
Market-Based Information for Decision Support in Human Resource Development

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Common methods for obtaining and organizing information for evaluating human resource development (HRD) decisions, such as surveys, focus groups, Delphi processes, and discussion at business meetings, can be relatively costly, ad hoc, and difficult to apply. In this article, a review is presented of relatively inexpensive, continuous, and easy-to-apply innovations in information aggregation for examining futures of ideas that are drawn from principles and mechanisms of commodity futures markets. A description is given of how futures markets for ideas have strong applicability to strategic, tactical, and operational decisions about the development, diffusion, and implementation of HRD products and services. Examples are offered for how idea futures markets could support HRD decisions about sales forecasting, product efficacy, project management, environmental scanning, and identification of expertise.

Keywords: *decision making; information markets; evaluation; planning; idea markets*

Humans engage in complex cognitive processes to create visions of the future. Actions are planned contingent upon those visions. Without a doubt, the future is uncertain. As American baseball legend Yogi Berra once said, "It's tough to make predictions, especially about the future" (DigitalDreamDoor, n.d., ¶ 7). Acting on visions of an uncertain future can entail risks. Yet, creating visions of the future and acting on those visions are distinctly human attributes that create a sustainable edge over chaos.

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Planning and decision making in human resource development (HRD) practice require forecasting and acting on visions of future events, activities, and contingencies. For instance, will employers adopt an HRD innovation? Will employees accept this innovation? Will the innovation be effective and cost beneficial? Will sales of a new HRD service generate a desired amount of revenue by a targeted date? Will a project deliver an HRD product on time? If not, how long will delivery delay? What is the chance that sudden calamities, such as electrical failures or acts by terrorists, might damage or disable an organization's HRD systems? What economic, political, and social trends will affect an organization's HRD strategy? Will governments enact legislation that could constrain an organization's HRD strategies and practices? These are the types of questions affecting HRD practice that require firms to forecast uncertain future events and activities. In addition, these questions are quite difficult to answer with any certainty. To be sure, choosing and acting on options facing HRD in the future are more difficult than evaluating HRD outcomes (Swanson, 2001, pp. 26-27).

Obtaining answers to questions about future HRD events frequently involves conducting surveys, consulting focus groups, purchasing opinions of experts, and, that old tried-and-true time trap, holding a business meeting. Some of these techniques require specialized research skills to manage and produce information that, in turn, demands analytical competence to apply in decision settings. In some cases, these techniques are implemented without much deliberation about the quality and appropriateness of the processes they use to aggregate information from target audiences. Moreover, the techniques commonly applied are sometimes so costly and complicated that information is collected just once, not continuously, which often limits the quality and timeliness of information for the decisions made.

Examined in this article is a measurement technique called an *idea futures market* for continuously aggregating information about future events from distributed sources to support evaluation of decisions related to HRD practice. Originally developed in the financial community to operate commodity futures markets, the economic market mechanisms are applied to structure markets for aggregating information about the future. The use of this measurement technique is not extant yet in the field of HRD. However, evidence from other fields of practice about this technique's forecasting accuracy, relative costs, and ability to integrate information from diverse and distributed sources reveals that it holds much promise for supporting decision making in HRD practice.

The asset traded in a commodity futures market is a physical good. For instance, in a commodity futures market, a buyer might contract for delivery of 5,000 bushels of no. 2 yellow corn on March 1 from a seller. By way of contrast, markets that treat information as an asset to be traded are described as *idea futures markets*. An *idea futures market* trades operational proposi-

tions describing the occurrence of an event by a specific, subsequent point in time. That is, ideas are the objects traded. For example, shares in a claim—for example, sales of the XYZ Management Adjustment Scale will generate \$2 million in revenue by the end of the fourth quarter of 2007—are traded with the price of the shares indicating the likelihood that the market participants believe that the proposition is true. The volume of trades reveals the interest that the proposition generates among traders. Idea futures markets are identified at times as prediction aligns information for decision making.

Provided in subsequent sections of this article are (a) a brief introduction to the general structure and concepts of futures markets, (b) a review of the salient features of several existing idea futures markets, and (c) a description of some potential applications of idea futures markets for decision support in HRD. The final section of this article might seem like a long time for the reader to wait for a description of the HRD payoff of idea futures markets. However, the measurement technique reviewed in this article is relatively new and involves an approach founded in economic theory, which is unfamiliar to many HRD practitioners. As a result, the potential of this measurement technique for sharpening HRD decision making is best appreciated after a proper foundation of concepts and methods is established and after review of functioning idea futures markets is conducted.

Structure and Concepts of Futures Markets

A futures contract is an agreement for delivery of an asset at a future date for a specified price (Hull, 2002). The price of a futures contract is settled when buyers and sellers weigh the forces of supply and demand to arrive at an equilibrium position on the value of an asset. The equilibrium price varies, of course, as supply and demand conditions change. Traders in futures markets are motivated by at least three goals (sometimes independently or in combination): (a) profit and speculation, exercising opportunities for a margin of earnings due to price gains over costs of acquiring and holding the futures contract; (b) hedging, guarding against adverse future price changes by locking in current prices; and (c) arbitrage, simultaneous purchasing and selling identical, or nearly identical, commodities in two different markets in the hope of gaining a profit from price differences.

Commodity futures markets are traced to the Middle Ages when they were developed to meet the needs of farmers and merchants facing risks of price variation of grains due to conditions of oversupply or shortage brought on by weather, disaster, war, or politics (Carlton, 1984, provides an extended history). Commodities exchanges came into existence as formal institutions to act as intermediaries between buyers and sellers. The Chicago Board of Trade and the Chicago Mercantile Exchange were established in the mid-19th century in the United States to make markets for buy-

ers and sellers of commodities. Many new commodity exchanges came into existence subsequently. In 1972, the International Monetary Market was established as a division of the Chicago Mercantile Exchange for futures trading of foreign currencies.

Futures markets are one of the most successful financial innovations for trading commodity assets and financial instruments such as currencies, bonds, or equity and debt options. Futures exchanges smooth the communication between buyers and sellers and provide the conditions and rules for trading, all of which is regulated in the United States by the Commodity Futures Trading Commission.

Futures markets not only provide practical trading opportunities, but they also demonstrate some interesting and useful qualities for information aggregation. Economists have long held the belief that markets efficiently collect and disseminate information about goods and services as prices necessary to satisfy both buyers and sellers are discovered. Hayek (1945) generated the hypothesis that, through the price discovery process, markets aggregate the less-than-perfect, diverse information widely dispersed among individual traders and disseminate this information to all traders. This so-called Hayek hypothesis has empirical support from a series of experiments that have illustrated the dissemination of knowledge from the informed to the uninformed as well as the full aggregation of knowledge among partially informed bidders (Plott, 2000, contains a review and summary of the experimental research). Also, the economic theory of rational expectations, originating with Muth (1961) and most closely associated with Lucas (1987), not only acknowledges the information aggregation capacity of markets but also the ability of markets to convey information through the price and volume of assets traded.

The information aggregation mechanism first identified by Hayek (1945) persuades economists to believe that markets are the final arbiters of value and that markets provide a method for harnessing knowledge distributed across their participants. Plott and Chen (2002, pp. 2-3) reported that business pages of newspapers almost daily interpret market behavior as an aggregation of information about future events. Markets are thought to anticipate events like changes in price inflation, shifts in federal monetary policy, or prospects for disruptive events such as war or labor stoppages. In fact, it is often asserted that prices on the futures market for Florida orange juice predict the long-term weather better than scientific weather forecasts. Plott and Chen (2002) further suggested,

Reflecting on every day notions about the way that people learn from observing other people can form a common sense impression of how an aggregation mechanism might work. For example . . . if a crowd is observed looking at something then there is a propensity for additional people to look. The actions of the crowd suggest they know something and others instinctively incorporate this possibility into their own information base. . . . "Insiders," those with bits and pieces of informa-

tion, those with good “intuition” about events are registering their beliefs through their actions in the markets. That is, . . . the markets are like a vacuum sweeper, collecting and aggregating information that is otherwise highly decentralized and privately held. (pp. 2-3)

Idea futures markets exploit this information aggregation mechanism.

Idea Futures Markets

Idea futures markets trade on propositions about whether events will occur and when. The price of the idea traded (a) reflects the belief aggregated over traders that the proposition will be realized, (b) is dynamic in the sense that it is updated continuously based on market activity, and (c) is responsive to the public information as well as subtle perceptions, inside information, and specialized knowledge of idea traders about factors thought to affect the realization of the proposition. Existing idea futures markets operate from electronic exchanges that operate over the Internet to multiply the reach and speed of market mechanisms. Most idea futures markets operate using double-auction trading mechanisms (i.e., many buyers, many sellers, one broker). A brief review of some of the most prominent idea futures markets helps to clarify their mode of operation and the opportunities they provide.

The Foresight Exchange (2004b; see <http://www.ideosphere.com>) bills itself as “the place to test your ability to predict the outcome of future events. It is also the place to check the current odds of upcoming events and make your own bets” (§ 1). About 400 propositions or claims about scientific, economic, political, and cultural futures were available for trade during May 2004.¹ After registration as a trader, a participant in the Foresight Exchange may originate claims and trade coupons on claims by using what the Foresight Exchange describes as *funny money* or *FX-bucks* through a graphical user interface to an electronic networked exchange that matches bid and ask orders from buyers and sellers.

One proposition in the Foresight Exchange (2001), with the ticker name Bush04 (<http://www.ideosphere.com/fx-bin/Claim?claim=Bush04>), makes the following claim:

G. W. Bush, the president of the United States at the time this claim started trading, will still be president on 2005-02-01 (after the inauguration after the election is usually scheduled). (§ 1)

This claim is formed as a declarative statement bounded by a deadline. The following criteria are stated for judging the realization of the claim:

This claim will be TRUE even if elections are postponed or G. W. Bush remains in power by staging a coup. If there are events which make it con-

fusing who the US president is, as of 2005-02-01, this claim is true if G. W. Bush is leading a sovereign government in at least part of the territory of the United States of America (as of 2001-01-01) that has recognition of at least one of the UN Security Council permanent members (Britain, France, China and Russia) other than the United States. (Foresight Exchange, 2001, ¶ 2)

The claim and its criteria stipulate an intersubjective basis for deciding from evidence the truth value of the proposition claimed.

Displayed in Figure 1 are price and volume plots for Bush04 for approximately 3 months cumulative to May 24, 2004. The maximum possible price of a share of Bush04 is \$1.00; the minimum is \$0.00. The price of the claim is interpreted as the probability held by traders about the truth of the proposition, namely, that George W. Bush will be reelected president of the United States in 2004. The volume plot displays the number of shares of the claim traded on any day. Changes in volume reflect increased interest in the claim or reaction to events that affect the claim.

In idea futures markets, traders are motivated to win the game by making an accurate forecast of the eventual outcome (a profit and speculation motive). Also, sharp traders can exploit the information weaknesses of other traders who might be buying too high or selling too low (an arbitrage motive). In this way, arbitragers provide a firewall that shields the market from unrealistically high or low bids on an asset. Of course, especially if tangible funds actually were used in Foresight Exchange transactions, some traders might feel compelled to buy Bush04 as insurance against the possibility of the financial losses that they could suffer if they also held stock in a losing Democratic Party nominee for the presidency in 2004 (a hedge motive; see ticker name Demo04, <http://www.ideosphere.com/fx-bin/Claim?claim=Demo04>, for the Democratic nominee claim on the Foresight Exchange).

The price of Bush04 varies over the period of the plot and summarizes changing beliefs about the likelihood of a Bush win in the November 2004 election. Correlation of the Bush04 price plot with a dateline of significant external events (e.g., changes in the fortunes of the Iraq war or announcement of information about alleged Abu Graib prison atrocities) probably would account for some of these fluctuations. Accordingly, the landscape of the Bush04 volume plot reveals peaks and troughs of interest in the Bush04 claim. Detailed analyses of the buy and sell valences of transactions could help explain rising and falling prices for Bush04. As illustrated from the Bush04 claim, an idea futures market can aggregate information continuously from a wide range of market participants.

Another prominent idea futures market operating currently in addition to the Foresight Exchange is the Iowa Electronic Markets (see <http://www.biz.uiowa.edu/iem/>; Berg & Rietz, 2003; Forsythe, Nelson, Neumann, & Wright, 1992). This idea futures market focuses on proposi-

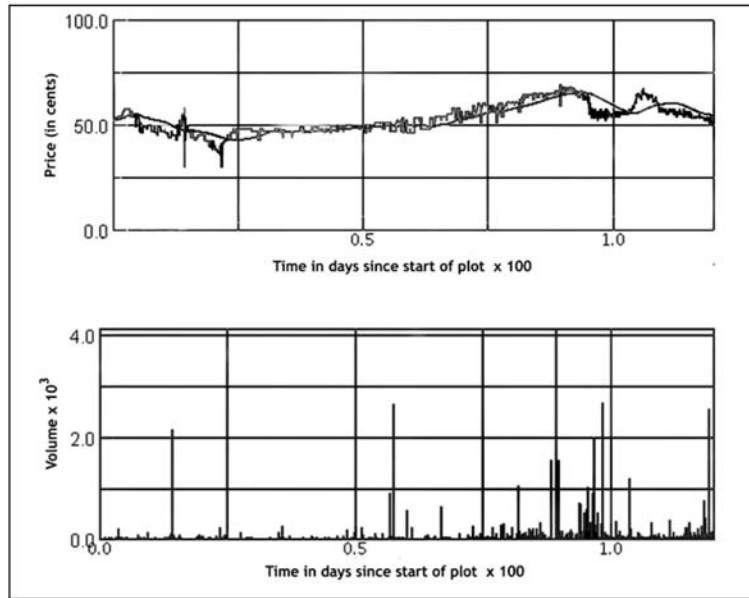


FIGURE 1: Price and Volume Plots for Bush04 Claim on Foresight Exchange on May 24, 2004
Foresight Exchange (2004a).

tions about electoral politics in the United States and operates continuously—24 hours per day, every day of the year.

The Iowa Electronic Markets require trades with participants' actual money (traders must open accounts containing between \$5 and \$500) as opposed to use of fictional currency in the Foresight Exchange. The prospects of actual monetary losses and gains in the Iowa Electronic Markets sharpen the quality of the price discovery process. As the old adage goes, no one spends your money better than you do.

Compared with election polls based on sample surveys, the Iowa Electronic Markets have shown no obvious biases and, on average, have demonstrated remarkable accuracy for large election outcomes in the United States (Berg, Forsythe, Nelson, & Rietz, 2000; Berg, Nelson, & Rietz, 2003). Presidential election markets performed better than lower profile congressional, state, and local election markets. Markets with more volume near election time performed better than those with less volume. Markets with fewer contracts (i.e., fewer candidates or parties) predicted election outcomes better than those with more contracts. These attributes are desirable when the relatively high costs of infrequent political polls versus the relatively low costs of continuous idea futures markets are weighed.

The most controversial idea futures market has been, by far, the Policy Analysis Market (<http://www.americanactionmarket.org/policyanalysismarket.org/>), a market designed for the Defense Advanced Research Projects Agency of the U.S. Department of Defense to aggregate information about the chance of political upheaval and acts of terror as an early warning intelligence system for policy makers. The Policy Analysis Market planned to offer quarterly futures contracts based on data indices that tracked economic health, civil stability, military disposition, and economic and military involvement of the United States in Egypt, Iran, Iraq, Israel, Jordan, Saudi Arabia, Syria, and Turkey; quarterly contracts that tracked global economic and conflict indicators; and ad hoc contracts covering specific possible events (e.g., recognition of Palestine by the United States in the first quarter of 2005 or the assassination of a political leader).

The Policy Analysis Market was cancelled by the U.S. Department of Defense during late 2003 due to the controversial political nature of the speculative propositions that it would consider. The Policy Analysis Market was criticized by politicians in the United States as being more of a “market for death,” “a federal betting parlor on atrocities,” and “an incentive to actually commit acts of terrorism” rather than lauded as a decision tool.² The political fallout from the cancellation of the Policy Analysis Market was a setback—maybe a permanent one—to anyone who might have hoped to use idea futures markets to support government administrative decision making (Abramovicz, 2003).

Other popular idea futures markets include the Hollywood Stock Exchange (box office returns for movies, opening weekend performance, Oscar awards; see <http://www.hsx.com/>) and TradeSports (mainly sporting events but also future legal, political, financial, and weather events; see <http://www.tradesports.com>). The University of British Columbia Election Market (see <http://esm.ubc.ca>) trades contracts on the outcome of provincial or federal elections in Canada. Commercial products for the creation of idea futures markets are available from Market Technology Systems (a spin-off from the Iowa Electronic Markets; see <http://marteksys.com>), Net Exchange (use of sophisticated combinatorial auctions and exchanges; see <http://www.nex.com>), and the Assessment Market by Incentive Markets, Inc. (business intelligence, knowledge management, and organizational development; see <http://66.189.35.235/CDI/assessmark.html>).

Although idea futures markets are capable of aggregating information efficiently, they are susceptible to problems such as market manipulation (Forsythe & Lundholm, 1990; Nöth & Weber, 2003) and the inability to settle on an equilibrium price (Anderson & Holt, 1997; Sharfstein & Stein, 1990). These problems are exacerbated when traders have limited experience with the information being aggregated in the market and when markets are illiquid (i.e., have few buyers and sellers; Sunder, 1992). Indeed, many

decisions in HRD practice are likely to involve small groups of stakeholders.

Chen, Fine, and Huberman (2001) employed Bayesian estimators to integrate prior information about risk aversion into estimates of equilibrium prices in idea futures markets with small numbers of participants. Their process operates in two stages. First, an idea futures market is run to extract risk attitudes from market participants along with the participants' ability to predict a known outcome. Constructed from this information about risk aversion is a nonlinear aggregation function that allows for collective predictions of uncertain events. Second, these same participants engage in a market for an uncertain event. Individual market transactions are integrated using the nonlinear function and are used to predict the outcome of the uncertain event. Use of prior information substantially improved estimates previously obtained solely through the idea futures market for the event. In fact, estimates based on Bayesian nonlinear functions were more accurate than the most accurate individual market traders.

Potential for Decision Support in HRD

Idea futures markets could provide interesting and useful solutions to a number of planning, evaluation, strategic, and project management decisions facing managers of HRD products and services. Suggested here are applications for idea futures markets in HRD practice for forecasting sales of HRD products or services, estimation of the efficacy of products or services, management of HRD projects, scanning of environments in which HRD enterprises function, and identification of expertise about HRD topics. The applications offered do not map the entire space of possibilities for idea futures markets in HRD. Rather, these applications exemplify opportunities that could be captured in HRD practice with idea futures markets.

Integrating Information About the Efficacy of HRD

The gold standard for determining the efficacy of any HRD product or service is the conduct of a true experiment in which subjects are assigned randomly to treatment and control conditions and outcomes are observed. Rarely can conditions of random assignment be met in most actual work settings. In addition, some organizations can scarcely muster the wisdom, resources, or patience to conduct pilot tests of innovations, even under nonexperimental conditions.

Often, organizations turn to expert opinion about the anticipated efficacy of an HRD product or service, or they conduct meetings, polls, use Delphi techniques, and commission in-depth analyses of literature and practice to assemble support for the efficacy of a product or service by analogy, meta-

phor, group consensus, or endorsement. Idea futures markets can provide an alternative to these more traditional techniques by aggregating opinions about the expected impact of an innovation from a wide variety of sources (e.g., customers, experts, workers) using the well-known information aggregation and diffusion properties of markets. Certainly, this approach is no substitute for field tests of products. For example, who wants a cancer drug deemed efficacious and safe by an idea futures market without direct evidence with human subjects? However, many HRD organizations already assume unmeasured risk of something akin to statistical Type I error (i.e., hoping that the product or service is effective when it truly is not) by failing to mount even the most rudimentary field tests. Idea futures markets might prove to be a useful and efficient adjunct information gathering strategy for organizing opinion from experts and others.

Forecasting Sales

Organizations are interested in the likelihood that an HRD product or service will be purchased or adopted. Who better to ask than the people who will sell or distribute the product? Good salespeople have direct contact with customers, and they are familiar with customer needs, culture, sophistication, and preferred patterns of operation. An idea futures market could be established with claims about whether a new or anticipated product might yield a certain level of revenue by a particular date. Such an approach could complement or substitute for typical research techniques for identifying the marketability of a product or service.

A joint research project between Caltech and Hewlett-Packard Laboratories (Plott & Chen, 2002) provided a field test of the use of idea futures markets for sales forecasting. A number of markets were established involving 20 to 30 front-line salespeople who forecasted sales revenues for various Hewlett-Packard products. Six of eight forecasts using idea futures markets outperformed official Hewlett-Packard sales forecasts. This field test was a powerful demonstration of the accuracy of idea futures market methods for forecasting sales of products and services.

Managing Projects

Failure to meet deadlines in development of HRD products or services creates problems throughout the supply chain, production, and sales environments. Also, failure to meet announced deadlines reduces credibility with customers. Idea futures markets could help forecast whether complex design and development projects are likely to meet deadlines and, if not, how long deadlines must extend. Middle managers and planners already focus on these project management problems, but idea futures markets can aggregate information from all parties and partners in the production cycle.

Ortner (1997) designed an idea futures market for Siemens Austria to aggregate information about whether a software development project would finish on time and, if not, the duration of expected delays. Approximately 200 Siemens Austria workers participated in the market for 6 months over the Siemens intranet. To motivate traders, the Quality Management Division of Siemens Austria offered a free cash endowment of 200 Austrian schillings to volunteers willing to invest 100 of their own schillings. Even though few traders had experience with futures markets, most participants acquired skill with market trading protocols quickly.

Ortner (1998) found that the Siemens Austria market participants discovered new information, processed rumors, and uncovered problems affecting project completion more quickly than official sources did. In particular, price and volume changes in the market followed closely after software glitches, production capacity problems, delays created by suppliers, and troubles with product field tests—all without formal meetings and other traditional methods of dissemination of information about project status.

The Siemens Austria test of idea futures markets revealed the value of aggregating project management information from front-line workers who observe and sense problems and opportunities firsthand. At the same time, one potential problem for implementing idea futures markets to monitor project management is the moral hazard generated when motivation suffers due to forecasted failure to meet deadlines or when unethical market participants attempt to manipulate project outcomes or withhold information to make money in the market (Hogg & Huberman, 2002). In some cases, collection and transmission of information about sagging project performance through an idea futures market could reduce the zeal with which project participants perform thereby accelerating the downward spiral of a project, or an unethical trader could provide unduly optimistic information about project progress merely to sell high-price claims that were purchased when the price was low. The Siemens Austria test allowed participants to report instances or suspicions of unethical behavior among market participants. However, research on prevention and identification of manipulation of idea futures markets is needed.

Scanning Environments

Is the market for an HRD product or service affected by political, social, or economic factors external to the organization? This is the type of question typically asked during an organization's strategic planning activity. For instance, an organization might believe that the level of federal educational expenditures is an indicator of the general business climate for its training products. An idea futures market could track and forecast these government expenditures in a formal way.

A National Bureau of Economic Research study (Leigh, Wolfers, & Zitzewitz, 2003) noticed that a TradeSports market for Saddam Securities moved closely with the spot price of a barrel of crude oil. The Saddam Securities asset paid off if “Saddam Hussein is not President/Leader of Iraq by [Date],” with the [Date] substituted over various horizons by key contract dates of December 2002, March 2003, and June 2003. Using the specter of Hussein’s continuation as Iraq’s leader as a proxy for the likelihood of war and disruption in the Middle East, analysts were able to create a derivative security³ indicating that war could raise oil prices by \$10 per barrel, lower the value of U.S. equities by 15%, and bolster gold and energy markets.

Managers of development, diffusion, and implementation of HRD products or services could track idea futures markets for product or service sales conditional on futures markets for regulatory, political, social, or economic factors external to the organization. Futures markets for factors external to the organization might already exist (e.g., in the financial futures market), or construction of a new idea futures markets to serve this purpose might prove useful. An idea futures market provides a way for the organization to aggregate external information that affects product and resource markets critical to the organization’s viability.

Identifying Expertise

Who makes the best judgments of strategic, tactical, and operational matters about development, diffusion, and implementation of HRD products or services? In short, who is an expert? Often, these questions are answered by referring to positional leadership (“She knows. After all, she’s our boss!”), deferring to the elite (“He holds the chair in HRD at Muckity-Muck U. He’s an HRD guru!”), assuming general expertise from specific accomplishment (“He wrote a book about measuring job satisfaction. He must be an expert in organizational development.”), or inferring current expertise from past performance (“He was the leading researcher of on-the-job training in 1980, so he is a respected opinion leader in the field.”). However, expertise is neither general nor immutable. Intuition, situational intelligence, knowledge of niche matters, and quality of experience—and the learning that has occurred as a result—are distributed widely and incompletely among people. Idea futures markets capture, integrate, and transmit this distributed, fragmented knowledge and skill readily.

Because detailed trading transactions most commonly are recorded in electronic brokerages for idea futures markets, the trading behavior and effectiveness of individual traders are known. Chen et al. (2003) noted,

Certain participants . . . can either have superior knowledge of the information being sought, or are better processors of the knowledge harnessed by the informa-

tion market itself. By keeping track of the profits and final holdings of members, one can determine which participants have these talents. (p. 47)

In this way, experts in various aspects of HRD theory and practice could be identified based on the accuracy of forecasts, not by rank or station. According to Kitcher (1990), modern scholarly institutions and popular consciousness often reward popular, fashionable, and timely work that is offered by the eloquent, the articulate, the connected, the well positioned, and the good looking. Acknowledgment of reputation based upon knowledge, skill, and intuition exhibited in idea futures markets might not only allow more egalitarian participation in scholarship, but it also might admit a few new ideas and innovations from outsiders to the mainstream of scholarship in HRD.

Perhaps an interested member of the public, a lowly student, or a scholarly, reflective practitioner exhibits the best knowledge, skill, or intuition about HRD claims made on an idea futures market. Tracking market earnings of individual traders over time produces dynamic, shifting pictures of individual expertise. Performance, not prominence, should count. Hanson (1995) stated the conditions and uses of data about individual trader performance from which measures of trader reputation could be assembled. The Foresight Exchange, whose tagline is “Bet your reputation on the future!” (see header at <http://www.ideosphere.com>), publishes a dynamically updated reputation score and net worth figures for every trader registered.

Concluding Remarks

Idea futures markets capitalize on the properties of economic markets to efficiently collect and diffuse information through the process of price discovery. Commodity futures trade physical assets. Idea futures markets trade shares in propositions about whether an event will occur and when. The price settled on the market for an idea is the likelihood of the eventual realization of a proposition traded. Idea futures markets hold promise for improving strategic, tactical, and logistic information relevant to HRD practice.

Working idea futures markets do not seem to exist in HRD practice. Penn State University is cooperating with the Foresight Exchange to develop a demonstration market for HRD project management that currently is being field-tested (see Penn State Idea Futures at <http://www.ideosphere.com/psif/Trade>). In this field test, faculty and staff members associated with Management Development Programs and Services at Penn State University participate in markets that forecast whether public course offerings will attain sufficient enrollments necessary to meet revenue goals.

Implications for Further Research

Although idea futures markets hold great promise for decision support in HRD, additional research and development are required to implement these markets in HRD practice. The following are among the improvements needed:

1. Concepts and methods for futures markets are well known. Traders in futures markets often manage accounts involving vast amounts of money and receive extensive training in market operations. However, target participants in idea futures markets usually have little experience with futures market trading. In addition, many participants in idea futures markets trade infrequently or during one episode. As a consequence, an important contribution would be the design and development of instruction in the use of complex futures market concepts and operations for relatively unsophisticated and episodic idea futures market traders.
2. Idea futures markets could add value and efficiency to small-group decision making, a common decision setting in HRD. However, additional research on methodologies for use of futures markets in small groups is needed. Applications of Bayesian methods for incorporating prior information to improve final forecasts provide a useful start for such research. Answers are required to questions about optimal group sizes, length and frequency of participation of group members, and mechanisms that small groups, relatively inexperienced in market participation, can and will use to seek information to support their trades on idea futures claims.
3. Assessments are emerging of evaluations of the accuracy of forecasts produced through idea futures markets (e.g., Berg, et al., 2000, 2003; Plott & Chen, 2002). More and varied assessments are needed over decision conditions found in HRD practice and with types of claims that are relevant in HRD settings. Moreover, explicit return-on-investment comparisons of idea futures markets with other data collection and aggregation methods (e.g., surveys, polls, focus groups, expert opinion) would provide information for selection of appropriate decision methodologies.

Notes

1. Just to give a flavor of the diversity and specificity of topics on the Foresight Exchange, here are several propositions active during May 2004: "U.S. retail gasoline fuel prices are equal to or greater than 3.00 USD/gallon on or before 12/26/2005," "A Chinese citizen will walk on the surface of the Earth's moon in a mission carried out by the government of mainland China on or before the Chinese New Year of January 25, 2020," or "Apple Computer will cease to exist as a viable corporate entity by 1 Jan 2005."

2. The controversy surrounding the Policy Analysis Market was front page news in the United States. See, for example, Hulse (2003) who quoted Senator Byron Dorgan, asking, "Can you imagine if another country set up a betting parlor so that people could go in . . . and bet on the assassination of an American political figure?" (p. A1).

3. A derivative is a security whose value is determined (derived) from one or more other securities, commodities, or events.

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