

Common CI challenges	Specific problem	AI opportunity
Making sense of the data	Huge amount of data; many different data sources contain relevant information for a given issue.	 Predictive models that identify patterns and estimate the likelihood of outcomes based on many variables.
	Vast amount of big data from novel sources that are difficult to organise and make sense of.	 Models that classify data into categories and produce structured content.
	High number of options when seeking the best solutions to problems.	 AI systems that match the most appropriate solutions to the problem holder.
Rules for exchanging information and skills	Co-ordination problems in decision-making processes	 AI systems that optimise co-ordination between different options.
	Vulnerability to rapid spread of misinformation and negative content across the community network.	 AI chatbots to reinforce online community norms or automated detection of negative content.
Overcoming human cognitive biases	Need for novel and creative solutions.	 Creative AI that generates unusual and unexplored solutions to well-defined problems.
	Vulnerability to group biases discourages sharing diverse information.	 AI bots to mitigate against bias in groups.
	Inability to focus on common goals and understand/estimate collective benefits or risks.	 AI agents to suggest actions related to collective risks, benefits and goals.
Spanning multiple challenges	Failure to share and extract lessons from rare knowledge and experience to enable collective level learning.	 Machine-learning to identify relevant patterns from past performance to tailor recommendations for learning.
	Need to engage and sustain the involvement of volunteers.	 Tailoring participant training and task allocation based on optimal individual ability.
	Unequal contributions between participants, either due to oppressive dominance or social loafing.	 Bots to facilitate group interactions and encourage contributions from all group members.
	Difficulty in identifying areas of consensus and disagreement.	 Ranking and organising huge amounts of data to understand where overlaps lie.
	Difficulty imagining impacts of local-level actions on systemic issues.	 Simulations that create a model of the issue being discussed or an entire system (e.g. traffic flows in a city).