HARVARD BUSINESS SCHOOL

HARVARD BUSINESS SCHOOL POWERS CROWD ACADEMY SUMMIT WITH SWARM AI TECHNOLOGY

Harvard University's first annual Crowd Academy was a joint venture between Harvard Business School and the Laboratory for Innovation Science (LISH). Crowd Academy gathered nearly 100 of the world's leading academics, organizations and platforms in the field of crowdsourcing.

Harvard is at the forefront of this blossoming field but, as Jin Paik, General Director of LISH noted, "we recognize the need for practitioner focused workshops where we can effectively disseminate knowledge to those on the ground." To that end, Crowd Academy was conceived as a way to empower organizations who want to realize the potential of crowd-sourced intelligence.

In preparation for this important summit, Harvard enlisted Unanimous AI to tap the intelligence of Crowd Academy attendees using our Swarm AI platform. Swarm AI amplifies the intelligence of networked groups by connecting them using real-time AI algorithms. This collaborative process empowers groups to converge on optimized solutions and provides deep insight into why those solutions emerged.

The goal! for! Crowd Academy was to harness the wisdom of academic and industry experts to ***identify best practices*** for implementing ***crowd-sourcedcompetitions*** known as "open innovations". The following study reviews how Swarm AI was used to achieve this goal, and the results that the system of participants produced.

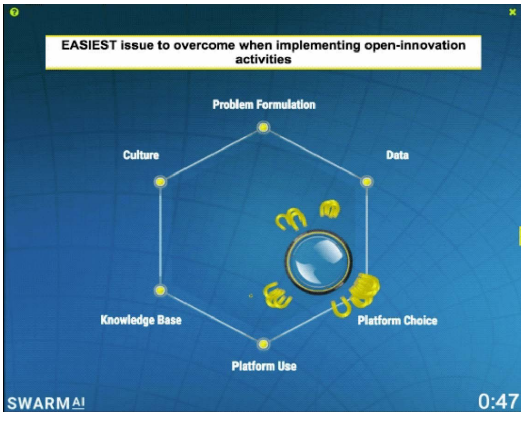
APPROACH

Creating an "Artificial Expert" to reveal insights

Based on the biological phenomenon of Swarm Intelligence, Swarm AI technology connects networked groups of individuals into real-time systems moderated by AI algorithms and turns their diverse perspectives into unified and optimized insights. In other words, Swarm AI turns any group into an "artificial expert", able to tap the collective knowledge, wisdom, and intuitions.

Researchers at Harvard consulted with Unanimous AI to create a concise set of questions for the Swarm AI system, focusing on how best to implement and utilize crowdsourcing initiatives. These questions were aimed at bridging the gap between the vast potential that crowdsourcing contests represent and the organization and cultural barriers that often stand in their way. These questions included:

- What is the most beneficial aspect of crowdsourcing?
- For which problems is crowdsourcing most effective?
- What is most important when implementing crowdsourcing?
- What issues must be overcome during implementation?



To produce the desired insight, a connected "swarm" of Crowd Academy attendees was assembled online before the conference. Participants connected to the Swarm AI platform from around the globe using standard internet browsers at a designated time. Once connected, this diverse group of researchers, entrepreneurs and executives was able to answer questions as a Swarm AI system (i.e. an artificial expert) weighing various considerations to reach optimized solutions.

RESULTS

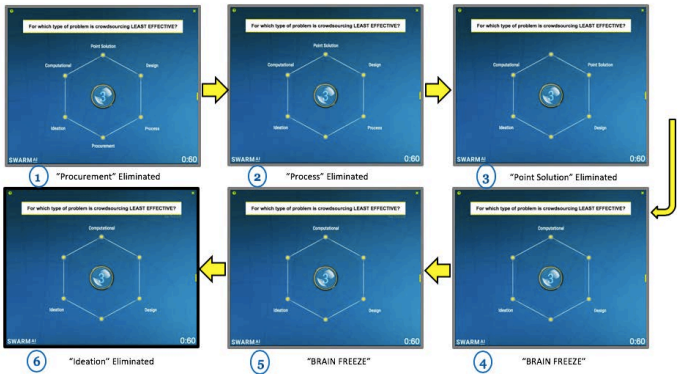
Delivering Trustworthy Insights

The Swarm AI system produced a series of prioritized outputs captured in the chart to the right:

These rankings are the product of an Iterative Elimination Process designed by Unanimous AI to elicit from the group the most accurate ranking of the available options. Legacy methodologies typically ask participants only to identify the "best" option and therefore generate a limited amount of insight into how that option was selected and deny them the opportunity to reconsider their choice.

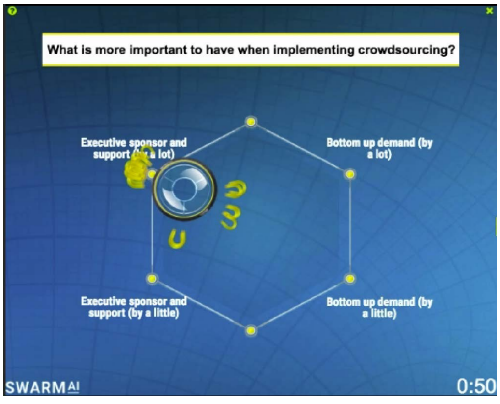
In contrast, the Iterative Elimination Process compels participants to consider and eliminate weaker options in order, as opposed to all at once. As a result, this process ensures that participants are able to evaluate the eventual selection against all other options the maximum number of times before a final output is achieved.

How big a barrier to open innovation?	Rank	How effective is crowdsourcing for this problem?
Culture	1st	Design (by a lot)
Problem formulation	2nd	Computational
Data	3rd	Ideation
Knowledge base	4th	Point Solution
Platform use	5th	Process
Platform choice	6th	Procurement



The Iterative Elimination Process is just one of the tools available to those seeking insight from the Swarm AI system. In the replay! to the right, the Harvard Swarm compares the importance of Executive-level sponsorship of crowdsourcing projects, to more bottom-up support of the initiatives.

To put those results in context, the Harvard Swarm was also asked to consider unique paired comparisons between Top-Down drivers, Bottom-Up drivers, and Executive-Level sponsorship, creating a series of insights summarized in the chart to the right.

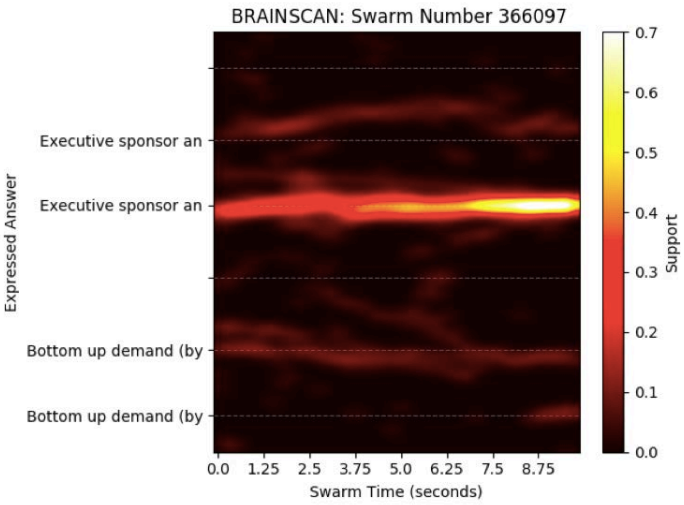


The question, of course, is not simply which driver of support is more or less important but how significant the relative sentiments are. That's where Conviction Analysis comes in.

Rank	Importance of each element to crowdsourcing implementation
Most important	Executive sponsor and support (by a lot)
2nd most important	Top-down mandate
Least important	Bottom-up mandate

CONVICTION ANALYSIS

Naturally, Crowd Academy attendees were interested in the top-line results, but the chosen answers only reveal a small slice of the information captured by Swarm AI technology. What appears to the participants as a relatively straightforward virtual "tug of war" actually involves a complex system of algorithmic feedback that is designed to process the behavioral dynamics of the group's deliberation, tracking the subtle actions of every participant as they react to each other and the AI algorithms.



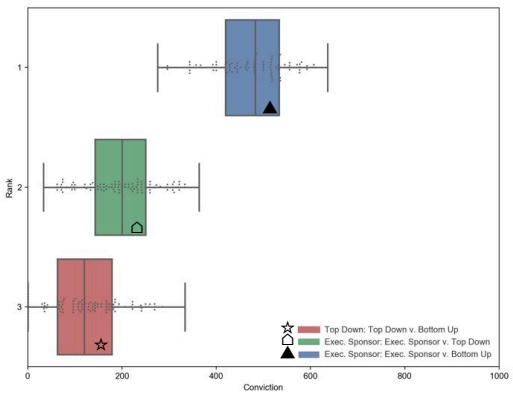
This behavioral data captured is then processed by machine learning, using our Behavioral Neural Network that has been trained on the behaviors of thousands of previous interactions. This enables us to formally assess the strengths of convictions behind each and every answer generated by the Harvard Swarm using what we call a Brainscan.

Comparing the Brainscans for the three different pairs of questions allows researchers to assess the relative conviction amongst the trio, and more importantly, against the massive amount of swarm responses in the database. In the graph to the right, a statistically significant result is achieved when the center line of a given whiskey plot falls outside the colored box of another. As the chart makes clear, the conviction displayed by the blue box representing Executive Sponsorship being preferred. In this way, Unanimous AI's post-processing engine reveals that the paramount importance of "Executive-level sponsorship" is expressed with high statistical significance.

CONCLUSION

Harvard's Crowd Academy gathered some of the finest minds in the field of crowdsourced innovation. In the spirit of open collaboration, Harvard turned to Unanimous to tap into and amplify the intelligence of attendees using our Swarm AI technology. Then, Unanimous CIO David Baltaxe took the stage in the closing moments of the conference to present actionable, quantifiable insight for the group to take home with them.

The intelligence produced by the Harvard Swarm revealed numerous insights, including the clear – and statistically significant conviction – that the key driver to achieving organizational success around open innovation and crowdsourced initiatives would be earning executive level support.



Harvard's goal for the Crowd Academy summit was to "disseminate knowledge to those on the ground." To that end, Unanimous AI delivered a clear set of recommendations and actionable insight - produced by an AI system composed of the attendees themselves - aimed at transforming crowdsourcing's potential into reality.