

Quantitative Crowdsourcing

Glimpse a Collaborative Future by Leslie Fine

This past fall, we collaborated with researchers from MIT and Harvard Business School to develop and launch the Pharmer's Market, a prediction market that aggregates the opinions, insight, and experience of a wide range of pharmaceutical professionals to forecast outcomes of drug clinical trials. The market is designed to be a showcase of how pharmaceutical development could run in the future.

This concept was born when we agreed on a critical premise: Discovery should be a collective process. That isn't exactly how pharmaceutical companies work at present. So the question is how to implement collaborative technologies that can help companies become more efficient and better equipped in the current industry climate. The vast majority of these technologies are qualitative and thus unable to measure anything that really matters. This is where prediction markets have the power to create a fundamental shift in pharmaceutical industry thinking.

How It Works

Essentially, prediction markets gather insight from a broad set of individuals who are "in the know" to forecast key industry metrics using a model similar to the stock market. Participants anonymously place "bets" on certain chosen metrics, and with each bet placed, the odds grow that the consensus "prediction" will prove correct. Although the real accuracy and value of prediction markets continue to be proven, they are resources that remain largely untapped.

Drug pipelines narrow very quickly these days. Although there may be thousands of compounds in the early stages of development, we know that only a handful will actually make it to the market and become generally available. Moreover, only a few of those products will be blockbusters that generate at least a billion dollars in sales. It takes about \$800 million to take a product from concept to customer, so it is not surprising that drug companies continually rebalance their portfolios.

Final decisions on portfolio composition are typically made by governance boards that review evidence presented by product teams to decide which drugs should progress to the next step in development. Although many of the metrics they consider are backed by rigorous analysis of tomes of data, many other key metrics are less concrete. Even marginal improvements in their process could yield significant returns.

By tapping into prediction market technology to quantify the performance of pipeline drugs, drug developers can both quantify technical risk (such as the likelihood of different performance outcomes) and weed out bias (often in the form of unrealistic optimism as a result of the need to secure project funding or just the sheer desire to succeed). With these technologies in place, governance boards would have clearer insights into each compound's viability, leading to more optimal product portfolios.



At the Clinical Trial Stage: Prediction market methodology is also an invaluable source of information in later stages of testing, when human patients become involved. Enrolling on plan is critical because it influences the portfolio composition of a drug company as well as sales and marketing resource allocation. Pharmaceutical companies struggle with this for a number of reasons, including loosely coupled and geographically dispersed trial sites; complex, region-dependent regulations; and limited patient pools. For these and other reasons, 86% of clinical studies fail to enroll on plan.

Using a prediction market solution, companies can forecast enrollment metrics such as enrollment completion and first-patient-in (FPI) date to assess viability before beginning a study. Once the study has begun, key execution metrics such as enrollment completion and attrition can be monitored to refine product planning.

ONE STEP IN A NEW DIRECTION

Clearly, the potential of this kind of quantitative measure is immense. Going back to our original question, or a slightly different version of it: Can metric-based crowdsourcing speed up innovation and success in the world of medicine? We're getting there. Companies are beginning to look to Crowdcast and other next-generation technologies to make their processes faster, more efficient, and more targeted by leveraging previously untapped internal insights. In the meantime, the Pharmer's Market is one of many small steps toward a new way of thinking that will help move the industry to embrace a more collaborative paradigm.

To learn more or sign up for the Pharmer's Market, visit www.crowdcast.com/pharmersmarket. 🌐

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