each one, and ask for evidence they have or how they might find it.

9. Once they have the key drivers, you may ask them: “Where would you intervene?” “Where are the leverage points?” “Where could we make the biggest difference?” Remind the group that in a system you may need to do multiple interventions at the same time to shift it.

issue map

Issue Mapping is a visual way to capture the different interconnected issues linked to a central or core issue. Everything is captured on a single ‘poster’ helping participants to see the issue at a systems level.

TIME FRAME
60 - 120 mins

GROUP SIZE
10 - 40 people

MATERIALS
Flipchart sheets, 3-4 markers, sticky dots for voting, masking tape

STAGE:
DEFINE CHALLENGE
What is the issue we want to i. understand ii. solve iii. make a decision on or iv. create knowledge about?

- ENVIRONMENTAL
- TECHNOLOGICAL
- SOCIAL
- LEGAL
- OTHER POTENTIAL DRIVERS
- ECONOMIC
- POLITICAL
- INSTITUTIONAL

ISSUE FOR EXPLORATION

STAGE: DEFINE CHALLENGE
stakeholder map

This worksheet helps to make tangible who has a stake in the issue. Specifically it helps identify who causes or indirectly influences the issue, who is affected by it (directly or indirectly), and how these actors are related.

INSTRUCTIONS:
1. Starting at the centre, answer “What is the issue you are trying to resolve?”
2. Move to the next question and get people to call out answers as you capture responses on post-its.
3. Keep working your way out spending 5 - 10 minutes on each question.
4. Draw connections between your stakeholders using arrows to show the flow of value, resources, data, knowledge, influence between them. This will help you to see the relationships as a whole.
5. Use the answers from this worksheet to help you complete the Challenge Definition Worksheet (A1) and transfer the relevant information to the Collective Intelligence Project Design Canvas.

TIME FRAME
60 - 120 mins

GROUP SIZE
3 - 8 people

MATERIALS
Stakeholder map, post-its, 3-4 markers, masking tape
stakeholder map
Who does your issue affect? Who might already have, or could create solutions?

STAKEHOLDER REMOTELY RELATED
Who is remotely influencing or affected by the issue?

STAKEHOLDER INDIRECTLY RELATED
Who is influencing the direct stakeholders? Who is indirectly affected by the issue?

STAKEHOLDER DIRECTLY RELATED
Who (people and organisations) is directly causing, influencing or affected by the issue?

YOUR CHALLENGE
What is the issue you are trying to resolve?

REFERENCE:
NESTA STATES OF CHANGE, MAPPING STAKEHOLDERS TOOL AND ODI DATA ECOSYSTEMS MAPPING TOOL

STAGE:
DEFINE CHALLENGE
cover story

The Cover Story Worksheet is a newspaper style mock-up describing how the future could be if your challenge is successfully addressed.

TIME FRAME
45 mins

GROUP SIZE
3 - 8 people

MATERIALS
Blank Cover Story Worksheet, 10 coloured markers

INSTRUCTIONS:
1. Work in groups on one template together imagining the best case scenario for your issue (30 mins).
2. The object of the activity is to complete the template using post-its before writing up:
   a. 'Headlines' convey the substance of the cover story.
   b. 'Paragraph' tells the story 10 years from now.
   c. 'Sidebars' reveal interesting aspects of the cover story.
   d. 'Quotes' can be from anyone related to the story.
   e. 'Images' support the content with illustrations.
   It can be helpful to search online for examples of local/national newspaper headlines to get inspired.
3. If there are multiple groups, reconvene and take turns to present back the story and the supporting elements (5 mins).
4. Note any common themes and areas of agreement, differences, insights or concerns.
5. Finally transfer the main future considerations identified through using this worksheet to your Collective Intelligence Project Design Canvas in Define Challenge stage (A).
cover story
What is the change we want to bring about?

Headline

Lead Paragraph

Body Paragraph

Bar Graph

Pie Chart

Percentage

STARTING DATA POINT

ENDING DATA POINT

STARTING POINT

ENDING POINT

REFERENCE:
UNITED WAY ACCELERATOR

STAGE:
DEFINE CHALLENGE
STAGE:
GATHER DATA, INFORMATION AND IDEAS
What data/information/ideas do we need to find, and how will we do it?

This stage will help you to define what data, information or ideas are needed for your collective intelligence project. It is important because collective intelligence projects almost always involve some form of data collection. There are now many more potential sources of data: from sensors and satellites; commercial data like mobile phone records which track travel patterns or economic activity; and citizen-generated data on everything from floods to corruption. Any project needs to start with a good understanding of the information it already has, what it can access, and what it needs.

pointers for reflection and discussion:

• Sometimes data is proactively contributed by citizens, but it can also be collected passively via third parties or social media apps, with the consent of users.

• Consider what real-time 'unstructured' data such as posts on social media could reveal about the attitudes and values of a given subset of the population. Often the less obvious data are more valuable than official data. For example in many countries mobile phone data is a better indicator of economic activity and its shifting location than anything else.

• Very local, tacit data that reflects lived experience or community knowledge can be complementary to formal data from sensors such as air pollution monitors or aerial satellite images.

• You should consider whether you need historical or real time data to help you address the challenge. Historical datasets might be readily available but when an issue is rapidly changing, they might not offer much insight into the current context.

• Some datasets are easier to collect than others, you should think about the timeline of data collection and whether you need one-off or regular contributions.

• It is important to consider how you will ensure your data is 'fit for purpose'. This includes knowing the accuracy, interoperability with existing standards and quality requirements. Some common data quality protocols include validation by experts, peer review or requiring participants to undergo training.

• This also brings important questions around data ethics, data protection and responsible use of personal information. Clear rules around these need to be established before any data collection takes place.
data mapping

The Data Mapping Worksheet helps you consider what you need to know, what data sources are currently available and what new data you may need to create.

INSTRUCTIONS:
1. Quickly review the Data Mapping Worksheet questions. One person could nominate themselves to read them out to the group.

2. Then, start by answering the question at the top of the worksheet, “What specifically do you need to know?” Capture suggestions from the group on post-its or write on the worksheet directly. Spend 5-10 minutes.

3. Now move to the next question on the bottom left and spend 5-10 minutes discussing this as a group. Work your way across from left to right capturing answers on post-its in the appropriate sections.

4. Use in conjunction with the Data Cards (B2) for inspiration to stretch your thinking.

5. After you have explored many possible data sources, it is important to focus on 1-3 key data sources that are a) likely to be most relevant to your issue b) give the necessarily granularity or timeliness and c) are feasible to gather in the timeframe for the project. Highlight those on the worksheet.

6. When you’ve completed this worksheet, add your shortlisted data sources to the Collective Intelligence Project Design Canvas.
<table>
<thead>
<tr>
<th>What specifically do you need to know?</th>
</tr>
</thead>
<tbody>
<tr>
<td>What data are you already using?</td>
</tr>
</tbody>
</table>
For example: official or government data, data from NGOs or business. |
| What other data exists, which you are not using? |
Are there other types of data or datasets that might contribute similar information, or act as a proxy measure? |
| What new data could you create?         |
Could you start collecting new types of data to help you now and in the future? |
data cards

These Data Cards are to be used as prompts for discussion in conjunction with the collective intelligence project design canvas and associated activities. They highlight common data sets alongside illustrative case studies and are not intended to be exhaustive. The data cards are one of six ‘decks’, structured according to different stages of the playbook.

**INSTRUCTIONS:**
1. Explore these Data Cards and associated case studies with your group or workshop participants at any point to guide conversations.
2. There are also specific activities elsewhere in this playbook where you are encouraged to use these cards to help answer particular design questions.
3. Consider which sets of data are most relevant to you and your challenge.

**TIME FRAME**
30 mins

**GROUP SIZE**
4 - 8 people
Official data can include longitudinal survey data, such as census data, electoral registers or other population data. Official data provide a long-term picture of a country over time, and are usually collected by public institutions or national statistical agencies as a public good.

**Case Study:** Africapolis

Africapolis aims to be the most comprehensive and standardised geospatial database on cities and urbanisation dynamics in Africa. It blends data from across the continent in an effort to provide standardised, comparable insights into Africa’s fast-changing urban populations.

The single most important element is official population records, including census data of official cartographic resources such as administrative boundaries. In some cases, official data can date back 30 or more years, which is significant given the pace of demographic and urban trends. Africapolis brings these datasets together into a single, comparable resource that can be administered and standardised as a comprehensive geospatial resource.

By integrating thousands of smaller agglomerations across the continent, Africapolis aims to be the most comprehensive and standardised geospatial database on cities and urbanisation dynamics in Africa. It utilizes official data sources, such as census data, electoral registers or other longitudinal survey data.

Citizen-generated data is a broad category that includes any information that can be collected by public institutions or national statistical agencies by active involvement (experiences, ideas, opinions) or passively (e.g. wearables or transactions data).
Satellite data is aerial imagery collected by satellites, usually available from companies for a fee. It can provide detailed insights into land use over time, or act as a proxy for other measures. Satellite data is aerial imagery collected by satellites.

Case Study: Regen Network

Regen Network collects ecological and agricultural data via remote sensing (images collected by satellites, drones, and planes), and on-the-ground observation via Internet of Things (IoT) sensors. The collected data is verified by farmers and then run through a trained machine learning model which tries to determine ecosystem health. So, Regen Network's model is capable of detecting till events in Romania and Ukraine with a 99% accuracy through public satellite data.

Urban Planning.

Understanding population flows to improve weather and climate information, and better coordinate people to reduce, real-time detection collected. The aim is to provide real-time detection of urban flooding, high-resolution, block-by-block, including air quality, climate, and noise, with added privacy controls to ensure no individual data is collected. Research and educational purposes. The sensors collect real-time data about their surroundings, and make this data available for open use. The Array of Things Chicago has begun an ambitious effort called this. Drones are being used to support traditional sensors for environmental and biological monitoring. This includes helping to improve air quality by collecting data in real-time, and providing insights into urban flooding, high-resolution, and better understanding of air quality and weather sensors around the city, and make this data available for open use.

Case Study: Array of Things

Sensor data includes information collected by physical sensors recording actions and physical changes (e.g., temperature, humidity, pollution levels) and can provide real-time measurements of air quality and environmental changes over time. Sensor data includes information collected by physical sensors in various locations.
Open data is the raw data that is gathered by people or organisations, published in an electronic format that machines can read; it is then shared online and allowed to be re-used by others instead of keeping it private.

CASE STUDY: OPENCORPORATES

OpenCorporates increases transparency in the corporate world through making information about companies more accessible, so that citizens and journalists can better monitor and regulate them. OpenCorporates crowdsources data from citizens, who contribute to populating and updating the platform, identifying errors, or importing web scraped data. The contributions from people all over the world and their local knowledge have made OpenCorporates the largest open address of companies in the world, with over 100 million companies in a large number of jurisdictions. The fact that the data is open has also improved data quality, allowing anomalies to be re-used by others instead of keeping them local knowledge.

CASE STUDY: PETAJAKARTA

Previous static PDF maps of urban flooding represent a major advance on flood maps, which are often made publicly available. Flood maps, which are often made publicly available, are crucial for government to plan for 1-to-the-minute runtime. The Jaku government to plan for 1-to-the-minute runtime. The Jaku platform to plan for 1-to-the-minute runtime. The Jaku platform is programmed to react when someone in Jakarta tweets the word "banjir" (flood) and tags @PetaJkt. PetaBencana.id automatically replies, and asks them to confirm the tweet with geotagged photos. The platform then combines all incoming reports with official data from hydraulic sensors, citizen reports and real-time social media monitoring via Twitter, to produce a flood map. This is an example of a project that combines data from hydraulic sensors with citizen reports over social media, including via Twitter, to produce a flood map.

CASE STUDY: PETABENCANA.ID

Petabencana.id is a project that combines data from hydraulic sensors with citizen reports over social media, including via Twitter, to produce a flood map. The system is programmed to react when someone in Jakarta tweets the word "banjir" (flood) and tags @PetaJkt. Petabencana.id automatically replies, and asks them to confirm the tweet with geotagged photos. The platform then combines all incoming reports with official data from hydraulic sensors, citizen reports and real-time social media monitoring via Twitter, to produce a flood map. This is an example of a project that combines data from hydraulic sensors with citizen reports over social media, including via Twitter, to produce a flood map.
Ethnographic data encompasses qualitative information (stories, personal accounts or transcripts) collected by interviews, participant observation, note-taking, online text or recording. It provides rich and highly detailed accounts of people’s lives.

**Case Study:** *On Our Radar*

On Our Radar trained citizen journalists to provide detailed accounts of the Ebola crisis from communities all around Sierra Leone (e.g. from urban slums, polio camps, and remote rural villages). The reporters shared their reports with On Our Radar via recorded telephone interviews, WhatsApp audio and photo functions, and SMS. People in the poorest regions of Sierra Leone are more likely to have a mobile phone than access to basic amenities and electricity, so even those in the most remote regions could report.

On Our Radar reports captured the atmosphere of day-to-day life in vulnerable communities in Sierra Leone, often delivering breaking news that international media did not otherwise have access to.

**Case Study:** *HealthMap*

HealthMap is a platform that brings together a range of data from news aggregators and social media, official datasets and information. The platform is able to provide near-real-time intelligence on a broad range of emerging infectious diseases. By scraping data from websites, social media and news sources, HealthMap is able to track trends and make predictions.

**Collective Intelligence Design Playbook**

Web-scraping is a method for extracting unstructured data from the web. This can include data from social media, news websites, and other online sources. The goal is often to extract information that is not easily accessible through official datasets or databases.
Call detail records (CDRs) can be obtained as anonymous data from telecoms companies, providing fine-grained information into mobility or population trends.

**Case Study:** NCELL Nepal

In April 2015, an earthquake struck Nepal impacting millions across the country. NCELL, Nepal’s largest mobile phone operator, agreed to share anonymised mobile phone data with Flowminder, a non-profit Swedish organisation. The data, combined with pre-earthquake normal movement data and available population data, helped to estimate population movement trends before and after the earthquake.

By gaining real-time insights into population flows, UN agencies and governments were able to better target aid to affected areas. For instance, de-identified data on people’s movements with NCELL’s mobile network helped to track the movement of people in and out of the affected regions, providing critical information to aid workers.

**What other data sets might be particularly relevant or interesting?**

Other data?
gather data method cards

These Gather Data Method Cards are to be used as prompts for discussion in conjunction with the collective intelligence project design canvas and associated activities. They highlight common methods to gather data, information and ideas, alongside illustrative case studies and are not intended to be exhaustive. The Gather Data Methods Cards are one of six ‘decks’, structured according to different stages of the playbook.

**INSTRUCTIONS:**

1. Explore these Gather Data Method Cards and associated case studies with your group or workshop participants at any point to guide conversations.

2. There are also specific activities elsewhere in this playbook where you are encouraged to use these cards to help answer particular design questions.

3. Consider which methods are most relevant to you and your challenge.

**TIME FRAME**

30 mins

**GROUP SIZE**

4 - 8 people
open API

**STAGE:**
GATHER DATA, INFORMATION, IDEAS

**CASE STUDY:** OPENAHJO

City Councils make hundreds of decisions every month, and it can be hard for both citizens and civil servants to follow the progress of legislation making its way through government. Open Decisions is Helsinki City Council’s attempt to standardise and publish all of its decision-making data electronically. Data about meetings, agendas, and decisions from across the council are tagged according to the Popolo标准 for open data, and then made available via an open API called OpenAhjo. By publishing the data via an open API, the City Council hopes to encourage collaboration between developers who build on this data to create digital applications. It has also been used by city employees to more easily search and track progress made by local politicians.

**crowdsourcing**

**STAGE:**
GATHER DATA, INFORMATION, IDEAS

**CASE STUDY:** DECIDE MADRID

The City Council of Madrid has used CONSUL, an open software tool, to create a citizen platform – Decide Madrid – to crowdsource citizen proposals and harness more local knowledge in decisions about how to plan and allocate budgets. New ideas from residents have been gathered and implemented on top of existing proposals from traditional sources of funding. The initiative has engaged nearly 30,000 citizens in more than 300 proposals, with over 150 million euros allocated to projects suggested by local people. Since its creation it has been used to implement projects ranging from sustainability and air pollution to ticketing for local transport. Since its creation it has engaged nearly 30,000 citizens in more than 300 proposals, with over 150 million euros allocated to projects suggested by local people. Since its creation it has been used to implement projects ranging from sustainability and air pollution to ticketing for local transport.

Crowdsourcing is an umbrella term for a variety of approaches that source data, information, opinions, or ideas from large crowds of people, often by issuing open calls for contribution. It can help bring new ideas to light that hadn’t previously been considered, or to gather expertise from people who have specialised knowledge or understanding of an issue.
Microsurveys are a short, abbreviated form of surveying which typically take the respondent only a few minutes to complete. Microsurveys are often delivered by mobile phone, text message or a digital platform. Benefits include a much faster turnaround, and higher frequency of results, compared to traditional surveys.

**Case Study: Sauti za Wananchi**

Traditional, large-scale household surveys tend to be costly, and can take over a year to produce. Sauti za Wananchi (‘Voices of citizens’) provides an alternative whereby mobile phones are used to collect information from a broad cross-section of citizens in Tanzania and Kenya. For each survey, 2,000 ‘panel members’ are randomly selected from regions across the country, and sent mobile phones and solar-powered phone chargers to ensure that no-one is excluded. They are called and interviewed from a call centre in Nairobi once a month, with questions on a different topic each month. Information gathered from this successful survey has helped to inform national policies.

**Challenge Prize**

Challenge prizes or competition platforms are a method of drastically widening the pool of possible solutions to solve a problem. They are useful for supporting innovation to accelerate the development of technological solutions. DARPA (the US Defense Advanced Research Projects Agency) ran a grand challenge for the first quarter of the 21st century, and other ground vehicles were competing for the first time. DARPA credits this challenge with the $2 million prize for completing the course in 6 hours and over 12 miles. The competition continued with the $5 million prize for completing the course in 5 hours and over 12 miles. The competition continued with the $2 million prize for completing the course in 6 hours and over 12 miles. The competition continued with the $5 million prize for completing the course in 5 hours and over 12 miles.

**Method Cards**

- **Microsurvey**
- **Collective Intelligence Design Playbook**
- **Challenge Prize**

**STAGE: GATHER DATA, INFORMATION, IDEAS**

**DECK:**

- **GATHER DATA**
- **CHALLENGE PRIZE**
Crowdmapping is a type of crowdsourcing which gathers data from different sources, including social media, text messages or geographic data, to provide real-time, interactive information about issues on the ground. Crowdmapping can create detailed almost real-time information about areas that a top-down, centrally curated map may struggle to replicate.

CASE STUDY: SYRIA TRACKER CRISIS MAP

Crowdmapping first came to international attention through its successful use in the global disaster relief movement. One example is the Syria Tracker Crisis Map, which has been used to crowdsource citizen reports on human rights violations since the beginning of the Syrian conflict in 2011. The map attempts to provide more detailed metrics on fatalities, while preserving the name, location and details of each victim. The service blends reports from local news, citizen journalism and social media, including social media messages and geographic data to provide a comprehensive picture of the situation.

Crowdmapping is a type of crowdsourcing which gathers data from different sources, including social media, text messages or geographic data, to provide real-time, interactive information about areas that a top-down, centrally curated map may struggle to replicate.
Citizen science is any process where scientists and (usually unpaid) volunteers work together to collect or process scientific data or observations. Citizen science unlocks new resources for research, experimentation, and analysis by opening the process to everyone.

**STAGE:** Gather data, information, ideas

**Case Study:** Mosquito Alert

The World Health Organisation reports over 500 million cases of mosquito-borne illnesses a year, but the global spread of disease is difficult to manage in real-time. The Global Mosquito Alert (GMAc) was established in 2017 as a global network of citizen science projects that follow a common set of four protocols to track breeding sites, biotic and abiotic interactions of mosquito species known to harbor different diseases. One such initiative includes Mosquito Alert, a project based in Spain that works with local communities and schools to build capacity for citizen science and to establish a collaborative platform to track and monitor mosquito breeding sites. Since 2014, the platform has been downloaded 57,000 times, reporting over 12,000 observations of tiger mosquitoes and 3,117 breeding sites.

**Case Study:** Mosquito Alert

Citizen science is a process where scientists and volunteers work together to collect or process scientific data or observations. Citizen science unlocks new resources for research, experimentation, and analysis by opening the process to everyone.

**STAGE:** Gather data, information, ideas

**Case Study:** Ideas for Change

Noise pollution is a problem which affects many people living in inner-city Barcelona. A think tank called Ideas for Change worked with local communities to help them install sensors that measure the harmful effects of noise pollution on their neighborhoods. Participants were provided with cheap, open-hardware sensors, and then guided through the process of setting up the technology and sharing data with one another.

Shaping data with one another is the heart of the methodology and the key to the success of setting up the technology and measuring the harmful effects of noise pollution on our neighborhoods. Some of the solutions that have emerged include: improved community policing through the process of setting up the technology and measuring the harmful effects of noise pollution on our neighborhoods; public meetings in which locals could voice their ideas and feelings about pollution; and action-oriented projects, such as adding new flower beds or implementing community policing around them. It also includes the task of collectively monitoring and interpreting streams of citizen-sensed data to collaboratively monitor the environment.

**Case Study:** Ideas for Change

**Method Cards**

- Citizen science
- Participatory sensing
- Collective intelligence design playbook
- Gather data

**Collective intelligence design playbook**

**Collective Intelligence design playbook**
Data collaboratives are a form of collaboration in which partners from different sectors - including private companies, research institutions, and government agencies - enter into an agreement to exchange data for a specific social cause. Data collaboratives aim to unlock new value in private data that would not be exploited otherwise.

**Case Study: UN Global Pulse**

In recent years the Mexican state of Tabasco has experienced record-breaking rainfall, yet timely data about how floods are affecting the population in real-time is currently missing. In response, UN Global Pulse brought together a range of novel datasets to generate real-time insights about human behavior during flooding events. Data sharing and analysis was made possible via a public-private partnership between Telefonica Research and data scientists from the Technical University of Madrid, under guidance from experts at Global Pulse and the World Food Programme. By combining citizen mobile phone data, remote sensing data (satellite images), rainfall data, and census data from citizens, the project was able to program and analyze data to predict flooding and inform relief efforts. The project was able to highlight the impacts of flooding on infrastructure and the local community, and to inform decision-making on how to allocate resources effectively.

**Petition Platform**

Petitions are collections of signatures, either online or offline, that aim to raise awareness by mobilizing as many people as possible around an issue of concern. Petitions are often created to promote a cause, gather support for a policy, or demand change. They can be a powerful tool for advocacy and can be used to influence political decisions and public opinion. Many petition platforms allow citizens to create their own petitions or sign existing ones, and can generate visibility and support for a cause. The availability of online petition platforms has revolutionized the way that people can engage in civic participation and advocate for change.
Solution mapping is a method that helps organisations and the communities they work with to identify needs, issues, and opportunities by looking for solutions developed by people in response to concrete problems they face. A key principle of the platform is that knowledge holders provide multiple perspectives in local languages. A platform called All Our Ideas, which uses pairwise comparison, allows participants to quickly sort and filter ideas based on their work. When asked about their work with 2030 Solutions Initiative, urban planners in New York City shared their experiences with co-creation through a wiki-survey, which led to the development of the city's PlanNYC. In 2011, New York City Mayor's Office of Long-Term Planning and Sustainability ran a wikisurvey, where over 1,400 respondents provided nearly 32,000 votes and created nearly 464 new ideas, many of which the council had previously not considered. This platform helped to build a picture of participatory governance and build a platform to respond to community needs. Over time, wikisurveys are a type of survey where solutions developed by people in response to concrete problems can address statements that otherwise remain unresolved.
data ethics

This worksheet is for anyone who collects, shares or uses data. It helps identify and manage ethical issues – at the start of a project using data, and throughout. It gives a framework to develop ethical guidance that suits any context.

INSTRUCTIONS:
1. Individually, review the Data Ethics Worksheet questions.
2. Start in the top left of the worksheet and work across to the right, row by row. Answer the questions as a group, spending 5 - 10 minutes on each. Capture responses on post-it notes. Stick your answers in the appropriate sections.
3. When you’ve completed your first draft of the Data Ethics Worksheet review the post-its and write up your final answers to the questions directly. However, if you need some reflection time, review the post-its at a later date or share with others before writing up.
4. Finally transfer the main ethical or regulatory issues identified through using this worksheet to your Collective Intelligence Project Design Canvas in Gather Data, Information and Ideas (stage B).

REFERENCE:
ODI DATA ETHICS CANVAS
<table>
<thead>
<tr>
<th>Data Ethics</th>
<th>collective intelligence design playbook</th>
</tr>
</thead>
</table>

**Are there any ethical or regulatory issues with using this data or involving these people?**

<table>
<thead>
<tr>
<th>DATA SOURCES</th>
<th>LIMITATIONS</th>
<th>SHARING DATA</th>
<th>ETHICAL AND LEGISLATIVE CONTEXT</th>
<th>RIGHTS AROUND DATA SOURCES</th>
</tr>
</thead>
</table>

**Your Reason for Using Data**

<table>
<thead>
<tr>
<th>COMMUNICATING YOUR PURPOSE</th>
<th>POSITIVE EFFECTS ON PEOPLE</th>
<th>NEGATIVE EFFECTS ON PEOPLE</th>
<th>MINIMISING NEGATIVE IMPACT</th>
</tr>
</thead>
</table>

**Engaging with People**

<table>
<thead>
<tr>
<th>OPENNESS AND TRANSPARENCY</th>
<th>ONGOING IMPLEMENTATION</th>
<th>REVIEWS AND ITERATIONS</th>
<th>YOUR ACTIONS</th>
</tr>
</thead>
</table>

**Reference:**

ODI Data Ethics Canvas

**Stage:**

Gather Data, Information, Ideas
solutions brief

The Solutions Brief Worksheet helps you to clearly articulate the requirements of the solution(s) you are seeking including how developed they need to be.

**INSTRUCTIONS:**

1. First review the questions. You may need to do some more research before you can answer all of them.

2. Think about the criteria for what a ‘good’ solution(s) needs to do without prescribing how the solutions should work. Consider things like the context and the user.

   *For example: we need a diagnostic test for antibiotic infection. A good solution will be a) low-cost b) for use at the point-of-care c) will give a result in 30 mins or less d) can be used anywhere in the world.*

3. Use in conjunction with the solution readiness tool if you need help to consider the maturity of solutions you are looking for.

4. Finally, transfer the main requirements identified through using this worksheet to your Collective Intelligence Project Design Canvas in Gather Data, Information and Ideas (stage B).

**TIME FRAME**
30 - 90 mins

**GROUP SIZE**
2 - 10 people

**MATERIALS**
Blank Solutions Brief Worksheet, pens, bluetack
What solution(s) are we looking for?

What is the problem we want to solve?

What solutions already exist, and why aren’t they working?

What would a ‘good’ solution look like?
This is where you identify the criteria that are important to you (e.g., it needs to be able to work in a setting with regular electricity outages).

What maturity of innovations do we need?

What are the key barriers to innovation and how can we overcome them?
solutions readiness

When seeking solutions, it can be helpful to consider the readiness level that is required. Do you want something that is already tried and tested, or are you searching for early ideas? The Solution Readiness Level (SRL) guide will help you discuss and clarify where you set your aspirations.

INSTRUCTIONS:

1. Review the SRLs. They range from early ideas to proven solutions at scale.
2. Review the main different types of solution maturity and consider which is appropriate for you.
3. Select the SRL that most closely matches the level of solution maturity you want to find or create through your collective intelligence project.
4. Transfer the maturity of the solutions required to your Collective Intelligence Project Design Canvas in the Gather Data, Information and Ideas (stage B).

TIME FRAME
30 mins

GROUP SIZE
2 - 10 people

MATERIALS
Solutions Readiness Level (SRL) Guide, Solutions Readiness Worksheet

REFERENCE:
NASA TECHNOLOGY READINESS LEVELS

STAGE:
GATHER DATA, INFORMATION, IDEAS
What solution(s) are we looking for?

- SRL 1: Research of basic principles for a solution
- SRL 2: Early idea or concept formulated
- SRL 3: Experimental proof-of-concept
- SRL 4: Proof of concept validated in a test environment
- SRL 5: Prototype validated in a real live environment
- SRL 6: Prototype tested in a real life environment
- SRL 7: Pilot demonstrated in one or multiple contexts
- SRL 8: Minimum viable product, service or process piloted
- SRL 9: Proven implementation of product, service or process at scale

SOLUTION READINESS LEVEL

REFERENCE: NASA TECHNOLOGY READINESS LEVELS

STAGE: GATHER DATA, INFORMATION, IDEAS
<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
<th>Duration</th>
<th>Timescale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proof of Concept</td>
<td>A proof of concept often involves a small exercise to test the real-world potential of an incomplete idea. This isn't about delivering the idea, but demonstrating whether it is feasible. It should be used in the early stages when you first have an instinct about an idea. A proof of concept shows if a product, feature or system can be developed, whilst a prototype shows how it will be developed. For example, a proof of concept might be used to test a technical feature of an online service by quickly building a working model.</td>
<td>SRL: 2 - 4</td>
<td>Minimum &lt; Days</td>
</tr>
<tr>
<td>Prototype</td>
<td>A prototype is the visible, tangible or functional manifestation of an idea, which you test with others and learn from at an early stage of the development process. Prototypes should be used when you have a hypothesis about a solution, but there is still uncertainty about how it looks, feels and works. Insights from testing can then be used to improve the idea. Prototypes are also a way to engage your stakeholders to develop a shared vision or common ground for a solution.</td>
<td>SRL: 5 - 6</td>
<td>Hours &lt; Weeks</td>
</tr>
<tr>
<td>Pilots</td>
<td>Pilots are often used as the first stage of a new innovation. They are a 'live' activity, usually with a small group of real users or citizens. Pilots should be used when you believe you have an effective solution and are looking to understand how it works in reality. By offering a partially implemented concept to a limited population, it is possible to see what actually happens. This is useful when preparing to scale a solution to a wider group. Pilots, are ultimately measured by success or failure, and so there is usually only room to make minor tweaks.</td>
<td>SRL: 7</td>
<td>Weeks &lt; Months</td>
</tr>
<tr>
<td>Minimum Viable Product (MVP)</td>
<td>An MVP allows you to accelerate your learning about a possible solution whilst using minimal resources. It does this by testing only the essential core of your concept (rather than the full solution) with real users in practice. This means that you can find out early on if there is an actual need or demand for the solution, what is working and what isn't, and make any adjustments accordingly. MVPs are about using fewer resources and minimal effort to gather insights and obtain feedback on potential changes.</td>
<td>SRL: 8 - 9</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

Reference: NESTA
mapping solutions

This tool helps you to start thinking about where to find existing solutions that relate to your challenge.

**TIME FRAME**
5 - 30 mins

**GROUP SIZE**
2 - 10 people

**MATERIALS**
Mapping Solutions Worksheet,
Gather Data, Information and Ideas Methods Cards (B3).

**INSTRUCTIONS:**
1. Review the questions and consider where to find existing solutions that relate to your challenge.
2. Identify and write down websites or databases and associated keywords that you would use to conduct an online search.
3. Then consider other contexts or stakeholders that might be relevant and how you might best engage with them.
4. Finally transfer the main requirements identified through using this worksheet to your Collective Intelligence Project Design Canvas in Gather Data, Information and Ideas (stage B).

**REFERENCE:**
NESTA STATES OF CHANGE, SOLUTIONS MAPPING TOOL
STAGE: B7
**ONLINE SEARCH**
If you wanted to identify existing solutions, what websites would you go to and what keywords or phrases would you use in your search?

**WEBSITE**

**HTTP://**

**KEYWORD**

**HTTP://**

**KEYWORD**

**HTTP://**

**KEYWORD**

**HTTP://**

**KEYWORD**

**HTTP://**

**KEYWORD**

**HTTP://**

**KEYWORD**

**REFERENCE:**
NESTA STATES OF CHANGE, SOLUTIONS MAPPING TOOL

**STAGE:**
GATHER DATA, INFORMATION, IDEAS

**OTHER AREAS/CONTEXTS**
In what other industries, areas, contexts or regions might people have already developed solutions?
finding solutions

This is a matrix to help you explore different methods for seeking solutions, according to the type of solution needed and the audience you want to engage.

INSTRUCTIONS:
1. Explore different parts of the matrix, and mark a cross where your project could go.
2. Each of the methods here corresponds to one of the Gather Data, Information and Ideas Methods Cards (B3) or the Connect Methods Cards (D1) in the playbook. They are there to guide you towards case studies or approaches that might be helpful, but they are not definitive or exhaustive.
3. Explore other prompt cards with the Seek Solutions icon (e.g. Crowdsourcing, Collaborative Platform, etc.). These are broad enough to be placed anywhere on the diagram, depending on the topic or task at hand.
4. After discussing the different methods or approaches you might use, try to work through the questions from the corresponding quadrants of the diagram. Each of the questions raised here is revisited in more detail with specific activities and tools at later stages in the playbook.
5. Finally transfer the main methods identified through using this worksheet to your Collective Intelligence Project Design Canvas in Gather Data, Information and Ideas (stage B).

REFERENCE:
INSPIRED BY BRABHAM’S CROWDSOURCING DECISION TREE
finding solutions
What methods will we use to find those solutions?

Quadrant 1: Audience is known (participation requires specific expertise)
- Hackathon
- Community of Practice

Quadrant 2: Solution is more 'subjective' (e.g. based on morals, opinions or beliefs)
- Solutions Mapping
- Online Forums

Quadrant 3: Audience is unknown (participants could be anyone)
- Challenge Prize
- Citizen Science

Quadrant 4: Solution is more 'objective' (e.g. testable against some known criteria)
- Wikisurveys
- Petition Platform

Reference: Inspired by Brabham's Crowdsourcing Decision Tree
Stage: Gather data, information, ideas
What methods will we use to find those solutions?

QUADRANT 1

Audience is known
(participation requires specific expertise)

IF IN QUADRANT 1 OR 2:
What are the criteria for a ‘good’ solution?
What channels or tactics will you use to gain access to them?
How will you ensure a wide diversity of different perspectives and evidence?
(Also see the Solutions Brief Guide).

IF IN QUADRANT 1 OR 4:
What are the criteria for a ‘good’ solution?
How can you break these down into simple guidelines and communicate them to participants clearly?
(Also see the Personas Worksheet and Unique Perspectives Worksheet).

IF IN QUADRANT 3 OR 4:
How will you motivate people to participate?
“What’s the call to action?”
“How will you ensure you gather perspectives from the widest variety of people possible?”
(Also see the Engagement Plan Worksheet and the Challenge Call to Action Worksheet).

QUADRANT 2

Solution is more ‘subjective’
(e.g. based on morals, opinions or beliefs)

Audience is unknown
(participants could be anyone)

IF IN QUADRANT 2 OR 3:
Moving towards the right of the diagram could lead to potentially intense deliberation, higher chance of conflict, capture or gaming.
How will you deal with competing perspectives or moral values?
(Also see the Crowd Facilitation Guide and ORID Framework Guide).

IF IN QUADRANT 2 OR 3:
Who are the specific stakeholders or experts you need?
What channels or tactics will you use to gain access to them?
How will you ensure a wide diversity of different perspectives and evidence?
(Also see the Personas Worksheet and Unique Perspectives Worksheet).

QUADRANT 3

Solution is more ‘objective’
(e.g. testable against some known criteria)

Audience is unknown
(participants could be anyone)

IF IN QUADRANT 3 OR 4:
How will you motivate people to participate?
“What’s the call to action?”
“How will you ensure you gather perspectives from the widest variety of people possible?”
(Also see the Engagement Plan Worksheet and the Challenge Call to Action Worksheet).
STAGE:
MOBILISE PEOPLE
Who do we need to involve, and how can we engage them?

Collective intelligence design can help you tap into distributed experience and expertise to answer your questions. For this to happen, the goal needs to be clear, ‘the crowd’ needs to be carefully defined and targeted, and the motivations and incentives of those participating need to be considered.

pointers for reflection and discussion:

- Research shows crowd intelligence is enhanced by diversity. Whether you’re interested in engaging specific groups or sectors in society, or ‘the public’ more broadly, it’s important to consider how you will include people with diverse opinions and backgrounds, underrepresented groups and unusual suspects.

- Involving citizens or a wider group of stakeholders affected by the issue can help to legitimise the outcome of your collective intelligence project. It can also decrease the likelihood of disparate impact and seed behavioural change which might be fundamental to achieving the intended purpose.

- Some crowds are driven purely by curiosity or to make social connections. An individual’s motivations might also change over the course of a project, which impacts participation. Getting this right requires clarity on who your crowd is, and deciding a range of tactics to incentivise them (e.g. monetary rewards or gamification). See the Incentives and Retention Worksheet for more on this.

- Sometimes crowds will be specific groups (e.g. particular experts, or affected populations), other times it will be open to anyone. Nonetheless it’s important to have a clear understanding of who your audience is, as this will have an important impact on the methods and tools you choose to engage them.

- It can be difficult to motivate and coordinate distributed crowds. Therefore the goals needs to be clear. Can you condense what you want the crowd to do into a series of simple tasks or statements? Use the Engagement Plan Worksheet to decide how you’ll communicate with participants.

- It’s also important to consider the need to retain crowds over time. Some projects are designed with a lot of redundancy to ensure that high drop-out rates do not affect the success. Other types of collective intelligence rely on dedicated volunteers or participants over longer periods of time, meaning it’s crucial to build and maintain trust. This can take place through active facilitation, feedback and Crowd Facilitation (we return to some of these in following stages).

- Individual level feedback helps participants to develop their skills, which can in turn benefit the project as participants build expertise.

- Regardless of who is involved, what you’re asking people to do should be commensurate with their skills and experience. Try to acknowledge the value of different sources of expertise without prioritizing one over the other.
unique perspectives

It’s easy to get stuck consulting the same narrow group of experts or the professional representatives of particular groups. This worksheet will help you look beyond the usual suspects and consider who could bring new insights, ideas or perspectives.

**TIME FRAME**
30 - 45 mins

**GROUP SIZE**
3 - 8 people

**MATERIALS**
Unique Perspectives Worksheet, post-its, 1 x pen per person, bluetack

**INSTRUCTIONS:**
1. Quickly review the tool questions.
2. Answer each question by capturing responses on post-it notes. Stick your answers in the appropriate sections. Make sure you think about people and communities who might be affected by the issue.
3. Use in conjunction with the People Cards (C2) for inspiration if you are struggling.
4. Once you have finished mapping all of the people you could potentially involve, it is important to focus on a smaller number of key groups that are a) likely to be most relevant to your issue b) feasible to involve in the timeframe for the project. Highlight those on the worksheet.
5. When you’ve completed your first draft of the Exploring Unique Perspectives Worksheet review the post-its and write up your final answers to the questions directly on the tool. However, if you need some reflection time, review the post-its at a later date or share with others before writing up.
6. Add the prioritised people/groups to the Collective Intelligence Project Design Canvas.
unique perspectives
Who do we need to involve? Who could help us?

Who are we already talking to?

Who else has relevant information or ideas?

Who else could have relevant information or ideas?
people cards

These People Cards are to be used as prompts for discussion in conjunction with the collective intelligence project design canvas and associated activities. They highlight common groups of people, and are not intended to be exhaustive. The People Cards are one of six 'decks', structured according to different stages of the playbook.

INSTRUCTIONS:
1. Explore these People Cards with your group or workshop participants at any point to guide conversations.
2. There are also specific activities elsewhere in this playbook where you are encouraged to use these cards to help answer particular design questions.
3. Consider which people are most relevant to you and your challenge.
Citizens

Government and regulators

Policy makers
experts

entrepreneurs
For-profit organisations

corporate partners

collective intelligence design playbook

STAGE: MOBILISE PEOPLE

central government officials

C2 DECK: PEOPLE CARDS

collective intelligence design playbook

CENTRAL GOVERNMENT OFFICIALS

C2 DECK: PEOPLE CARDS

collective intelligence design playbook

Civil servants and officials

collective intelligence design playbook
Councillors and administrators

Local government

Councils and non-government organisations

Charities and not-for-profit organisations

Collective intelligence design playbook

STAGE: MOBILISE PEOPLE

C2 DECK: PEOPLE CARDS

NON GOVERNMENT ORGANISATIONS

LOCAL GOVERNMENT OFFICIALS
Everyday people who want to help

Volunteers

Local community

Collective intelligence design playbook
customers
People who might want a product or service

employees
People who work directly with or for you
Suppliers

People who provide a product or a service

Professionals

Doctors, nurses, lawyers, teachers, police, armed forces etc.
Lawyers, bankers, consultants, intermediaries, brokers, etc.

Who else might be particularly relevant or interesting?
engagement plan

The Engagement Plan outlines the key steps to consider when thinking about the people you want to engage and how you will reach and incentivise them.

INSTRUCTIONS:
1. Quickly review the Engagement Plan Worksheet questions.
2. You may want to complete the Personas Worksheet (C4) before embarking on this activity, so that you have a good understanding of your audience.
3. Answer each question in order, starting with objectives, capturing responses on post-it notes. Stick your answers in the appropriate sections.
4. Use this worksheet in conjunction with the Incentives and Retention Worksheet (C5), to develop ideas in this worksheet.
5. When you've completed your first draft, review the post-its and write up your final answers to the questions directly on the sheet. However, if you need some reflection time, review the post-its at a later date or share with others before writing up.
6. Add key decisions to the Collective Intelligence Project Design Canvas.
<table>
<thead>
<tr>
<th>1. OBJECTIVES</th>
<th>2. AUDIENCES</th>
<th>3. KEY MESSAGES</th>
<th>4. INCENTIVES</th>
<th>5. CHANNELS</th>
<th>6. WHEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are you trying to achieve and what do you want people to do?</td>
<td>Who do you want to engage?</td>
<td>What are the main points you want your audience to hear and remember? What is the call to action?</td>
<td>What’s in it for them? Why should they engage?</td>
<td>How are you going to communicate with your audience? e.g. face-to-face, SMS, email, focus groups.</td>
<td>Where and when will the engagement happen? And over what period? Is it one-off or regular?</td>
</tr>
</tbody>
</table>
**Personas**

A Persona is an informal summary of a person or key audience outlining key characteristics such as needs, frustrations and goals. These can be completed prior to meeting stakeholders or after, or both.

**Time Frame**
- 30 - 60 mins

**Group Size**
- 3 - 8 people

**Materials**
- Persona Worksheet
- 1 pen per person

**Instructions:**
1. Quickly decide who is going to write up which Persona using the Stakeholder Map Worksheet (A3) as a starting point then quickly review all of the Persona questions.
2. Working individually or in pairs, answer each question, starting on the left hand side of the Persona. It may be you already have a clear picture of who this person is based on personal experience, so complete your answers based on them. It’s also okay to complete the Persona based on an amalgamation of people you know (or best guess) to develop a persona type. Also draw a little sketch of the person, to help bring them to life.
3. On the right hand side of the Persona, the questions are more specific to them and your organisation. Complete each question adding as much detail as possible.
4. When you are unsure of the answer to a question, speak to another team member to see if they can help.
5. Personas are a work-in-progress so update them when you learn more about the person or the key audience.
6. Once the group has completed its Personas, each person takes 2-3 minutes to introduce each one to the wider group. Pay attention to duplication as there could be cross-over between Personas and you may decide to remove one.

**Reference:**
NONON PERSONAS

**Stage:**
Mobilise People
personas
How will we reach our key audience and what will motivate them to be involved?

MEET...

Name:

Age:

Where they live:

SOME OTHER USEFUL THINGS TO KNOW
People that know them might describe them as...

What they enjoy doing includes...

Things that frustrate them include...

Their preferred way of engaging (tick all that apply)

- PHONE
- WEBSITE
- EMAIL
- TEXT
- PRINT
- FACE-TO-FACE
- AT HOME
- PROVIDERS PREMISES

THEM, YOUR ORGANISATION AND ITS SERVICES
What might they already think about your organisation?

What barriers or challenges might prevent them from engaging with you?

What moments in their life create the best opportunities for you to engage them?

What else is important to know about this person?
incentives and retention

This tool helps you to consider different ways to incentivise your contributors to engage and retain them more effectively.

**TIME FRAME**
30 - 60 mins

**GROUP SIZE**
3 - 8 people

**MATERIALS**
Incentives & Retention Guide, Incentives & Retention Worksheet, 2 - 4 markers, bluetack

**INSTRUCTIONS:**

1. As a group, reflect on who you want to contribute to your project (you may have used the Unique Perspectives Worksheet (C1) to identify who you most want to involve). Review the Incentives and Retention guide to help identify the different approaches you could use.

2. Capture thoughts on the most important incentives for engaging and retaining your desired contributors on post-its. If in smaller teams then share as a larger group.

3. After you have explored different options, it is important to focus on those that you think will be most significant for your contributors. Highlight the 1-3 you are prioritising on your worksheet.

4. When you've completed this worksheet, add the key incentives you'll use to the Collective Intelligence Project Design Canvas.
### Incentives and Retention

What might motivate and incentivise people to be involved?

#### ENGAGE

<table>
<thead>
<tr>
<th>FINANCIAL REWARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winner takes all prize</td>
</tr>
<tr>
<td>People are motivated to contribute by the opportunity to gain income for themselves or their team. Eg. Challenge Prize</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPENSATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task compensation</td>
</tr>
<tr>
<td>Individuals are motivated by the guarantee of cash or other rewards (such as vouchers) for completion of a task. Eg. Amazon Mechanical Turk</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REPUTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gaining recognition</td>
</tr>
<tr>
<td>Individuals are motivated by the thought of having their knowledge and expertise recognised by their peers. Eg. Crowdsourcing platforms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FEEDBACK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good feedback is immediate, interpretable and identifies the usefulness of contributions made by participants. This can help them develop their skills.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMMUNICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good communication is up to date, accessible in the participants' own time, two way, and doesn't bombard people.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PURPOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater purpose</td>
</tr>
<tr>
<td>People are motivated by the prospect of helping to move an idea or area of research forward in ways they couldn't alone.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PASSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fulfillment of passion</td>
</tr>
<tr>
<td>People are motivated to work on areas of interest which align with their passion or values.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SATISFACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
</tr>
<tr>
<td>Individuals are motivated by the prospect of being able to do something well, commensurate with their skills.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GUIDANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good guidance ensures that contributors understand where and how they are best able to contribute. This can include FAQs or clear instructions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BENEFITS TO CONTRIBUTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make explicit and prioritise what the benefits are for contributors, not only the project and the stakeholders/beneficiaries.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal development</td>
</tr>
<tr>
<td>People are motivated by the idea of improving themselves: developing a new skill or gaining new knowledge.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOCIAL CONNECTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growing a community</td>
</tr>
<tr>
<td>Individuals are motivated by the opportunity to build or expand their connections with likeminded people. Eg. Peer to peer communities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>???</td>
</tr>
<tr>
<td>What else might incentivise and motivate people to participate?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ORGANISATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrating high levels of organisation will give your contributors confidence in the process and in the commitment they are making.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTEREST IN PARTICIPANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrating genuine interest in your contributors and the value they provide will reassure them they are not being used or wasting their time.</td>
</tr>
</tbody>
</table>
### Incentives and Retention
What might motivate and incentivise people to be involved?

<table>
<thead>
<tr>
<th>ENGAGE</th>
<th>RETAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>APPROACH</strong>&lt;br&gt; Select an approach from the list provided.</td>
<td><strong>APPROACH</strong>&lt;br&gt; Select an approach from the list provided.</td>
</tr>
<tr>
<td><strong>WHY AND HOW</strong>&lt;br&gt; Why is this the most suitable approach for your audience? How do you plan to carry it out, and what steps you will take?</td>
<td><strong>WHY AND HOW</strong>&lt;br&gt; Expand on why this is the most suitable approach for your audience, and how you plan to carry it out.</td>
</tr>
</tbody>
</table>
challenge
call to action

Once you’ve identified challenge areas that you are seeking solutions for, reframe it into a call to action. Use the structured format to communicate your challenge clearly and in a way that motivates people to participate.

INSTRUCTIONS:
1. Refer back to your completed Solutions Brief Worksheet (BS). Try turning this into a compelling call to action for potential innovators.
2. Now take a look at your challenge question checklist and ask yourself if your questions address all of the criteria. If they don’t, then refine and update the question.
3. Finally go and test your challenge questions with relevant people or partners to check they make sense.

TIME FRAME
30 - 60 mins

GROUP SIZE
2 - 10 people

MATERIALS
None

REFERENCE:
INSPIRED BY HOW MIGHT WE QUESTIONS ON DESIGNKIT.ORG

STAGE:
MOBILISE PEOPLE
challenge call to action
What do we want people to do?

<table>
<thead>
<tr>
<th>VERSION 1: COULD YOU...</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERSION 2: COULD YOU...</td>
<td>?</td>
</tr>
<tr>
<td>VERSION 3: COULD YOU...</td>
<td>?</td>
</tr>
</tbody>
</table>

**CHALLENGE QUESTION STRUCTURE:**

<table>
<thead>
<tr>
<th>COULD YOU...</th>
<th>CREATE / DEVELOP / FIND</th>
<th>FOR</th>
<th>WHO WANT TO</th>
<th>(CHALLENGE)</th>
<th>(AUDIENCE)</th>
<th>(GOAL)</th>
</tr>
</thead>
</table>

- e.g. Could you (develop) (an easy-to-use point-of-care diagnostic test) for (health professionals) who want to (administer the right antibiotics at the right time)?

- e.g. Could you (create) (tools to source, analyse or translate data into actionable information) for (smallholder farmers) who want to (improve agricultural productivity)?

**CHALLENGE QUESTION CRITERIA:**

- [ ] OPEN
- [ ] INTERESTING
- [ ] ANSWERABLE
- [ ] UNDERSTANDABLE
- [ ] MEMORABLE
- [ ] SPECIFIC

REFERENCE: INSPIRED BY HOW MIGHT WE QUESTIONS ON DESIGNKIT.ORG

STAGE: MOBILISE PEOPLE
How can we connect people and data, and make sense of the results?

This stage will help you to understand how you can combine different sets of data to arrive at new insights, what role the crowd should play within this, and how to facilitate collaboration between a diverse group of people. Some projects use the power of the crowd to do the work of connecting or cleaning data. For others, the value is in how members of the crowd interact with one another by sharing opinions or ideas, or by upvoting and filtering different options. Data and crowdsourced information can be messy, or swathes of unstructured text. In order to make data useful and actionable, collective intelligence projects must find ways to easily interpret data. This can be for the benefit of the community or for the project leader to make sense of the results.

Pointers for reflection and discussion:

- There are a range of methods for connecting or bringing together different data or insights for collective intelligence projects. These can be categorised under three broad headings: ‘connecting data with data’ (e.g. matching datasets, or establishing data collaboratives or warehouses); ‘connecting data with people’ (e.g. crowds categorising, cleaning, sorting or tagging unstructured information, photos or PDFs) or connecting ‘people with people’ (e.g. deliberation, peer-ranking or upvoting).

- Data-heavy projects will rely more on quantitative tools for exploring and analysing data. There are both open source and proprietary software packages to help with processing and visualizing data. Other projects may need to involve much more active community participation, bringing people together in making sense of information.

- Interpreting data is sometimes non-contentious - it’s about understanding facts, or joining the dots to spot obvious correlations or trends (e.g. rising infant mortality or the number of wildfires in a region). On other occasions the data will be much more subjective - it’ll require interpretation and evaluation by many different stakeholders, or perhaps even assessment by an independent group (as is the case for some challenge prizes).

- When interpreting data it’s always crucial to reflect on bias - especially when working with predictive models that are only ever as good as the dataset they are trained on. This also applies to offline groups, which can be susceptible to groupthink or confirmation bias. For some simple tactics see the Overcoming Biases Guide.

- For projects involving management of crowds, facilitation or moderation of both online and offline discussions can encourage more meaningful contributions. Providing feedback on what kinds of comments are most useful, and posing framing questions that redirect conversations or encourage elaboration help participants to focus on the topic at hand. The Crowd Facilitation Guide and ORID Framework Guide will help you to facilitate more productive online or offline conversations.

- A particular challenge when inviting ideas, suggestions or free-text contributions from large crowds is how to make sense of large volumes of unstructured text. One solution can be to use tools that constrain what people are able to do on the platform, so the results are easier to analyse and display (see the Visualizing Citizen-Generated Data Guide). Artificial intelligence methods can also help to sort unstructured information into clusters to reveal underlying patterns.
connect
method cards

These People Cards are to be used as prompts for discussion in conjunction with the collective intelligence project design canvas and associated activities. They highlight common groups of people, and are not intended to be exhaustive. The People Cards are one of six ‘decks’, structured according to different stages of the playbook.

INSTRUCTIONS:
1. Explore these People Cards with your group or workshop participants at any point to guide conversations.
2. There are also specific activities elsewhere in this playbook where you are encouraged to use these cards to help answer particular design questions.
3. Consider which people are most relevant to you and your challenge.

TIME FRAME
30 mins

GROUP SIZE
4 - 8 people
Deliberation is a method of weighing up different options through dialogue. It can help in considering trade-offs, and in establishing greater understanding of one another's views to arrive at more consensus-driven and informed set of solutions.

**STAGE:** CONNECT & INTERPRET

**CASE STUDY:** ESTONIAN PEOPLE’S ASSEMBLY

In 2012 the ruling Reform Party in Estonia was beset by a scandal related to anonymous donations, which sparked a national engagement exercise. The five-stage process began with crowdsourcing of over 2,000 proposals on an online platform, on topics from reducing barriers to creation of political parties, to improving party conduct. The process then culminated in a face-to-face deliberation between randomly selected citizens. Over several days, the group was tasked with sorting through the online proposals, and making practical recommendations to the Parliament. Fifteen proposals were selected, leading to three new items of legislation and another four proposals being partially adopted.

**STAGE:** CONNECT & INTERPRET

**CASE STUDY:** UN GLOBAL PULSE

In recent years the Mexican state of Tabasco has experienced record-breaking rainfall, yet timely data about how floods are affecting the population in real-time is currently missing. In response, UN Global Pulse brought together a range of novel datasets to generate real-time insights about human behaviour, and to support decision-making and advocacy. By combining citizen mobile phone data, remote sensing data (satellite images), rainfall data, and census data from the Technical University of Madrid, under guidance from experts at Global Pulse and the World Food Programme, data sharing and analysis was made possible via a public-private partnership. The project was able to highlight the impacts of flooding on infrastructure and the local population, whilst also helping to identify where resources were best deployed.

**STAGE:** CONNECT & INTERPRET

**CASE STUDY:** CREATIVE INTELLIGENCE DESIGN PLAYBOOK

The Deliberation deck provides a set of method cards that can be used to support public deliberation exercises in different contexts. These cards are designed to help facilitators and participants engage in meaningful discussions, and to support the development of consensus-driven solutions.
A collaborative platform enables a loosely defined group of participants to come together to create a product or service, which is typically then made available to contributors or non-contributors alike. It draws on principles of open collaboration and open source software development, whereby openness and transparency in product development improve participation, trust and collective memory.

**CASE STUDY: WIKIFACTORY**

Wikifactory is an open platform that allows product designers and creators to collaboratively solve problems using digital fabrication technologies. It responds to a problem among product designers where sharing PDFs and different file types over email, or via a shared drive, hinder effective collaboration. The platform provides something similar to Github for product designers, including version-control, an issue and documentation tracker to crowdsource ideas or solutions, a permission system and community tools to aid collaboration. By opening up the process of product design, Wikifactory also makes it possible for people around the world, who may copy, use or replicate the designs, to participate in the process.

Many projects currently on the site aim to solve problems relating to water and energy access. For example, Wikifactory’s current projects include the ‘Solar TURBINE’ project, which aims to provide clean, affordable energy solutions to rural areas in Africa and the ‘Water Purification’ project, which seeks to provide affordable and sustainable water purification solutions to communities around the world. Wikifactory is an open platform that allows people to use digital fabrication technologies to solve problems and provide solutions to water and energy access issues.

**CASE STUDY: PUBLIC LAB**

Public Lab is an open community for citizen science. Community members use project wikis to collect information on citizen science projects. These range from guides on how to build scientific equipment to introductions to citizen science. The public lab wiki is a collaborative platform which allows anyone to access, choose or edit project wikis, empowering whole communities to address environmental justice issues.

A collaborative platform, like Wikifactory, is a playground for designers and creators to collaborate on product designs, allowing for open participation and innovation. It is an open source, collaborative space where ideas and solutions are shared and improved upon, enabling a community-driven approach to product development.
An open source repository is a digital repository where content (e.g. code, text or other learning resources) can be stored and freely downloaded with few restrictions on use. Many open source repositories help aid collaboration by providing a space for uploading documentation, monitoring and version control.

Case Study: **GitHub**

Software projects can be complex and often require contributions among a wide variety of developers and teams. GitHub is a platform for enabling collaborative, non-linear working with open source files. The platform is built on top of the Git distributed version control system whereby every user contributing to a project holds a version of the project’s content (a ‘repository’) which they can edit, add to and test. When they are satisfied with their edits they can “commit” them, and the system exchanges sets of changes, synchronising everyone’s latest work. GitHub hosts these repositories and adds a user interface that allows everyone to work.

Case Study: **States of Change**

States of Change is a global community of practice whose aim is to build the culture and capability of governments to deal with the problems they face and to explore and test what works. Since its creation States of Change has worked directly with over 150 public servants, including from national and regional governments, to explore and test what works. States of Change has involved more than 1000 people from across the public sector and has piloted workshops with governments around the world to explore and test what works. Since its creation States of Change has involved more than 1000 people from across the public sector and has piloted workshops with governments around the world to explore and test what works.
A data warehouse is a central database optimised to analyse information coming from a range of different sources. Data is cleaned, organised and structured in advance, acting as a single source for querying and enabling faster decisions.

CASE STUDY: THE NEW YORK CITY FIRE DEPARTMENT

The New York City Fire Department (FDNY) uses a Risk-Based Inspection System in order to better understand buildings that are most vulnerable to fires across the city. Collecting data from building inspections was previously done by paper, making it prone to delays and difficult to share information across the department. Therefore, the FDNY has built a data warehouse that all internal partners can access. This has helped to streamline the FDNY’s entire inspection workflow, allowing statistics from the inspections to be gathered in one place and improving measurement of progress.

STAGE: CONNECT & INTERPRET

Participatory monitoring is the regular collection of measurements undertaken by local residents or members of a community. The aim is to provide high-quality information and raise awareness about local issues.

CASE STUDY: SEEDS FOR NEEDS

As the climate changes and becomes more difficult to manage, farmers around the world need to be able to grow crops that are best adapted to local climatic conditions. Through the Seeds for Needs initiative, farmers test different varieties of seeds in their own conditions and feedback their outcomes to scientists and other farmers. Scientists then link farmers’ feedback with agro-climatic data, helping farmers adapt their farming practices to local conditions. As a result, local farmers can now access a wide range of crop seeds that are best suited to their conditions, enabling them to adapt to climate change and improve their crop yields.
Online forums are platforms that allow people to share ideas and resources, deliberate on key issues, or simply to talk to one another. They may be used by policymakers to generate discussion or suggestions on a bill or document, or they may be set up by projects or companies hoping to build and sustain a community. Most successful forums involve active and ongoing moderation.

**Case study: SmartParticipation**

SmartParticipation is an open source e-participation platform designed to offer an adaptable online forum environment for informed discussion and ideation. The design was informed by experiments run by researchers at the University of Cornell in partnership with several government agencies in the US. The platform itself provides easy content authoring, targeted commenting and options for moderating discussions.

One of the many experiments run on the platform was a 2011 consultation on Airline Passenger Rights in partnership with the Department of Transportation (DOT). More than 19,000 visitors posted over 900 comments on a proposal that would give airline passengers increased protections. After the comments were summarised and sent to the DOT, DOT announced that they played an important part in shaping the final rules.

The platform itself is an open source e-participation platform designed to offer an adaptable online forum environment for informed discussion and ideation. The design was informed by experiments run by researchers at the University of Cornell in partnership with several government agencies in the US. The platform itself provides easy content authoring, targeted commenting and options for moderating discussions.

Most successful forums involve active and ongoing moderation.

**Case study: The Education Endowment Foundation (EEF)**

The EEF is an independent charity dedicated to improving the life chances of disadvantaged people, according to cost-effective evidence and making that evidence actionable to teachers and schools. The EEF is an independent charity dedicated to improving the life chances of disadvantaged people, according to cost-effective evidence and making that evidence actionable to teachers and schools. The EEF is an independent charity dedicated to improving the life chances of disadvantaged people, according to cost-effective evidence and making that evidence actionable to teachers and schools. The EEF is an independent charity dedicated to improving the life chances of disadvantaged people, according to cost-effective evidence and making that evidence actionable to teachers and schools.
Study circles are groups that meet regularly with an aim to develop collective social expertise, and to brainstorm solutions or ideas. They try to incorporate diverse perspectives and encourage people to respectfully consider the views and values of other members of the community.

**Resilience Dialogues**

The Resilience Dialogues were a set of facilitated discussions in the US designed to help communities create climate action plans. The service uses an online platform, developed by the Massachusetts Institute of Technology’s Climate CoLab. Ideas from communities are matched with expert knowhow, and online discussions are used to clarify local risks and opportunities, share strategies that have worked in other communities, and build shared commitment to future plans and actions.

Local knowledge, combined with prompts from experts about the resources needed for various ideas and the likely outcomes of particular proposals, leads to much more robust proposals than either of these groups could have produced in isolation. Communities leave the dialogues with more confidence, as well as a range of new resources and a strategy for implementing solutions. They also develop collective social expertise and to continue to develop local resilience efforts.

**Wefarm**

Wefarm is a free peer-to-peer service that enables small-scale farmers in Kenya, Uganda, and Tanzania to share information via SMS, without the internet. Farmers can ask each other questions on anything related to agriculture and receive crowdsourced responses in minutes.

Knowledge shared on Wefarm can help farmers produce higher quality products, increase yields, and manage pests and diseases. The platform connects farmers around the world within minutes, from other farmers around the world within minutes.

The Wefarm network allows small-scale farmers to ask each other questions and receive answers quickly. This access to information is key to improving yields and helping farmers adapt to climate change. Wefarm is a free peer-to-peer service that enables

**Peer-to-Peer Exchange**

Peer-to-peer exchange relies on the process of sharing information among a community's members within a community. Members consider the views and values of other members of the community to develop collective social expertise and to incorporate diverse perspectives and encourage people to respectfully consider the views and values of other members of the community.

**Collective Intelligence Design Playbook**
A hackathon is a challenge-based event where the organiser defines a problem or challenge, and participants compete to create a solution. Sometimes this involves a reward. Hackathons bring people together to help surface new ideas or solve a problem quicker.

**CASE STUDY: TAIWAN PRESIDENTIAL HACKATHON**

In 2018, the Taiwanese government launched the Taiwan Presidential Hackathon to demonstrate its commitment to open source and open data, and to accelerate solutions that address the needs of the country by inviting social innovators to propose ideas using data and technology. The hackathon was judged based on criteria such as innovation, social influence, and feasibility. Submissions were judged based on criteria that can be made accessible upon request. Project data that can be made accessible upon request. Project data that can be made accessible upon request.

In 2019, ten finalists were selected from over 100 submissions, with solutions ranging from predictive monitoring of water leakages to a platform for improved knowledge sharing among caregivers. Some solutions involved using open government datasets, as well as some 'protected' data that can be made accessible upon request.

The government provided participating teams with open government datasets, as well as some ‘protected’ data that can be made accessible upon request. Project data that can be made accessible upon request.

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overcoming biases

The saying 'two heads are better than one' alludes to the many potential benefits of group decision-making. But cognitive and social biases can also undermine the effectiveness of group decision-making. The short guide and world cafe exercise are intended to help your group become more aware of some of these potential pitfalls and to think about proactive tactics to mitigate against them.

**TIME FRAME**
40 - 90 mins

**GROUP SIZE**
10 - 40 people

**MATERIALS**
Flipcharts, pens, post-its

**INSTRUCTIONS:**
1. Before running your first session, read through the overcoming biases guide.
2. Split your group into smaller groups, each with its own flip chart.
3. Write on each flip chart one of the biases from the guide, or any others you want the group to cover.
4. Give the group 5-10 minutes at each one, ask them to make comments around what this bias looks or feels like from their own experiences. Then add any strategies to avoid it.
5. After 5-10 minutes ask them to move around clockwise to the next one and add to it. Repeat this until everyone has contributed to each bias.
6. Ask them to go back to their original flip chart and give them a few minutes to summarise their bias before taking turns to present back to the wider group.
7. Remember to introduce 'bias reflection moments' lasting 10-15 minutes at key decision-points in any group decision-making process.
<table>
<thead>
<tr>
<th>POTENTIAL BIAS</th>
<th>TACTICS TO OVERCOME BIAS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conformity Bias</strong></td>
<td>• Allocate someone in the group to play devil’s advocate</td>
</tr>
<tr>
<td></td>
<td>• Gain everyone’s personal perspective first (e.g. through a silent brainstorm)</td>
</tr>
<tr>
<td><strong>Confirmation Bias</strong></td>
<td>• Actively seek out evidence that contradicts the group’s theory/world view</td>
</tr>
<tr>
<td></td>
<td>• Ensure you have a diverse group</td>
</tr>
<tr>
<td></td>
<td>• Use techniques like ‘six hat’ thinking</td>
</tr>
<tr>
<td><strong>Authority Bias</strong></td>
<td>• Level the field by removing hierarchies among participants where possible</td>
</tr>
<tr>
<td></td>
<td>• Introduce turn-taking and prevent interruptions or collect input anonymously</td>
</tr>
<tr>
<td></td>
<td>• Ensure the leader doesn’t state their opinion too early</td>
</tr>
<tr>
<td><strong>Shared Information Bias</strong></td>
<td>• Avoid time pressure or other constraints that might dissuade group members from sharing more information</td>
</tr>
<tr>
<td></td>
<td>• Listen out for the minority view for hidden insights</td>
</tr>
<tr>
<td><strong>Anchoring Bias</strong></td>
<td>• Allow time for group deliberation, reasoning and checking of logic</td>
</tr>
<tr>
<td><strong>In-Group Out-Group Bias</strong></td>
<td>• Look for commonalities between opposing groups</td>
</tr>
<tr>
<td></td>
<td>• Encourage empathy - asking people to put themselves in another person’s shoes</td>
</tr>
<tr>
<td><strong>Optimism Bias</strong></td>
<td>• Undertake a ‘pre-mortem’, asking the group to imagine that their solution or project has gone very badly wrong and describe how this happened.</td>
</tr>
<tr>
<td></td>
<td>• This will help people think ahead</td>
</tr>
</tbody>
</table>
INSTRUCTIONS:

1. Review the recommended daily and weekly tasks of the online crowd facilitator and the four main behaviours of the online crowd facilitator.

2. Build and moderate your online community and review, update and tailor your daily and weekly tasks as necessary.

Good facilitation of online forums and communities is vital to keep a crowd productive. By giving regular feedback the facilitator adds value through suggesting real-time changes as well as making conclusions in the final analysis. Here are the four primary tasks of a crowd facilitator, and some daily and weekly tasks to consider.

**INSTRUCTIONS:**

1. Review the recommended daily and weekly tasks of the online crowd facilitator and the four main behaviours of the online crowd facilitator.

2. Build and moderate your online community and review, update and tailor your daily and weekly tasks as necessary.

**TIME FRAME**
30 mins

**GROUP SIZE**
50+ people

**MATERIALS**
None
**DAILY TASKS**

- Welcome new members in comments, messages or with an email
- Encourage new members to post pictures for their ideas and profiles
- Check and respond to new posts
- If posts are similar, link their authors
- Suggest workarounds if someone has a problem or question
- Moderate language if necessary
- Respond to any technical issues

**WEEKLY TASKS**

- Create or curate new blog posts and send newsletter
- Highlight and link to a variety of posts, from the most popular to random
- Discuss joining activity and the leaderboard positions if relevant
- Link to latest posts
- Compile weekly stats and activity into a report with a top line analysis and take note of significant trends
- Liaise with project team or partners and give updates on activity, flag any concerns and put forward any ideas for improvement
data flow

By mapping the data flows over the course of your project you will start to understand the interdependencies between different design stages. It will help you to iteratively refine your data methods, identify associated biases and suggest actions to mitigate. You may need specialist expertise to help you answer some of the questions.

**INSTRUCTIONS:**

**Part 1: Mapping your project’s data flow**

1. Review the questions on the Data Flows Worksheet, some of them may be familiar to you from earlier parts of the design process.
2. Fill in the first box with the data sources and methods that you have decided to use in your project.
3. For each subsequent question spend 5-10 minutes discussing different approaches using the Data Flow Guide and/or prompt cards as a group.

**Part 2: Thinking about bias**

4. Nominate 1-2 people in your group to act as the anti-bias ‘champions’. They should review the Data Bias Guide.
5. Other participants should spend 5 minutes writing down as many possible sources of bias in the dataflow as they can think of. Some might be down to the data collection while other biases might be the result of the methods used to process or analyse data.
6. With the help of the anti-bias champions cluster the biases by category. Discuss where along your data flow, these biases could occur.
7. Discuss potential mitigation strategies, using the Data Bias Guide as a starting point.
**Collective Intelligence Design Playbook**

**Data Flow**

How will we bring together our data (store, clean, process, share)? What biases might there be in our data?

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<tbody>
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<td>Experts</td>
<td>☐</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Crowd</td>
<td>☐</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Machine</td>
<td>☐</td>
</tr>
</tbody>
</table>

- We have checked and obtained the necessary data permissions for collecting, using, sharing and storing the data.
- We have considered mitigation strategies for different sources of bias along the pipeline.
How will we bring together our data (store, clean, process, share)? What biases might there be in our data?

**IDENTIFY**

**WHAT DATA YOU NEED AND CHECK DATA PERMISSIONS**

**DATA COLLECTION**

**DATA STORAGE & ACCESS**

**DATA CLEANING & PRE-PROCESSING**

**DATA ANALYSIS**

**USE & SHARE**

**STRUCTURED DATA** (MACHINE READABLE)
- Databases
- In situ sensors
- APIs
- Satellite data etc.

**UNSTRUCTURED DATA**
- Web scraping
- Active or passive human contributions
  - Images
  - Videos
  - Measurements
  - Free text

Pre-processing and cleaning can make you aware of gaps where more data is needed.

You may have to go through many iterative rounds of cleaning and analysis as your understanding develops.

DATA QUALITY CHECK

- Detecting outliers
- Identifying missing values
- Exploratory analysis
- Modelling
- Statistical analysis
- Visualisation & mapping
- Visualisation
- Predictions
- APIs
- Open source repository

STAGE: CONNECT & INTERPRET
### BIASES AFFECTING DATA COLLECTION

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>DESCRIPTION</th>
<th>MITIGATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data collection protocol and parameters</td>
<td>The choice of data collection methods and which features of the data we choose to capture can sometimes reflect preconceptions we hold about the issue.</td>
<td>Think carefully about the issue you're exploring and your choice of variables before you finalise your data collection methods. Discuss these as a team to make sure you're capturing everything you need. For example, in the case of qualitative interview methods, questions should be neutral.</td>
</tr>
<tr>
<td>Measurement errors</td>
<td>Human recording errors or inaccuracies in the equipment used for measurements will affect data quality.</td>
<td>Make sure you check the quality of collected data. You can do this through peer or expert review or using multiple contributions for one datapoint.</td>
</tr>
<tr>
<td>Representation errors</td>
<td>Sometimes the data we collect is not representative of the underlying issue.</td>
<td>Discuss representation as a team and check your protocols with others who have experience with data collection or the issue you're exploring.</td>
</tr>
</tbody>
</table>

### BIASES AFFECTING DATA ANALYSIS

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>DESCRIPTION</th>
<th>MITIGATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crowd worker bias</td>
<td>When you rely on a crowd for data analysis using microtasking, you risk increasing the potential for human error.</td>
<td>Providing training on the analysis task has been shown to improve microtasking accuracy.</td>
</tr>
<tr>
<td>AI model bias</td>
<td>AI models can be the source of inaccuracies if they are trained on biased (unrepresentative) datasets.</td>
<td>Interrogate your assumptions during data collection. Test your model on diverse datasets.</td>
</tr>
<tr>
<td>Data drift</td>
<td>During real-time data collection and processing, any structural changes to data at the source will affect the analysis.</td>
<td>Introduce period checks on the data to ensure that it hasn't changed.</td>
</tr>
<tr>
<td>Model drift</td>
<td>When a model is trained on data about an issue or context that is changing rapidly, the model's predictions can become outdated very quickly.</td>
<td>Seek advice from domain experts or peers. Introduce period checks of the stability of the model.</td>
</tr>
</tbody>
</table>
interpret method cards

These Interpret Method Cards are to be used as prompts for discussion in conjunction with the collective intelligence project design canvas and associated activities. They highlight common methods to make sense of your results, alongside illustrative case studies and are not intended to be exhaustive. The Interpret Methods Cards are one of six ‘decks’, structured according to different stages of the playbook.

INSTRUCTIONS:
1. Explore these Interpret Method Cards and associated case studies with your group or workshop participants at any point to guide conversations.

2. There are also specific activities elsewhere in this playbook where you are encouraged to use these cards to help answer particular design questions.

3. Consider which methods are most relevant to you and your challenge.

TIME FRAME
30 mins

GROUP SIZE
4 - 8 people
In statistics, a proxy is a variable that is not directly relevant, but can serve in place of an unobservable or measurable variable. Proxy indicator analysis is useful for inferring a measurement for unavailable data based on known correlated information.

**CASE STUDY: UNDP SUDAN**

The UNDP office in Sudan tested the use of satellite data for estimating poverty levels via changing night-time energy consumption. The team used data pulled from night-time satellite imagery and analysed these illumination values over a two-year period, in conjunction with electric power consumption data provided by the national electricity authority. The proof-of-concept showed that night-time satellite imagery provided a reasonable proxy for poverty, though more detailed analysis with higher spatial and temporal resolution would provide a better indicator. The UNDP office in Sudan is considering the use of satellite proxy data for monitoring poverty levels.

**CASE STUDY: UGANDA RADIO CONTENT ANALYSIS**

In Uganda, calling into a talk show on radio to share thoughts, opinions and reports is a common practice, especially in rural areas. Pulse Lab Kampala and the UNDOC developed a technology prototype that allows analysis of public discourse on radio, understood through media and social media. The Radio Content Analysis Tool transforms discussions taking place on radio into big data text, which is then mined for topics of interest. Tool transformations discursively taking place on radio into understandable frames of issues that matter to people and better understanding which issues matter to people and to inform our automated analysis of different media to understand, interpret and extract key information useful to understand and respond to topics of interest. The UNDOC prototype is a technology that allows understanding frames of issues that matter to people, especially in rural areas, Pulse Lab Kampala and the UNDOC developed a technology prototype that allows analysis of public discourse on radio.

**METHOD CARDS**

Proxy indicator analysis

Natural language processing (NLP)

Collective intelligence design playbook
Predictive analytics encompasses a variety of statistical techniques that analyse current and historical facts to make predictions about future or otherwise unknown events. It can be used to identify early warning signs or to predict likely outcomes based on a range of variables.

STAGE: CONNECT & INTERPRET

CASE STUDY: AIME

Artificial Intelligence in Medical Epidemiology (AIME) is an initiative that uses data from a variety of different sources to predict disease outbreaks, providing warnings before the spread of disease occurs. The system relies on an algorithm that blends over 20 different variables from local government data and satellite data, with variables such as weather conditions, wind speed and direction to predict disease outbreaks. The result of this analysis is a map which illustrates the probability and location of the next outbreak.

Following initial tests in Malaysia, Brazil and other South American countries, AIME's successes include an algorithm that can predict the location of the next Dengue, Zika or Chikungunya outbreak up to three months in advance with over 65 per cent accuracy. Other recent successes include an algorithm that can predict dengue outbreaks in parts of Brazil and the Democratic Republic of Congo. AIME's success is based on a range of variables.
Crowd forecasting is a method that asks small or large groups to make predictions about the future. It is inspired by research which showed that small crowds of non-experts can often forecast political events more successfully than individual experts.

**Case Study: Early Warning Project**

Genocide and mass atrocities are almost always preceded by a range of early warning signs. The Early Warning Project aims to improve the early warning system for mass atrocities using a mixture of crowd forecasting and statistical modelling. An annual survey invites experts in the field of mass atrocities to participate, presenting them with pairs of countries and then asking them to choose which is more likely to experience a new mass killing. The cases from the annual survey then inform the selection of countries which the Early Warning Project tracks in real time using a crowd prediction polling tool called Good Judgment Open. Anyone can sign up to take part and the insights from the crowd consensus help address gaps in the statistical model.

Early Warning Project produces a ranked list of more than 160 countries based on their likelihood of experiencing an onset of mass killing in order to better target preventative action.

**Data Visualisation**

Data visualisation encompasses a range of techniques for representing information, from complex graphs to mind-maps and tools for illustrating complex concepts or ideas. They can be static or dynamic, and they may be connected to databases, or updated manually. Data visualisation can help to bring complex or messy data to life, making it easier to understand and communicate understanding of the issues that matter.

**Case Study: POL.IS**

Pol.is is an example of an interactive survey tool that uses a statistical technique - known as principal component analysis - to visualise participants' opinions in real-time. Opinions are clustered, and users can click on different clusters to see how many people agreed or disagreed on certain statements. The tool was used as part of a consultation run by the Taiwanese government on how to regulate ridesharing companies, helping lawmakers and participants gain greater understanding of key areas of contention. The visualisation helped people to understand the key dividing points among the 700 or so participants, not only did this help lawmakers and government officials to make informed decisions, and the public to understand the key areas of contentiousness.

**Collective Intelligence Design Playbook**

This playbook contains a range of techniques for representing information, from complex graphs to mind-maps and tools for illustrating complex concepts or ideas. They can be static or dynamic, and they may be connected to databases, or updated manually.
visualizing citizen-generated data

INSTRUCTIONS:
1. Review the guide and the nine different ways to visualise citizen-generated data.
2. Consider which visualisation technique might be best for you and your project.
3. Discuss with colleagues: can you think of any other ways to make the data you collect easy to visualize, and understand? What implications will the tools that you use have on how people provide information, or how they interact with one another?

REFERENCE:
ADAPTED FROM NESTA, SMARTER SELECT COMMITTEES

TIME FRAME
5 - 10 mins

GROUP SIZE
1 - 5 people

MATERIALS
None

STAGE:
CONNECT & INTERPRET
visualizing citizen-generated data
How will we make sense of the information we collect?

A common challenge for collective intelligence projects is how to visualise large volumes of citizen generated text, ideas or interactions. Good visualizations are not only important to derive clear insights, they can also be presented back to participants to boost satisfaction and improve collective learning.

A range of different approaches can help to make messy, unstructured data from citizens more understandable and actionable. Examples like Pol.is are a powerful way to visualise consensus across a wide array of ideas and opinions, whereas other activities may be useful to visualise consensus within an online forum-style setting (e.g. Your Priorities and Kialo for larger groups, or Loomio for smaller groups).

The diagram opposite provides some examples and corresponding methods. Examples vary in the types of input they require from people, ranging from active to more passive participation; and from quick and easy to deeper, more deliberative engagement.

What government policy can best meet our targets for reducing greenhouse gas emissions?

<table>
<thead>
<tr>
<th>Use carbon tax</th>
<th>Use cap-and-trade</th>
</tr>
</thead>
<tbody>
<tr>
<td>23%</td>
<td>49%</td>
</tr>
<tr>
<td>14%</td>
<td>51%</td>
</tr>
</tbody>
</table>

- Statement clusters: consensus vs divisive (Pol.is)
- Discussion topography (Kialo)
- Statement clusters: spatial consensus (Pol.is)
- Discussion tiles (Your priorities)
- Statement lists: consensus and divisive (Pol.is)
- Pie Chart (Loomio)
- Network clusters (Gephi / Kumu)
- Sentiment dashboards (Premise)
- Deliberation map (Deliberatorium)

REFERENCE: ADAPTED FROM NESTA, SMARTER SELECT COMMITTEES
STAGE: CONNECT & INTERPRET
collective decisions

There are many different types of collective decision making. This guide provides an overview of the six main types and provides an overview to consider which might work best depending on the decisions you want and need to make as a group.

| TIME FRAME | 30 - 45 mins |
| GROUP SIZE | 2 - 10 people |

INSTRUCTIONS:
1. Before running any collective decision making process, read through the Overcoming Biases Guide.
2. Consider your current project and organisation and consider the decision that you need to make.
3. Now use the table to consider to what extent that decision is a) urgent/non-urgent b) has wide impact/narrow impact c) has well defined options/undefined options d) is irreversible/reversible and e) is high risk/low risk. As a result select two or three decision making methods that could be appropriate.
4. Review the description of each type of collective decision and discuss the appropriateness for your particular situation.
5. Then select the decision making method(s) that you intend to use and in what context.
6. The first few times you try a particular method, factor in time afterwards to reflect on how it worked and whether it was effective, or whether any changes need to be made.

REFERENCE:
DECIDER APP BY NOBL

STAGE: CONNECT & INTERPRET
<table>
<thead>
<tr>
<th>THE DECISION...</th>
<th>CONSENSUS</th>
<th>CONSENT</th>
<th>CONSULTATIVE</th>
<th>DELEGATION</th>
<th>DEMOCRATIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is urgent</td>
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<tr>
<td>Is non-urgent</td>
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<td>Has wide-impact</td>
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<tr>
<td>Has narrow impact</td>
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<tr>
<td>Has well-defined options</td>
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<td>Has irreversible consequences</td>
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<td>Has reversible consequences</td>
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<td>Is high risk</td>
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<td>Is low risk</td>
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CONSENSUS
- EVERYONE MUST AGREE

Gathering consensus takes time, but it works well when a decision will impact lots of people and those people have both valuable insight and the capacity for candid negotiation. Consensus decision making asks everyone in the group to shape the decision until a compromise is reached that reasonably satisfies everyone.

Unlike some other decision making models, consensus strives to incorporate everyone’s perspectives, needs, and ultimately their permission. Consensus has a long history of use in tight-knit communities like faith groups, neighborhoods, and unions. Consensus also tends to be how recently formed organizations first approach decision making.

CONSENT
- NO ONE OBJECTS

Consent works well when speed is needed, when the proposal is clearly defined, and when the impact of the decision is limited and reversible. Consent means the absence of objections. Similar to consensus, consent invites group participation in the decision making process. But instead of granting each member the power to mould the proposal in pursuit of a compromise, consent urges the group to accept a ‘good enough’ solution. A decision is ratified when there are no meaningful objections.

Consent has become increasingly popular among engineering and technology firms over the last decade because it attempts to combine both speed and inclusiveness.

DELEGATION
- YOU DECIDE, WITH LIMITATIONS

Delegation works well when time is critical, when a single member of the group has the best information (and it isn’t you), and when the group is crystal-clear on what the execution would look like. Delegation means giving someone in the group explicit authority over making a decision, often with some guardrails.

One of the greatest leadership traits you can develop is removing yourself from the decision making process. Giving members of the group the authority to make a call independently will help your group act faster and give you more time to focus on the high-priority decisions that do require your attention.

DEMOCRATIC
- MAJORITY RULES

Democratic decision making works well when choices are clear cut, when your team is well informed, and when your culture embraces majority rule. Democratic decision making is when a leader gives up authority over a decision and presents a series of options to the full group to vote on. The option accepted by the majority of the group is then enacted.

The democratic system, is usually traced to ancient Greek city states, although it’s probable that people have been voting throughout history. One form is the Nominal Group Technique which involves members of the group independently writing down ideas, then sharing and discussing, and finally voting by ranking or rating.

CONSULTATIVE
- I DECIDE, WITH INPUT

Consultative decision making works well when you need to gather expertise from a limited group or when you need the support of key members of the group. Consultative decision making means asking for input from a few select individuals, but ultimately reserving the decision for yourself. The consultative model is used when you need additional expertise or when you need to curry political favour.

The consultative process is often done one-on-one, but it can also happen in a small group setting. For instance the Delphi Technique is a group process using written responses to a series of questionnaires instead of physically bringing individuals together to make a decision.
ORID framework

The ORID (Objective, Reflective, Interpretive, Decisional) method of strategic questioning is a structured conversation (face-to-face and/or online), led by a facilitator, to make intelligent decisions. ORID can be used in different scenarios from small meetings where everyone is in the same room, to large distributed teams with the help of different digital methods. For instance in Taiwan the ORID framework was used by the government to structure a mixed online and offline consultation process over several weeks, using a range of digital tools to collect and synthesize information at each stage. This worksheet will help you plan your structured conversation.

INSTRUCTIONS:
1. Carefully set your goal for the conversation - this will help you articulate what you want to achieve.
2. Develop the ORID questions you want the group to respond to. It’s advisable to test these with a colleague/critical friend in advance of starting the process. You might want to brainstorm questions first before refining and reordering.
3. Use the right hand column to consider what methods or tools might help to facilitate the dialogue at each stage and/or throughout.
4. When kicking off the session, explain the ORID approach to participants and ask for their buy-in to follow it respectfully. It’s helpful to prepare your opening and closing remarks in advance.
5. Take the group through each set of ORID questions either capturing their key responses in the room as they’re shared or using an online collaboration tool.

TIME FRAME
Can be delivered as a 1hr+ session or as a guiding framework for a longer consultation

GROUP SIZE
10 - 40+ people

MATERIALS
ORID Framework Worksheet, pens, post-its

INSPIRED BY:
CONVERSATION, THE CANADIAN INSTITUTE OF CULTURAL AFFAIRS (ICA)
ORID framework
How will people contribute or interact?

<table>
<thead>
<tr>
<th>O</th>
<th>OBJECTIVE QUESTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The O questions identify objective facts relevant to the topic.</td>
<td></td>
</tr>
<tr>
<td>The key questions is: <strong>What do we know about this?</strong></td>
<td></td>
</tr>
<tr>
<td>It's essential you capture objective facts, not perceptions and opinions.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>R</th>
<th>REFLECTIVE QUESTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The R questions ask about how people feel about the topic.</td>
<td></td>
</tr>
<tr>
<td>The key question is: <strong>How do we feel about this?</strong></td>
<td></td>
</tr>
<tr>
<td>Feelings might be positive, negative, apprehensive and sometimes emotional.</td>
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</tr>
<tr>
<td>Ask participants to express their gut feelings even if they have no objective facts to support them. Capture likes, dislikes, fear and concerns. There are no wrong responses so encourage people to be honest and not hold back.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I</th>
<th>INTERPRETIVE QUESTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The I questions are to do with meaning.</td>
<td></td>
</tr>
<tr>
<td>The key question of the interpretive stage is this: <strong>What does it mean for me/you/us/our organisation, society, etc?</strong></td>
<td></td>
</tr>
<tr>
<td>Interpretive questions allow the topic to be put into perspective and for the potential impacts of the topic on the individual, organisation or society to be explored.</td>
<td></td>
</tr>
<tr>
<td>Useful interpretive questions might include &quot;What if...?&quot; questions as well as &quot;What would it mean...?&quot;, &quot;What would that do...?&quot; and so on.</td>
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</table>

<table>
<thead>
<tr>
<th>D</th>
<th>DECISIONAL QUESTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The D questions lead to a decision.</td>
<td></td>
</tr>
<tr>
<td>The key question at the decisional stage is: <strong>What are we going to do?</strong></td>
<td></td>
</tr>
<tr>
<td>The focus of discussion should be future-focused and might include questions like: &quot;What would be the best course of action?&quot; &quot;What would be achievable, positive outcomes?&quot; &quot;What is realistic given the limitation of our resources?&quot;</td>
<td></td>
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</table>

INSPIRED BY:
CONVERSATION, THE CANADIAN INSTITUTE OF CULTURAL AFFAIRS (ICA)
## ORID framework

### How will people contribute or interact?

<table>
<thead>
<tr>
<th>OUR CONVERSATION GOAL:</th>
<th>WHAT QUESTIONS WILL YOU USE TO GUIDE PARTICIPANTS?</th>
<th>METHODS FOR EACH STAGE</th>
<th>METHODS TO USE THROUGHOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OBJECTIVE</strong></td>
<td>What do we already know about this? &lt;br&gt; (Facts, definitions, raw data)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>REFLECTIVE</strong></td>
<td>How do we feel about this? &lt;br&gt; (Reactions, likes or dislikes, emotions)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>INTERPRETIVE</strong></td>
<td>What does it mean for me / you / us / our organisation, society? &lt;br&gt; (Meaning, values, significance, implications)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DECISIONAL</strong></td>
<td>What are we going to do? &lt;br&gt; (Resolution, actions, future direction)</td>
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</table>

**INSPIRED BY:**

CONVERSATION, THE CANADIAN INSTITUTE OF CULTURAL AFFAIRS [ICA]

**STAGE:**

CONNECT & INTERPRET
<table>
<thead>
<tr>
<th>STAGE</th>
<th>OBJECTIVE</th>
<th>REFLECTIVE</th>
<th>INTERPRETIVE</th>
<th>DECISIONAL</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>What do we already know about this? (Facts, definitions, raw data)</td>
<td>How do we feel about this? (Reactions, likes or dislikes, emotions)</td>
<td>What does it mean for me / you / us / our organisation, society? (Meaning, values, significance, implications)</td>
<td>What are we going to do? (Resolution, actions, future direction)</td>
</tr>
<tr>
<td>OUR CONVERSATION GOAL: Regulating Uber in Taiwan</td>
<td>WHAT QUESTIONS WILL YOU USE TO GUIDE PARTICIPANTS?</td>
<td>METHODS FOR EACH STAGE</td>
<td>METHODS TO USE THROUGHOUT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>What is ridesharing? Who are the key stakeholders? What are the current regulations in place for ridesharing in Taiwan? How many people use ridesharing in Taiwan?</td>
<td>Relevant government ministries share data they have on the topic in reader friendly 'fact sheets', published on Slideshare. Definitions updated using Google Sheets.</td>
<td>Meeting agendas and consultation notes shared on live documents known as Hackpads.</td>
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</tr>
<tr>
<td></td>
<td>How do we respond to this data? What experiences can people share to these facts or data? What are people's reflections on the current regulations?</td>
<td>Pol.is for large scale conversation.</td>
<td>SayIt for publishing transcripts.</td>
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</tr>
<tr>
<td></td>
<td>What have we learned about ridesharing from the previous stages? How can we best summarise information gathered in previous stages? What are the implications?</td>
<td>In-person conversation with key stakeholders, live streamed on YouTube and facilitated so people can submit questions.</td>
<td>Online forum Discourse can be used to ask questions to relevant ministries and share experiences.</td>
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<tr>
<td></td>
<td>What are the key dividing points and what can key stakeholders agree on? What are the next steps?</td>
<td>'Rough consensus' determined via live-streaming method above.</td>
<td>Real-time moderation.</td>
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generative
decision
making

Making decisions together does not have to be long and painful. Consent based decision making can help organisations make decisions collectively, efficiently and wisely. Generative decision making is a consent based decision making process. It requires a host, and the person taking on this role can and should vary.

**TIME FRAME**
30 - 120 mins

**GROUP SIZE**
8 - 40 people

**INSTRUCTIONS:**
1. Use the Collective Decisions Guide (D7) to identify the type of decision that is appropriate for your issue. If you selected a consent based collective decision, then generative decision making is one method for achieving this type of outcome.

2. Before running your first session, read through the seven stages of generative decision making to give you an overview of the process involved. You may want to practice this technique before using it as part of your collective intelligence project.

3. Have all your participants seated in a circle facing each other. Ask people to put away distractions such as laptops and phones. Explain the process (steps 1-7) to participants, and the rationale behind it.

4. Run the session and take time to reflect on what worked well and what you could do differently next time.
### generative decision making
How will people contribute or interact?

<table>
<thead>
<tr>
<th>STAGE 1: CHECK: ARE WE READY TO MAKE A DECISION?</th>
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<tbody>
<tr>
<td>Understand whether the group is ready to make a decision. Is the context clear? Is there information or data that needs to be gathered? Could an open conversation help develop the group’s readiness to make a decision?</td>
</tr>
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</table>

**Hosting tips:** You might need to offer the group one or two open conversation time slots to get to this point (e.g. “I am going to put the timer on for 10 minutes while you explore the topic in question”). Offer supplementary time slots as necessary. You might need to conclude that the group is not ready to make a decision, and this is ok. Listen in deeply and when you sense that there is a possible proposal in the air, the group is ready. Invite the group to head into the next step.

<table>
<thead>
<tr>
<th>STAGE 2. INITIAL PROPOSAL (VERSION 1)</th>
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<tbody>
<tr>
<td>Invite the group — “would someone like to make an initial proposal?” This will help the group move forward into action and there will be lots of opportunities to fine tune the proposal together.</td>
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**Hosting tips:** Help the proposer name a proposal in ideally one single sentence. Avoid the proposal spreading into multiple proposals. Ensure that the proposal is written for all to see (separate from the proposer) and repeat it out loud.

### STAGE 3. GROUP SEeks CLARIFICATIONS ON PROPOSAL

| The group has the opportunity to voice questions to the proposer. The proposer has two options: i) They provide the answer or ii) says “not specified” if the answer is unknown. |

**Hosting tips:** If someone is speaking without a question (i.e. reaction) remind them that it is question period. Ensure that all questions are directed at the proposer and no one else intervenes. Avoid letting the proposer speak about anything further than the direct answer (keep it tight). Sense when the clarification period is about to finish (i.e. you feel that people are ready to react)

### STAGE 4. GROUP REACTIONS TO PROPOSAL

| It is mandatory that each person (minus the proposer) expresses to the group their reaction to the proposal; the different voices and perspectives of all need to be heard. The proposer listens deeply and takes notes. Afterwards the proposer will craft a new version of the proposal. |

**Hosting tips:** Begin with the person who has the most reactive emotion and then go around, until everyone has shared their reaction. Make sure that the reaction is not about the proposer, but about the proposal itself — correct if necessary.

### STAGE 5. REVISED PROPOSAL (VERSION 2)

| The proposer formulates a new version of the proposal in light of all that has been spoken. The host ensures that it is written and visible to all and reads it out loud. |

**Hosting tips:** If you feel that the proposer might want to stay with the same proposal, remind her that she can. If you sense that the proposer needs support in formulating the second version, remind her that it is possible to ask for help — however do not rush into saying this.

### STAGE 6. GROUP OBJECTIONS TO PROPOSAL

| An objection needs to express a risk or a backward movement for the organisation/initiative. All objections are expressed to the host who then decides if the objection is valid or not. If it is valid, then the proposer needs to integrate it into a new version of the proposal. (Then the objection round is repeated). |

**Hosting tips:** Sometimes people might express personal concerns that are not in fact organisational/project risks. This needs to be differentiated. If it is fuzzy you may ask for help to the group. This is the hardest part of the process for the host.

With a revised proposal, everyone visually confirms “I can live with this decision” by raising their thumb. This is a way of allowing all to see that everyone is fully on board with this decision. If there is something that has not been spoken that needs to be it will show up because a person will be unable to raise their thumb. This can happen when i) someone is struggling to find words to put on an idea that is important to them or ii) someone is disengaging in the process (holding on to the possibility to question the decision in the hallway thereafter). Either way it will need to be addressed and the group needs to return to the part of the process that was not fully addressed.

| Note: It is good to have visual confirmation as a cultural cue with which the process may be fast tracked. Someone makes a proposal and you can just do a quick check in to see right away if everyone could live with it.

**Hosting tips:** This is not a decision council and it is not an opportunity to lower thumbs and restart a process. It is simply a visual confirmation. If the process has run smoothly all thumbs should be raised. If someone is struggling to find voice for an objection, support the person and let them know that all information is important.

### STAGE 7. DECISION ON PROPOSAL BY VISUAL CONFIRMATION

| With a revised proposal, everyone visually confirms “I can live with this decision” by raising their thumb. This is a way of allowing all to see that everyone is fully on board with this decision. If there is something that has not been spoken that needs to be it will show up because a person will be unable to raise their thumb. This can happen when i) someone is struggling to find words to put on an idea that is important to them or ii) someone is disengaging in the process (holding on to the possibility to question the decision in the hallway thereafter). Either way it will need to be addressed and the group needs to return to the part of the process that was not fully addressed. |

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### STAGE 8. REFERENCE:
**COLLECTIVE INTELLIGENCE DESIGN PLAYBOOK**

**STAGE 9. CONNECT & INTERPRET**
open space

Open Space is an event format that can promote engagement; identifying key areas of interest; to allowing for informal learning.

INSTRUCTIONS:
1. Before running your first open space session, read through this guide to give you an overview of what’s required to run session.
2. Start planning your session and test your thinking with a colleague.
3. Run your first session and take time to reflect on what worked well and what you could do differently next time.

REFERENCE:
TRANSITION CULTURE HOW TO RUN AN OPEN SPACE EVENT

TIME FRAME
60 - 120 mins

GROUP SIZE
20 - 100+ people

MATERIALS
Open Space Guide, paper, pens
open space
How will people contribute or interact?

OPEN SPACE OVERVIEW

1. BEGINNING
All participants start by sitting in a big circle, with the facilitator in the middle, who explains the process.

2. FRAMING
The facilitator encourages those who are passionate about a topic and wish to take responsibility for convening a meeting to come to the centre.

3. FORMING
When all topics have been announced, everyone moves to sign up to those they are interested in. If there are similar topics, people may be asked if they wish to combine sessions. Everyone then disperses and attends the sessions they have chosen.

4. FLOWING
People are actively encouraged to flow between sessions if they wish, if they feel they are not learning or participating.

5. CLOSING
At the end, all of the different groups reconvene to form one big circle. In turn, each person is asked to reflect and share one key insight with the group as a whole.

OPEN SPACE PRINCIPLES

There are several underlying principles key to this process. They are:

1. Whoever comes are the right people.

2. Whatever happens is the only thing that could have.

3. Whenever it starts is the right time.

4. Whenever it’s over, it’s over.

REFERENCE:
TRANSITION CULTURE HOW TO RUN AN OPEN SPACE EVENT

STAGE:
CONNECT & INTERPRET
group dialogue

A group dialogue can be rewarding and with some practice over time, it’s possible to facilitate these effectively.

These tips are meant to help you run your first dialogue session. If you’ve run them before, they can act as a refresher.

Use the tips to plan your session, to kick it off, and then as a guide to facilitate and conclude your session.

**INSTRUCTIONS:**
1. Before running your first session, read through the group dialogue guide to give you an overview of what’s required to run the session.
2. Start planning your session and test your thinking with a colleague.
3. Run your first session and take time to reflect on what worked well and what you could do differently next time.

**TIME FRAME**
30 - 120 mins

**GROUP SIZE**
10 - 40 people

**MATERIALS**
Group Dialogue Guide, paper, pens
### WHAT IS A GROUP DIALOGUE?

A dialogue is a constructive and equal way of having a discussion in a group of people. At its core it is aimed at understanding others, but not at reaching consensus. A dialogue can generate new thinking and fresh insights.

A dialogue aims to create a trusting atmosphere to support participants to gain a deep understanding of almost any topic. A dialogue supports the bringing together of people from different backgrounds to an encounter in which they are on an equal footing.

For example, you can use a dialogue as part of the preparation or before decision-making.

### PREPARING TO FACILITATE

1. Plan how you will start the dialogue and how people will introduce themselves.
2. Adapt the ground rules for discussion to make them better suit your style.
3. Plan how you lean into the topic and develop the initial question.
4. Familiarise yourself with the theme and capture questions related to the content of the discussion.
5. Consider how you will deepen the discussion and conclude it.
6. Decide if the discussion needs to be documented and how it will be done.

### GROUND RULES

- **Listen** to the others, do not interrupt or start side discussions.
- **Relate** what you say to what the others have said and use plain English.
- **Talk** about your own experience including issues, events and situations that have shaped your views.
- **Be present** and respect the others and the atmosphere of trust.
- **Work together.** Talk to the others directly and ask about their views as a way to deal with emerging conflicts early.

### TUNING IN PARTICIPANTS

Tuning in helps to build trust in which the participants feel they are on an equal footing. It moves the attention from other matters to this moment – the space, the other people and the topic discussed. Ensure you use adequate time to build an atmosphere of trust. Here are a few example questions to help participants start tuning in:

- Who are you and what brings you here today?
- What are the experiences in your mind when you come to discuss this topic?
- What perceptions or feelings do you associate with the topic?
- What is it like to talk about this together? What do we want to aim at in this discussion?

### WHAT IS A GROUP DIALOGUE?

As a minimum, ask the participants to answer:

- What was the most important insight you gained in this discussion?
- Where should this discussion be continued and who should continue it?
- Have we discussed the right issues?
- Have we discussed different points of view?
- Was our discussion constructive?
- Did our understanding of the topic increase?
- What other feedback do you have?

### ENCRUISING PARTICIPANTS TO EXPRESS THEIR EXPERIENCES

- **Share** events, situations and experiences to them or start side discussions.
- **Ask** specifying questions about what they share including reasons and consequences.
- **Talk** about your own experience including issues, events and situations that have shaped your views.
- **Ask** participants to consider and express what kind of thoughts and experiences come to mind when they listen to others.

### WAYS TO DEEPEN THE DISCUSSION

- **Ask** the participants which kind of issues they would like to increase their understanding of.
- **Encourage** the participants to offer viewpoints that have not yet been presented even if they are difficult or conflicting.
- **Share** a personal experience related to the topic to shift the discussion from a general level to one where participants share their own personal experience.
- **Observe** the atmosphere of the discussion and the level of engagement. Are participants finding the discussion interesting and important?

### ACTIVATING THE QUIET PARTICIPANTS

Explain that you hope as many participants as possible will participate in the discussion. Over time, pay attention to those who have not said anything, yet.

Stop the conversation for a moment and say you would like to hear from those people who have not said anything.

Split the group into pairs for a short period of time if there’s a large number of participants and the dialogue has stalled. After that, you can encourage those that have been quiet to speak.

### REFERENCE:

TIME-OUT CONVERSATION CARDS
study circle

A study circle is a group of people who meet regularly over a period of weeks or months to address a critical issue in a democratic, collaborative way. In general, a study circle will progress from a session on personal experience (“How does the issue affect me?”) to sessions providing a broader perspective (“What are others saying about this issue?”) to a session on action (“What can we do about this issue right now?”). They emerge with recommendations for action that will benefit the community. A study circle is typically led by an impartial facilitator.

**INSTRUCTIONS:**

1. Review the six stages of facilitating a study circle in this guide and consider an issue or topic to explore.

2. Give a personal invitation to a diverse group of people who might be interested in helping people address a specific challenge, and not just talk about them.

3. Be aware of the facilitator’s key role in the study circle process. Their role is to:
   - Stay neutral. Not to promote an opinion, but to further the discussion.
   - Encourage interaction. Let participants respond to one another.
   - Don’t let anybody dominate the discussion, and draw out quiet participants.
   - Keep the discussions on track.
   - Allow for pauses and silences. People need time to think and reflect.
   - Don’t worry about consensus. Just try to find some areas of agreement.
   - When in doubt, ask the group what they would like to do.

4. Individual study circles can take place within communities or within organisations. However, they have the greatest impact when organisations across a community work together to hold multiple study circles as part of a large-scale program.

**TIME FRAME**
60 - 120 mins

**GROUP SIZE**
8 - 12 people

**MATERIALS**
None

**REFERENCE:**
COMMUNITY TOOLBOX
1. INTRODUCTIONS
Introduce yourself and explain that you are a facilitator rather than a teacher and interested in the topic rather than an expert.
Ask the participants to introduce themselves and explain their interest in the topic.
In subsequent meetings at least 90 around the circle to give names.
Folded name cards in front of everybody may be helpful.

2. IDENTIFY THE GOALS
Make sure you all know why you are there.
Ask for a list of questions the participants want answered.
Lay out a range of views. Ask the participants to volunteer what they see as the main view on the issue based on the reading material and their knowledge of the issue.
Keep these lists and post them each meeting for reference.
Review the agenda or study plan and adjust it to suit the group.

3. PERSONAL CONNECTION OR INTEREST IN THE ISSUE
Ask participants to talk about why this issue is important to them.
Telling their story is a good ice-breaker at the first session.
Anyone may pass.

4. DISCUSSION AND DELIBERATION
This is where you practise those facilitation skills.
Have questions prepared to help you in any possible situation.
Remain neutral.
Guide the discussion without controlling it.

5. SUMMARY AND COMMON GROUND
Ask the participants to summarize the discussion from time to time.
Use their words and phrases, not your own.
Look for common concerns in different approaches.
Check your lists of goals and questions

6. CLOSING
Let the group know that the discussion is about to end.
You might ask each participant for a closing comment.
Establish direction for the next session.
Ask for comments on the group process. What did they like or not like about the discussion?
Thank everyone for their participation. Acknowledge the effort and contributions.
On your last session, ask for suggestions on further involvement or action on the issue. Ending with a pertinent quotation is an effective closing.
How can we use and test our collective intelligence to create change?

The results of collective intelligence need to be made actionable and usable. In this stage you will prototype your project and develop a plan to test it. You will also consider how you’re going to feedback to participants, to build trust and show people that their input had meaning.

**Pointers for reflection and discussion:**

- **Know the Minimum Viable Product needed.** Raw data is of little use to most decision-makers, people delivering a service or to the community who you’re engaging. It’s unlikely that whoever is carrying out the action (for example, a frontline worker or service manager) will want a spreadsheet or raw data. Instead they will want the data conveyed in a way that is actionable and usable.

- **Be aware of local resource limitations and access needs of your intended audience.** It’s no use producing an online real-time map to visualise disaster-affected areas if most local residents don’t have access to computers or smart-phones. SMS, radio and peer-to-peer neighbourhood alert systems can be much more effective to ensure timely action in low resource settings.

- **Don’t forget to provide feedback to the contributors.** Progress updates regarding the overall goal of the project reminds individuals that they are part of a collective, building a sense of contributing to a greater purpose.

- **The broader impacts of collective intelligence can be auxiliary to the intended use.** For example some of the most transformative results of citizen science projects can come from sustained behavioural change by communities stemming from their deep engagement with their local environment.
create change method cards

These Create Change Method Cards are to be used as prompts for discussion in conjunction with the collective intelligence project design canvas and associated activities. They highlight common methods to create change, alongside illustrative case studies and are not intended to be exhaustive. The Create Change Methods Cards are one of six 'decks', structured according to different stages of the playbook.

INSTRUCTIONS:
1. Explore these Create Change Method Cards and associated case studies with your group or workshop participants at any point to guide conversations.
2. There are also specific activities elsewhere in this playbook where you are encouraged to use these cards to help answer particular design questions.
3. Consider which methods are most relevant to you and your challenge.

TIME FRAME
30 mins

GROUP SIZE
4 - 8 people
Dashboards make data more useful by providing quick and customizable visualisations of different data streams or variables. Usually represented interactively on a screen, dashboards make data more useful by providing a sense of real-time or near-real-time information, allowing users to interact with the data and explore different scenarios. They are particularly useful in situations where data is complex or voluminous, helping to identify patterns and trends that might not be immediately obvious in raw data.

---

**STAGE:** CREATE CHANGE

**CASE STUDY:** PREMISE

In Brazil, locals are paid to upload photos of supermarket items to a platform called Premise. The platform processes about 42,000 images per day, each of which is vetted for accuracy and authenticity, before being aggregated and analysed. The data is then made accessible via a dashboard, which can be customized to display contributor activity with maps, calendars, or photo walls. As a result, commercial clients are given access to data on their markets often weeks before official government figures are released. NGOs and research institutions also use the data to pre-empt food shortages.

**METHOD CARDS**

- **DECK:** CREATE CHANGE
- **SHOWCASE:** PREMISE

---

**STAGE:** CREATE CHANGE

**CASE STUDY:** PREMISE

Ceasefire Iraq has a civilian monitoring tool to monitor violations of human rights or international humanitarian law. People can submit reports of violations occurring anywhere in Iraq, which are stripped of any personal identifying information and plotted onto a map showing the distribution of violations by location and type. The dashboard helps to create a more accurate and up-to-date picture of the human rights violations on the ground, improving accountability and motivating a more effective national and international response.

**METHOD CARDS**

- **DECK:** CREATE CHANGE
- **SHOWCASE:** PREMISE

---

**STAGE:** CREATE CHANGE

**CASE STUDY:** PREMISE

A heatmap is a graphical representation of data where values are represented in shades or colours to make sense of relationships between different variables or trends on a matrix or map. It can help to quickly visualise data, revealing patterns and trends that might not be immediately obvious in raw data.
Victims’ rights for recognition and repatriation, what happened, and to help build an archive of the project aims to create a collective memory archive of the impact and human civilization. For record-keeping, the testimonies displayed as knotted strings used by the documentation where users click on a visualization of the testimonies people presented as an interactive online documentary. The Quiquy project collected over 150 testimonies of the Quiquy project. In the 1990s, a family planning programme launched by the president of Peru led to the sterilization of over 270,000 women and 22,000 men. They were almost exclusively indigenous people living in rural areas, and thousands claimed it happened without their informed consent. Many of the people affected only spoke their native Quechua, and struggled to access institutions. By the president of Peru led to the sterilization of over 270,000 women and 22,000 men. The Quiquy project. In the 1990s, a family planning programme launched.

**CASE STUDY: THE QUIQUY PROJECT**

The Quiquy project collected over 150 testimonies of the Quiquy project. In the 1990s, a family planning programme launched by the president of Peru led to the sterilization of over 270,000 women and 22,000 men. They were almost exclusively indigenous people living in rural areas, and thousands claimed it happened without their informed consent. Many of the people affected only spoke their native Quechua, and struggled to access institutions. By the president of Peru led to the sterilization of over 270,000 women and 22,000 men. The Quiquy project collected over 150 testimonies of the Quiquy project.

**STAGE:** CREATE CHANGE

**CASE STUDY:** THE QUIQUY PROJECT

The Quiquy project collected over 150 testimonies of the Quiquy project. In the 1990s, a family planning programme launched by the president of Peru led to the sterilization of over 270,000 women and 22,000 men. They were almost exclusively indigenous people living in rural areas, and thousands claimed it happened without their informed consent. Many of the people affected only spoke their native Quechua, and struggled to access institutions. By the president of Peru led to the sterilization of over 270,000 women and 22,000 men. The Quiquy project collected over 150 testimonies of the Quiquy project.
A manual is a comprehensive and step-by-step guide to a particular topic. It may include instructions, tutorials or guides to help facilitate learning, the aim of which is to lower barriers to entry for beginners or practitioners wishing to participate.

**CASE STUDY:**

**INSTRUCTABLES**

Instructables.com is a website specialising in user-created and do-it-yourself projects, from baking to 3D printing. By providing video aids, documentation and commenting functionality, the website aims to facilitate collaboration and shared learning among creatives, makers and artists. The website also holds contests each month to provide instructables created and do-it-yourself projects from baking to 3D printing. By providing video aids, documentation and commenting, the website aims to facilitate collaboration and shared learning among creatives, makers and artists.
local politicians.

- Open APIs provide standards for data access and transfer between websites. Open APIs encourage collaboration and are built using open standards, allowing them to be freely accessed and used.

**CASE STUDY: OPENAHJO**

City Councils make hundreds of decisions every month, and it can be hard for both citizens and civil servants to follow the progress of legislation making its way through government. Open Decisions is Helsinki City Council’s attempt to standardise and publish all of its decision-making data electronically. Data about meetings, agendas, and decisions from all across the council are tagged according to the Popolo open government standard, and then made available via an open API called OpenAhjo. By publishing the decision-making data electronically, developers can use APIs to build applications that notify local residents of decisions made on topics of interest. This API has been used by city employees to more easily search and track progress made by local politicians.

**CASE STUDY: EPISTEMONIKOS**

Epistemonikos is allegedly the most comprehensive database of systematic reviews and other types of scientific evidence about health conditions and treatments. Initially, machine learning algorithms search through the major global health-related databases to generate a list of potentially relevant articles. These articles are then assessed by at least two independent human experts using a Tinder-like app, providing a ranked list of potential evidence datasets to generate the final list. This list is used to inform the Health Ministry of Health in issuing health guidelines within 6 months of the evidence being reviewed. This approach helps to coordinate tasks across diverse communities of schools, communities, and job centers. This approach can help improve collective memory and make it easier to coordinate tasks across diverse communities of schools, communities, and job centers.

**METHOD CARDS**

- **DECK:** CREATE CHANGE
- **CASE STUDY:** OPENAHJO
- **CASE STUDY:** EPISTEMONIKOS
prototyping techniques

The Prototyping Techniques Guide provides a selection of ways to share and test your thinking, to gain valuable feedback and decide what to do next. Prototyping helps test how something looks, feels, works or behaves.

INSTRUCTIONS:

1. Agree with your group what idea(s) you would like to test.

2. Review the prototyping techniques and choose at least one.

3. Don’t spend lots of time discussing the intricacies of your project, jump straight into making your prototype - it will be the quickest way to surface assumptions or gaps.

4. Once you have built your prototype you will want to test it on people - this could be with colleagues at first, but ideally you want to test this with the people who you hope will use it in the real world.

5. Use the Prototype Testing Worksheet (E3) to articulate what you think will happen, and how you will know when it does.

REFERENCE:
INSPIRED BY 100%OPEN PROTOTYPING TECHNIQUES
### Prototyping Techniques

**What do people need to see or feel in order to act?**

| Prototyping Physical Stuff  
| (e.g., products, rooms, components) | Prototyping Information  
| (e.g., apps, signage or leaflets) | Prototyping Interactions  
| (e.g., meetings, calls, video) |

#### Scale Modelling
This is particularly useful for physical space when it’s not practical to build something at full-scale. Scale models can be built out of materials such as cardboard, foamboard, and Lego.

#### Storyboarding
Storyboarding is a very early stage technique for prototyping. Describing the idea as a six-step story helps to consolidate thinking, test stakeholder reactions, and capture feedback.

#### Bodystorming
Bodystorming is a technique of physically experiencing a situation to derive new ideas. It requires setting up an experience - complete with necessary artefacts and people - and physically ‘testing’ it. This is important when an idea relies on physical interaction with a product or between people.

#### Simulation
We use commonly available materials to make something physical to test with people. This isn’t about perfection; it’s all about speed - making a prototype that people can react to and give feedback.

#### Paper Prototyping
Paper prototyping is a quick way to test using pens and paper. This can include mock-ups of how information is organised and shared through to mocking-up click-through screens for a digital interaction.

#### Role Play
Role plays help you to test out thinking by following a script or by improvising (acting out a situation without prior preparation). Instruction cards providing cues such as specific tasks to be carried out, or character motivations, might be provided.

---

**REFERENCE:**
Inspired by 100% Open Prototyping Techniques

**Stage:**
Create Change
**Instructions:**

1. Once you have built your prototype, you will want to test it on people—this could be with colleagues at first, but ideally you want to test this with the people who you hope will use it in the real world.

2. Use the Prototype Testing - Plan Worksheet Sheet to articulate what you think will happen, and how you will test and measure what does.

3. Carry out your test activity, and use the Prototype Testing - Learn Worksheet to capture what actually happened, what you learnt and the changes you need to make.

4. You may have multiple hypotheses you are looking to test through different experiments.

5. Incorporate feedback into a revised design of your prototype and/or project.

---

**Prototype Testing**

The Prototype Testing Worksheet will help you understand what you want to test and capture what you learn.

**Time Frame**

60 - 120 mins

**Group Size**

3 - 8 people

**Materials**

Prototype Testing Worksheet, pens. Use in conjunction with the Prototyping Techniques Guide (E2).
What do people need to see or feel in order to act?

NAME OF PROTOTYPE SOLUTION TO TEST:

NAME OF OWNER:

STEP 1: WE BELIEVE THAT...
(This is your hypothesis about what will happen)

STEP 2: TO VERIFY THAT WE WILL...
(This is the test you will carry out using the prototype)

STEP 3: AND MEASURE...
(This is the metric that will help prove or disprove your hypothesis)

STEP 4: WE ARE RIGHT IF....
(This is what will happen if your hypothesis is proven to be correct)
**NAME OF PROTOTYPE SOLUTION TO TEST:**

**NAME OF OWNER:**

**STEP 1: WE BELIEVED THAT...**
(Your original hypothesis)

**STEP 2: WE OBSERVED THAT...**
(What actually happened)

**STEP 3: FROM THAT WE LEARNT THAT...**
(What worked well, and what didn't)

**STEP 4: THEREFORE WE WILL...**
(The changes you are going to make)
theory of change

The Theory of Change Worksheet helps you to clearly articulate and connect your work to your bigger goal, and allows you to spot potential risks in your plan by sharing the underlying assumptions in each step.

INSTRUCTIONS:
1. Start by noting down the main problem you want to solve, and also your long term vision on the change you want to accomplish.

2. Next work outwards from your defining problem, and towards your long-term impact. Write down the people that have power or influence to address your issue – this could be a small community group or a government minister. Then think about where to start, you may need to find a place, a person or a thing that will be your first port of call. Try to think of some practical steps that you can take to get your key audience to act. Try to keep these as action-oriented as possible.

3. And finally, what would the immediate results or outcomes be? These could be tangible results that help you monitor whether your project is making a difference. List the key outcomes that your activity would lead to; these are the preconditions that you need to realise your vision.

4. As you fill each of the boxes in the worksheet, it is critical to also reflect on the key assumptions that underpin these steps in your project. This may help you to spot potential risks or interdependencies.

TIME FRAME
60 - 90 mins

GROUP SIZE
3 - 8 people

MATERIALS
Theory of Change Worksheet, 1-2 pens, post-its, bluetack

REFERENCE:
NESTA DIY TOOLKIT THEORY OF CHANGE

STAGE:
CREATE CHANGE

E4
theory of change
Who do we need to act and what do we need them to do?

- What is the problem you are trying to solve?
- Who is your key audience?
- What is your entry point to reaching your audience?
- What steps are needed to bring about change?
- What is the measurable effect of your project?
- What are the wider benefits of your project?
- What is the long term change you see as your goal?

Key Assumptions

Reference:
NESTA DIY TOOLKIT THEORY OF CHANGE

Stage:
CREATE CHANGE
INSTRUCTIONS:
1. First, review the six sections of the collaboration agreement and the three main questions in each.
2. Next, with your partner work through all of the questions and agree a joint approach or put in place a process to agree how to address each point.
3. Finally, write up, share and formalise the agreement as required and start collaborating.

collaboration agreement

A collaboration agreement helps initiate strong partnerships. It helps minimise the risks of working with new people. It helps to build trusting relationships and to develop and test the proposition itself. It is project-based and time-limited and sets out the rewards, risks and responsibilities as well as the development milestones for both parties.

TIME FRAME
60 - 120 mins

GROUP SIZE
2 - 10 people

MATERIALS
Collaboration Agreements
Worksheet, pens, post-its
## PROJECT OUTCOMES
- What are the specific objectives of the project for each partner?
- How will each partner measure progress during and afterwards?
- What are the expected next steps after our project is finished?

## PROJECT PLANNING
- What are the key milestones and timelines?
- What is the procedure for changing the plan if necessary?
- Are payments linked to milestones?

## ROLES AND EXPECTATIONS
- Who will be in the steering group and what are their primary responsibilities?
- Who will do what when? How will disputes be resolved?
- Who will be responsible for communicating between partners?

## SHARED RESOURCES
- Who will lead and allocate resources to each part of the plan?
- What resources will be needed and who will supply these?
- What are the main benefits and costs for each partner?

## OPERATING MODEL
- What is the primary nature of the relationship between parties (joint venture, licensing, partnership etc)?
- How can we test and develop the model throughout the project?
- What is the procedure for modifying it if necessary?

## INTELLECTUAL PROPERTY
- What is our approach to managing intellectual property (creative commons, licensing, acquisition etc)?
- Do we need a legal agreement to formalise the collaboration?
- What will we tell the outside world about what we are doing?
To make sure your dataset or analyses are taken up by others you should provide as much information as possible about your data pipeline. This activity will help you think about which features of your dataset are important to log. It is particularly useful if you are planning to collect new data as part of your project.

**TIME FRAME**
45 mins

**GROUP SIZE**
3-5 people, 1 person to act as facilitator

**MATERIALS**
Dataset Nutrition Label Guide, post-its, 1 x pen per person, bluetack

**INSTRUCTIONS:**

1. In your team, spend 5 minutes discussing and identifying all of the new datasets you will be creating as part of your collective intelligence project.

2. Working individually or in pairs, take 5 minutes to write down as many features of a dataset that you think would help to describe its contents to others who would want to use it. Use post-its.

3. Discuss the features you identified with the rest of your team. Did you end up with the same answers? What were the differences? Explain why you think they are important to know for future users of the data.

4. Guided by the facilitator try to cluster the features you’ve identified into 4 categories: Metadata, Provenance, Variables and Statistics. The facilitator should explain what each of these means.

5. Try to use these new categories to come up with any additional features that you have missed. Work as a group.

6. When you have exhausted your ideas, review the completed example in the Dataset Nutrition Label Guide.

7. Finish with a discussion about feasibility. Which information will it be easy for you to capture? How often will you need to update the nutrition label for your datasets?
dataset nutrition label
How will we document our knowledge and make it available for others to use?

<table>
<thead>
<tr>
<th>WHAT TO COVER</th>
<th>SUGGESTED CONTENTS</th>
<th>PROTOTYPE LABEL BY THE DATA NUTRITION PROJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>METADATA:</strong></td>
<td>Filename, file format, keywords, dataset size, missing values, date of creation, license for use. Summary of what your dataset contains and the reason for collection.</td>
<td></td>
</tr>
<tr>
<td>Descriptive information about your dataset.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PROVENANCE:</strong></td>
<td>Source of the data and author contact information.</td>
<td></td>
</tr>
<tr>
<td>Where does the data come from?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Time period over which the data was collected.</td>
<td></td>
</tr>
<tr>
<td><strong>VARIABLES:</strong></td>
<td>A list and description of the different variables in your dataset.</td>
<td></td>
</tr>
<tr>
<td>The features of your data that take on different values.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>STATISTICS:</strong></td>
<td>Min/max value, most frequent value (mode), mean, etc.</td>
<td></td>
</tr>
<tr>
<td>Basic statistics that describe your dataset (for numeric datasets).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Metadata

<table>
<thead>
<tr>
<th>Title</th>
<th>COMPAS Recidivism Risk Score Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author</td>
<td>Broward County Clerk's Office, Broward County Sheriff's Office, Florida</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:browardcounty@florida.usa">browardcounty@florida.usa</a></td>
</tr>
<tr>
<td>DOI</td>
<td>10.5281/zenodo.1164791</td>
</tr>
<tr>
<td>Time</td>
<td>Feb 2013 - Dec 2014</td>
</tr>
<tr>
<td>Keywords</td>
<td>risk assessment, parole, jail, law</td>
</tr>
</tbody>
</table>

**Records** 7214

**Variables** 25

| Laces ent, in culparum nimus dolor atetum que etur? Ipsapisque soluptandi ut ped endelenis ipsus illabo. Ugit eum fuga. Iti ut licium is resequundit apiendis rem iligendant harit officitis nimporu ntumquaeae. Ressimperum con comminimus quatum velendebis excexrovit, omnis comnit ilicients | numerical |
| Ugit eum fuga. Iti ut licium is resequundit apiendis rem iligendant harit officitis nimporu. | numerical |

**Missing Units**

| This dataset contains variables named ‘age’, ‘race’ and ‘sex’. | 15452 (8%) |

**Cj CC-0 .CSV**

7214

25

15452 (8%)
building the team for collective intelligence
What kind of teams work best for designing and implementing collective intelligence projects?

There are some obvious needs in most teams: people who understand data and evidence; people who are good at tapping into tacit knowledge and engaging stakeholders; and people with a strong commitment to delivering results and working to deadlines. It helps to have people with experience across sectors, and if there is a particular field of activity - like sanitation or employment - it obviously helps to have more than one person with some deep knowledge of that field.

The team leader’s job is to make the whole more than the sum of its parts. They need to know enough about the different elements of the work to manage, but above all they need to be good at integrating and making sense of diverse information and making decisions.

The team needs to spend time generating a shared ethos, language and method. Teams need enough diversity to avoid groupthink but not too much, or they fall apart in mutual incomprehension. They don’t all have to be extroverts. Mutual emotional respect and professional respect is vital though.
Typically there will be a core team and then an outer circle of associates or advisers who can be drawn on for more specialised knowledge and experience. You can also ask for access to expertise and resources in partner organisations. For example a national statistical office may be willing to provide some help in finding key facts; a major corporate may be willing to provide some expertise if there is a very specific ‘ask’, such as designing an SMS experiment.

A skills map is a useful way of organising these three concentric circles (team, associates and wider network) covering all the generic and more specialised skills needed to deliver the project. It’s sensible to keep some flexibility in budgets so that if there is an urgent need for a new kind of skill or experience it can be quickly sought out.

**key questions:**

- What (data and people) skills do you already have in your team?
- What expertise do you already have about your issue?
- What skills and expertise are you missing?
- Who could you partner with to expand the skills of your team?
quick ways to boost your group’s collective intelligence
Collective intelligence design is a deliberate process that needs time, resources, and a supportive infrastructure to succeed. It won’t be feasible for every project or problem you’re faced with from beginning to end. But there are plenty of small ways that you can start integrating collective intelligence into your day-to-day practice. We’ve included a few of our favourites exercises below. Try introducing them in your internal team meetings or in the next external workshop you run. You don’t need any technology to use these, beyond some flipcharts and post-it notes. These exercises will help you get comfortable with using collective intelligence and can be the first step towards building the case for larger scale projects.
25/10 crowdsourcing ideas exercise

Rapidly generate and sift a group’s most powerful actionable ideas by spreading and sorting them “out and up” as everyone notices the patterns in what emerges. Though it is fun, fast, and casual, it is a serious and valid way to generate an uncensored set of bold ideas and then to tap the wisdom of the whole group to identify the top ten. Surprises are frequent! Everyone is included and participates at the same time. Everyone has an equal opportunity to contribute.

This exercise uses the collective intelligence of a group to find solutions.

INSTRUCTIONS:

1. Explain the process. For example: “First, every person writes on an index card their bold idea and first step to making it happen. Then people mill around and cards are passed from person to person. ‘Mill and Pass only. No reading.’ When the bell rings, stop passing cards. Each individually rate the idea/step on your card with a score of 1 to 5 (1 = low, 5 = high) and write it on the back of the card. This is called ’Read and Score.’ When the bell rings, cards are passed around a second time. ‘Mill and Pass’ until the bell rings. We’ll repeat this cycle five times.” 3 min.

2. Demonstrate one exchange-and-scoring interaction using a sample index card to clarify what is expected during the milling, namely no reading of the cards, only passing the cards from person to person so that each person has one and only one card in hand. The process can be confusing for some people. 2 min.

3. Invite each participant to write a big idea and first step on his or her card. 5 min.

4. Conduct five 3-minute exchange-and-scoring rounds with time for milling (and laughing) in between. 15 min.

5. Ask participants to add the 5 scores on the back of the card they are holding.

6. Find the best-scoring ideas with the whole group by conducting a countdown. Ask, “Who has a 25?” Invite each participant, if any, holding a card scored 25 to read out the idea and action step. Continue with “Who has a 24?” etc .... Stop when the top ten ideas have been identified and shared. 5 min.


REFERENCE: LIBERATING STRUCTURES
yes, but exercise

This method helps to increase individual participation and clarify opinions during group debates. It enables people to explore and develop their views, behaviour and attitude in response to a topic. It also helps to give some structure to debate that may otherwise dissolve into chaos.

This exercise uses the collective intelligence of the group to make decisions.

**INSTRUCTIONS:**

1. Display the relevant statement on which there is likely to be a range of views.

2. On the wall spread out the following signs from left to right: No; No, but; Yes, but; Yes

3. Give a little time for each person to reflect on their position on the statement.

4. Invite all participants to stand by the sign that represents their view.

5. Facilitate debate. It can be good to start with someone who’s view is in a minority, or someone who tends to contribute less, and ask them to argue their case.

6. Encourage movement if people find themselves being swayed by others arguments.

7. Consensus is not necessary but can be sought through suggestions for change to the wording of the suggested statement.

   **Note:**
   *Encourage people to explain their own view rather than going along with dominant opinion and to challenge and modify the original statement rather than try to force consensus.*

**TIME FRAME**

30 - 60 mins

**GROUP SIZE**

10 - 40 people

**REFERENCE:** Inspired by VSO, Participatory Approaches: A facilitators guide
appreciative inquiry

In less than one hour, a group of any size can generate the list of conditions that have led to its, or a project's, success. You can liberate spontaneous momentum and insights for positive change from within the group as “hidden” success stories are revealed. Positive movement is sparked by the search for what works now and by uncovering the root causes that make success possible. Groups are energized while sharing their success stories instead of the usual depressing talk about problems. Stories from the field offer social proof of local solutions, promising prototypes, and spread innovations while providing data for recognising success patterns.

The exercise uses the collective intelligence of the group to learn and adapt.

TIME FRAME
30 - 60 mins

GROUP SIZE
10 - 40+ people

MATERIALS
Chairs for people to sit in pairs face-to-face, Paper for participants to take notes, Flip chart to record the stories and assets/conditions

INSTRUCTIONS:

1. Describe the sequence of steps and specify a theme or what kind of story participants are expected to tell. 3 min.

2. Ask, “Please tell a story about a time when...”

3. Ask participants to pair up preferably with someone they don’t know well. In pairs, participants take turns conducting an interview and telling a success story, paying attention to what made the success possible. 7–10 min. each; 15–20 min. total.

4. Invite pairs to join with another pair. In groups of 4, each person retells the story of his or her pair partner. Ask participants to listen for patterns of the conditions or assets that supported success and to make note of them. 15 min. for groups of 4.

5. In plenary, collect insights and patterns for the whole group to see on a flip chart. Summarize if needed. 10-15 min.

6. Ask, “How are we investing in the assets and conditions that foster success?” and “What opportunities do you see to do more?” Use 1-2-4-All to discuss the questions. 10 min.

REFERENCE: LIBERATING STRUCTURES
exercises to communicate the idea of collective intelligence
If your organisation is just starting to think about collective intelligence, or you are running a workshop for people new to the concept, you might find these two exercises useful. Use them to bring the concept to life and help people relate it to their everyday experiences.
blind man and the elephant exercise

This activity will help people understand that collective intelligence involves combining diverse viewpoints to build a more complete picture of a situation.

This exercise is inspired by a traditional folk tale from India. It illustrates how individuals can have many different interpretations when asked to describe the same thing. In the original story, six blind men have different explanations when they are asked to describe an elephant based on what they have heard about elephants from other villagers.

Even when they encounter a real elephant, each man is only able to ‘see’ what he already believed to be true.

They continue to disagree until Rajah reminds them “Perhaps if you put the parts together, you will see the truth”. The story acts both as a warning against confirmation bias and a reminder of the value of perspective awareness. Collective intelligence is built up by combining many unique views of the world based on personal experience, language, and culture.

INSTRUCTIONS:

1. Read *The Blind Men and the Elephant*, a folk tale from India. You may want to read it out or let participants read it themselves.

2. After sharing the story, use the following questions to guide a group discussion about how different perspectives can enhance the collective intelligence of a group and the relevance for tackling complex problems. 
   
a. Do problems like this happen in real life? Think of times when a project failed because people saw situations from different points of view, or when only some people’s views were considered. Describe what happened.

   b. What if the men in this story were not blind? Would they still have different perceptions about elephants? Why or why not?

   c. Does the story give you any ideas about how these problems can be solved? Refer to the Overcoming Biases Guide (p.152) and Crowd Facilitation Guide (p.154) for advice on how to surface unique perspectives in group discussions.

3. Introduce participants to the collective intelligence design principles and use as a basis for discussion around the benefits of trying to harness collective intelligence and why it needs conscious orchestration.
THE BLIND MAN AND THE ELEPHANT

Long ago six old men lived in a village in India. Each was born blind. The other villagers loved the old men and kept them away from harm. Since the blind men could not see the world for themselves, they had to imagine many of its wonders. They listened carefully to the stories told by travelers to learn what they could about life outside the village.

The men were curious about many of the stories they heard, but they were most curious about elephants. They were told that elephants could trample forests, carry huge burdens, and frighten young and old with their loud trumpet calls. But they also knew that the Rajah’s daughter rode an elephant when she traveled in her father’s kingdom. Would the Rajah let his daughter get near such a dangerous creature?

The old men argued day and night about elephants. “An elephant must be a powerful giant,” claimed the first blind man. He had heard stories about elephants being used to clear forests and build roads.

“No, you must be wrong,” argued the second blind man. “An elephant must be graceful and gentle if a princess is to ride on its back.”

“You’re wrong! I have heard that an elephant can pierce a man’s heart with its terrible horn,” said the third blind man.

“Please,” said the fourth blind man. “You are all mistaken. An elephant is nothing more than a large sort of cow. You know how people exaggerate.”

“I am sure that an elephant is something magical,” said the fifth blind man. “That would explain why the Rajah’s daughter can travel safely throughout the kingdom.”

“I don’t believe elephants exist at all,” declared the sixth blind man. “I think we are the victims of a cruel joke.”

Finally, the villagers grew tired of all the arguments, and they arranged for the curious men to visit the palace of the Rajah to learn the truth about elephants. A young boy from their village was selected to guide the blind men on their journey. The smallest man put his hand on the boy’s shoulder. The second blind man put his hand on his friend’s shoulder, and so on until all six men were ready to walk safely behind the boy who would lead them to the Rajah’s magnificent palace.

When the blind men reached the palace, they were greeted by an old friend who worked as a gardener on the palace grounds. Their friend led them to the courtyard. There stood an elephant. The blind men stepped forward to touch the creature that was the subject of so many arguments.

The first blind man reached out and touched the elephant’s coarse tail. “This creature is as sharp and deadly as a spear.”

The second blind man put his hand on the elephant’s limber trunk. “An elephant is like a giant snake,” he announced.

The third blind man felt the elephant’s pointed tusk. “I was right,” he decided. “This creature is as sharp and deadly as a spear.”

The fourth blind man touched one of the elephant’s four legs. “What we have here,” he said, “is an extremely large cow.”

The fifth blind man felt the elephant’s giant ear. “I believe an elephant is like a huge fan or maybe a magic carpet that can fly over mountains and treetops,” he said.

The sixth blind man gave a tug on the elephant’s coarse tail. “Why, this is nothing more than a piece of old rope. Dangerous, indeed,” he scoffed.

The gardener led his friends to the shade of a tree. “Sit here and rest for the long journey home,” he said. “I will bring you some water to drink.”

While they waited, the six blind men talked about the elephant.

*An elephant is like a wall,* said the first blind man. *Surely we can finally agree on that.*

“A wall? An elephant is a giant snake!” answered the second blind man.

“It’s a spear, I tell you,” insisted the third blind man.

“I’m certain it’s a giant cow,” said the fourth blind man.

“Magic carpet. There’s no doubt,” said the fifth blind man.

“Don’t you see?” pleaded the sixth blind man. “Someone used a rope to trick us.”

Their argument continued and their shouts grew louder and louder.

“Wall!” “Snake!” “Cow!” “Carpet!” “Rope!”

Stop shouting!” called a very angry voice.

It was the Rajah, awakened from his nap by the noisy argument.

“How can each of you be so certain you are right?” asked the ruler.

The six blind men considered the question. And then, knowing the Rajah to be a very wise man, they decided to say nothing at all.

“The elephant is a very large animal,” said the Rajah kindly. “Each man touched only one part. Perhaps if you put the parts together, you will see the truth. Now, let me finish my nap in peace.”

When their friend returned to the garden with the cool water, the six men rested quietly in the shade, thinking about the Rajah’s advice.

“He is right,” said the first blind man. “To learn the truth, we must put all the parts together. Let’s discuss this on the journey home.”

The first blind man put his hand on the shoulder of the young boy who would guide them home. The second blind man put a hand on his friend’s shoulder, and so on until all six men were ready to travel together.
**1-2-4 exercise**

This activity will demonstrate how collective intelligence enables you to generate better ideas and more of them faster by tapping into the knowledge that is distributed widely.

Engage everyone simultaneously in generating questions, ideas, and suggestions. You can immediately include everyone regardless of how large the group is. You can generate better ideas and more of them faster than ever before. You can tap the know-how and imagination that is distributed widely in places not known in advance. Open, generative conversation unfolds. Ideas and solutions are sifted in rapid fashion. Most importantly, participants own the ideas, so follow-up and implementation is simplified.

**INSTRUCTIONS:**

1. Begin by asking a question in response to the presentation of an issue. (e.g., What opportunities do you see for making progress on this challenge? How would you handle this situation? What ideas or actions do you recommend?)

2. Then ask everyone to jot down their ideas and answers to the question during a period of silent reflection. 1 min.

3. Generate ideas in pairs, building on ideas from self-reflection. 2 min.

4. Share and develop ideas from your pair in foursomes (notice similarities and differences). Maintain the rule of one conversation at a time in the whole group. 4 min.

5. Ask, “What is one idea that stood out in your conversation?” Each group shares one important idea with all (repeat cycle as needed). 5 min.

6. Ask the group with a show of hands “who felt they came away from that activity with different ideas or insights?” Explain that because the activity engaged every individual in searching for answers we created more ideas and more diverse inputs, we created a safe space for everyone to contribute. In doing this, we harnessed the collective intelligence that is in this room.

7. If the group’s ideas were too similar or information was not divergent, ask them why might this be? Is it because they chose to only share knowledge that they knew they would have in common, rather than insight that was unique to each of them? Or is it because they all come from similar professional backgrounds or experiences?

8. Refer back to the principles of collective intelligence design - particularly the importance of diversity and allowing everyone to contribute independently.

Tip: if you don’t have a specific challenge or issue that is relevant to your group, consider taking one of the Sustainable Development Goals and ask people about the opportunities they see to make progress on that goal.

**REFERENCE:** *LIBERATING STRUCTURES*

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**TIME FRAME**

15 - 30 mins

**GROUP SIZE**

20 - 40+ people

**MATERIALS**

Bell or timer to announce transitions. Sufficient space for participants to work face-to-face in pairs and foursomes.
PUBLICATIONS


TOOLS


DesignKit: How Might We? http://www.designkit.org/methods/3

Liberating Structures http://www.liberatingstructures.com/


ODI: Data Ethics Canvas https://theodi.org/article/data-ethics-canvas/


Transition Culture: How to run an open space event https://www.transitionculture.org/2008/03/21/12-tools-for-transition-no10-how-to-run-an-open-space-event/


WEBSITES AND BLOGS

Data Nutrition Project https://datanutrition.media.mit.edu/

NOBL: The Decider App https://thedecider.app/

Nesta: Development Impact and You https://diytoolkit.org/

States of Change https://states-of-change.org/

No-nonsense innovation http://www.nonon.co.uk/

100% Open Innovation Toolkit https://www.100open.com/toolkit/
get involved

Send us your collective intelligence examples.

Nesta has been collecting examples of collective intelligence projects and tools across different sectors. Explore our case studies, or add your own via the links below:

**Collective intelligence projects Trello board:**
https://trello.com/b/CdTeRRC6/collective-intelligence-projects

**Collective intelligence tools Trello board:**
https://trello.com/b/vf3cXUVG/collective-intelligence-tools
hack this playbook!

This is only Version 1.0 of the Collective Intelligence Design Playbook. We’d love your feedback, comments and suggestions for how we make Version 2.0 better! To contribute, follow the link to the Google Doc version on the Nesta website page for this playbook.

Alternatively, please send suggestions for additional activities, or your versions of hacked activities and completed canvases to collective.intelligence@nesta.org.uk with CI Playbook: Version 2.0 as the Subject Line.