AGORA MARKET:
A SOFTWARE APPLICATION THAT MAKES USE OF EMPLOYEES' COLLECTIVE INTELLIGENCE TO IMPROVE DECISION-MAKING

DESCRIPTION OF THE INVENTION

Researchers at the Universitat Jaume I of Castelló have developed a computer program that allows the prediction markets technique to be implemented in firms as a tool for managing internal information and decision-making.

Prediction markets are speculative markets in which the firm's employees or customers are offered incentives to participate anonymously with the aim of predicting future events that are of interest to the firm and the probabilities of their occurring. The individuals buy and sell shares depending on their own predictions and are paid a real sum of money for shares that represent correct predictions. This technique, which is already applied in large multinational enterprises, has proved to be more effective than simple surveys, panels of experts or prediction algorithms.

When somebody has to bet money in favour of a particular idea, they are more likely to make greater efforts to ensure the solvency of their standpoint. Based on this principle, the software application designed at the Universitat Jaume I uses betting markets comprising a number of motivated subjects to predict the probability of a future event occurring. This tool helps firms to obtain information from their employees and customers that is relevant in the making of strategic decisions.

The application Agora Market creates a real market in which the asset is information. This information is held by a group of people, for example employees, that may be few or many in number, and the purpose of Agora Market is to extract it reliably and aggregate it. In that market, users exchange shares, payment of which depends on whether the unknown future events actually happen or not. The management team at the firm thereby obtains a realistic and sincere estimation of the likelihood of a relevant event's occurring or not. Such events may be the shipping of an order before the deadline agreed with the customer or the launching of a new product by a competitor, for instance.

Using the simple example of an election, the way Agora Market works could be outlined as follows: a continuous market of bets on the outcome of the election is generated. In that market, 1 euro is paid per share if candidate X finally wins the election. If the current market price of the chances of candidate X winning is 80 euro cents, then this can be interpreted to mean that the market believes that, at present, candidate X has an 80% possibility of winning.

Thus, Agora Market makes it easier to negotiate assets on predictions proposed by administrators, as if it were the stock market. By negotiating with economic incentives, the subjects with the best information and/or most conviction will be the ones who have the greatest effect on the price of the assets, thus allowing the information aggregated by the subjects to be weighted in order to make better predictions.

Agora Market works on local networks in Windows Vista and Windows 7, and on public networks in Windows Server. The programming languages used to write the application were JSP, HTML, CSS, Java and Javascript.

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SECTORS FOR COMMERCIAL APPLICATION

The technology can be applied in any kind of enterprise from any economic sector and area of industry, since it is a transversal tool targeted towards the management of internal information and decision-making. The technique it is based on (prediction markets) has been applied in technology companies (IBM, Intel, Microsoft, France Telecom, Google, Yahoo), but also in large industrial (Siemens, General Electric) and pharmaceutical enterprises (Eli Lilly).

Some examples of issues that can be addressed by using Agora Market are:

Example 1: Project portfolio

The firm can identify the most promising project within its portfolio in order to optimise resources. For example: is augmented reality a technology that an automobile company should incorporate into its showrooms so as to boost the number of potential visits by customers? This project could compete with others that established the same goal for the enterprise.

Example 2: Control of operational risks

The company obtains an updated opinion about the risk that is accepted in a particular operation, by monitoring it in real time instead of having to ask the firm's middle-management executives for information on a regular basis. In this field it is possible to ask questions about the estimated probability of certain events of a political nature occurring (for example, tax rises), cultural changes, and so on.

Example 3: Strategic plan

It can be a useful tool in evaluating the degree of fulfilment of strategic landmarks for the company or the probability of reaching them within a set period of time.

TECHNICAL ADVANTAGES AND COMMERCIAL BENEFITS

The main advantages of this technology are:

- It allows not only answers of a binary nature, but also questions with a number of possible replies.

- The software application includes a market maker, which is aimed at endowing the market with the liquidity it needs by making public offers to purchase and sell any prediction at any given moment in time and for a particular price. The system calculates that price by means of an algorithm or Market Scoring Rule.

- The tool has proved to be more effective than surveys, panels of experts or prediction algorithms.

- Users can access the tool through different types of devices, depending on the firm's characteristics and interests: workstations, laptops, tablets and mobiles.

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STAGE OF DEVELOPMENT OF THE TECHNOLOGY

The computer program is fully developed and ready to be transferred to a partner interested in marketing it.

INDUSTRIAL PROPERTY RIGHTS

Registered computer program.

COLLABORATION SOUGHT

- Licence agreement for use, manufacture or commercialisation.
- R&D project to finish development or to apply the invention to other sectors.

CONTACT DETAILS
Hugo Cerdà
Oficina de Cooperación en Investigación y Desarrollo Tecnológico
Universitat Jaume I de Castelló
+34 964387487
hcerda@uji.es