Prediction Markets at Microsoft

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Agenda

- History of Prediction Markets at Microsoft
  - Platforms
  - Markets
- Lessons learned:
  - Incentives
  - Results
  - Challenges
  - Objections

Prediction Market History at Microsoft

- Information Forecasting Exchange (2003-2006)
  - Microsoft Research (Todd Proebsting)
  - Automated market maker (Hanson's logarithmic MSR)
  - Web hosted text-based stock market interface
- PredictionPoint (2006-Present)
  - Corporate Strategy, now Advertising & Commerce
  - Betting paradigm to reduce user barriers
  - Graphical slider UI
  - No sign-in, left navigation for multiple markets

Microsoft Prediction Markets

- Product Group A
  - Schedule
  - Bug Count
- Product Group B
  - Schedule (x2)
- Product Group C
  - Schedule
  - Quality Metric
- Product Group D
  - Schedule (x2)
- Product Group E
  - Schedule
- Finance Group F
  - Contribution Margin (x2)
  - Retail Sales (x3)
- Product Group G
  - Schedule (x5)
- Finance Group H
  - External company's EPS and Revenue
  - Internal contest submissions
  - Internal contest participation
- Product Group I
  - Hiring Progress (x5)

Participation Incentives

- Cash
- Currency turns into lottery tickets for a prize drawing.
- Top-trader prize
- Top-5 or Top-10 rankings announced
- Who pays for prizes has not been an issue.
- Have avoided leader boards because of concerns about tournament incentive distortion.

Market Results

- Accuracy
  - Schedule markets extremely accurate, sometimes uncannily so. Highest price security is usually event that happens, and if it does not, it is usually one of the events on either side.
  - Other markets accuracy has varied in proportion to trader knowledge and participation.
  - Not enough data for proper scoring, often no forecast for direct comparison.
- Controversy
  - Some schedule markets undermined management and were not considered productive. In one extreme example, the plug was pulled on a market prior to scheduled close.
  - Most groups found markets an interesting experiment. But early adopters have not chosen to incorporate markets into their business after initial trials.
- Overall
  - People enjoyed participating in markets and having a voice.
  - Experimenting with other business metric markets.

Research vs. Business Goals

- Research goals:
  - Introduce prediction market concepts and mechanism
  - Demonstrate prediction market capabilities
  - Make forecasts where no previous forecast was practicable

- Business goals:
  - Make prediction markets easy to use and easy to deploy
  - Strive for integration into group's rhythm-of-the-business
  - Generate business value by improving existing forecasts
  - Generate business value with new forecasts where no previous forecast was practicable

Challenges: All Business Forecasts

- Groups with existing forecasts
  - Experienced in integrating forecast results into business
  - Existing forecast for comparison
  - Frequently no perceived need to improve on existing methods
  - Concern that new methods will perturb existing business rhythms
- Groups without existing forecasts
  - Not sure exactly what to forecast or how to use results of a forecast
  - Often willing to try prediction markets, but resistant to adopting as regular practice
  - Controversial market might not be repeated, but uncontroversial market may fizzle
  - Length of time between market and prize payout an issue.

Challenges: Financial Forecasts

- Pro:
  - Formal forecast part of existing business practices
  - Well defined outcomes and existing forecast for comparison and bracketing.
- Con:
  - No perceived need to improve on existing methods.
  - Frequently little trader knowledge outside of existing forecast data.
  - Prediction markets seen as disruptive to established financial practices and rhythm, especially given reporting rules and culture for publically-traded companies.
  - Participants unfamiliar with probabilities.

Challenges: Sales Forecasts

- Pro:
  - Formal forecast part of existing business practices
  - Well defined outcomes and existing forecast for comparison and bracketing.
  - Competitive participants
  - Knowledge from different domains needs aggregation
- Con:
  - Sales force already employs games like closest-to-pin for competition and entertainment.
  - Competitive high-stress environment means resistance to trying new forecasting techniques – no direct sales impact.
  - Low demand for better forecasting mechanisms.

Challenges: Project Schedules

- Pro:
  - Existing forecasts are usually inaccurate
  - Lots of enthusiastic participation and interest
  - Very accurate prediction market results
- Con:
  - Concern about self-fulfilling late forecasts – one person could conceivably tip project into later forecast bin.
  - Good project managers reluctant to accept schedule except as something under their control.
  - Results visible to all participants, which can result in a situation where management isn't ready with a plan. Very easy to make an accurate forecast but alienate decision makers.
  - Difficult to fit into traditional project rhythms. If a project is on time, no interest. If a project is late, no time. How are results of market used?

Challenges: External Events

- Pro:
  - Many events of broad interest to participants.
  - Events like external product reviews are closely tied to information participants have.
- Con:
  - Concern that market existence and/or results could leak, creating difficult PR situation.
  - Events of broadest interest are often low business value or low internal information.
  - Events with highest business value often have very little trader knowledge, which can disillusion management with regards to prediction markets.

Objections to Prediction Markets

- Insider trading is bad.
- How do I pay for this?
- Why should I pay for this?
- Markets are irrational and subject to bubbles.
- Gambling is bad.
- Games are not appropriate for work.
- We already have adequate forecasts.
- Forecasts create self-fulfilling decisions:
  - Betting on failure leads to failure.
  - Predicting success as an attempt to create good appearance.
- Needing markets is a sign of a dysfunctional organization.
- Markets are anti-management.

Lessons Learned

- Market patrons need to be high enough in organization and committed to carrying markets through to completion in order to demonstrate business value. Markets may need to run despite resistance from middle management.
- Business case studies more important than trial markets. How have markets been used in other divisions to improve their business? Focus on groundwork for repeat customers.
- Prediction markets can be introduced by forecasting something not very controversial. Danger is that things that are not controversial often lead to low participation and/or flat probability distributions. Balance is crucial.
- Big groups not needed for markets to function, but they help a lot in avoiding market fizzles. One strategy: large introductory markets followed by specialized smaller ones. This also helps generate a pool of experienced traders before running critical markets.