

# Preface

In today's reality, it has become increasingly important to sense values of the events and details of everyday life. For example, a small earthquake may be the sign of a big quake in the future, and we should take careful note in order to prevent or reduce possible damage in advance. Another example is a claim by a picky customer who calls the customer relations section of a company and points out a serious problem in a product. In this case, the section manager should assume that a flood of similar claims may arise in the near future. Even if this assumption is too harsh, he should talk to product designers about the invention of a service or a new design of the product to reduce negative reactions from customers – and from potential customers, who may become loyal customers if they are satisfied with the company's products. In both examples, individuals have to plan a scenario, that is the series of future actions and events by estimating the value of an observed event with respect to the dynamics of the real world.

There are countless examples of events that have had a positive impact on the human lifestyle. When mobile phones first entered the market in the 1990s, they were used only by exceptionally rich individuals and business workers, but then the consumer base expanded to include high school students and finally diffused all over the social spectrum (and the world) as the shapes and functions of the phones evolved. The product designers took advantage of a rare event: exceptionally positive/negative consumer reaction to a new product every time it was produced. The designers used their understanding (or even misunderstanding) of the event to develop functions and designs to satisfy the new requirements, and the consumers reacted to the appearance of new products by creating new lifestyles. In other words, the combination of the cognitive processes of suppliers and demanders brought about the evolution of the market and of the technologies.

Since 2000, we have been organizing workshops and conference sessions on *chance discovery*. Chance discovery is defined in our community as the discovery **of** chance, rather than discovery **by** chance, as we will discuss in Chaps. 2 and 3. A “chance” here means a new event/situation that can be viewed as either an opportunity or a risk. The “discovery” of chances is of crucial importance because they may have a significant impact on human decision making. Desirable effects

of opportunities should be actively promoted, while preventive measures should be taken in the case of discovered risks. In other words, the aim of chance discovery is to provide means for inventing or surviving the future rather than simply predicting the future.

We have developed chance discovery as a research area to figure out how to discover rare or novel events causing potentially significant outcomes. Although an event itself might not be significant, a chance can be linked to the emergence of significant scenarios – a series of actions and events in a coherent context – in the future. The context can be a constraint posed by the requirements of other people, or it can be an intention to achieve a given/created goal. Using computers to visualize relationships among events can enhance the ability of individuals to externalize potential scenarios, enabling them to discover chances and thus contribute to beneficial strides forward in business. We have achieved significant success in the detection of chance by applying our original technologies of data mining/visualization to natural/social events and human behaviors in the field of commerce.

Overall, our methods are based on one basic principle: computers are good at generatively simulating scenarios derivable from countable conditions, whereas humans are good at paying attention to the essential parts of the real world, i.e., the most interesting scenarios. In order to take advantage of both, our method of chance discovery follows a four-step spiral, which has since been used by individuals in the business, political, and scientific fields to improve innovation in their respective domains. This four-step spiral is shown below:

- (1) Collect data from the real world that is explicitly or implicitly affected by an individual's sense of value.
- (2) Analyze and visualize the collected data using computer(s).
- (3) Verbally externalize, i.e., write/speak about, scenarios underlying the visualized structure of the relationships among events.
- (4) Communicate with other individuals, who interpret the same visualization result from different viewpoints, to find the novel value of events at the cross-points of scenarios and to externalize one's own sense of value. Then, return to step (1).

For practical application to real businesses, we used (with creating if necessary) some or all of the following technologies to reinforce each step: artificial sensor devices such as RFID tags for step (1), computational data mining/visualization software for step (2), and Web-based thinking/communicating environments for improving the efficiency of steps (3) and (4).

We interviewed people who have applied our method to manufacturing, services, advertising, marketing, medicine, politics, education, and scientific studies. Our common understanding after these discussions is that ultimately, individuals need to be prepared with basic knowledge about the dynamism of the parts of the society relevant to themselves, and that organizations should have an atmosphere conducive to the never-ending spiral of steps (1)–(4). Also, users should not skip the preparatory phases that come in advance (i.e., before step (1)). In other words, our chance discovery method does not always work if it is not used properly.

Since 2005, we have been expanding chance discovery, which was originally focused on new events significant for human decision making, to include value sensing, particularly in the world of business. As discussed in more detail later in the introduction, the difference between chance discovery and value sensing is that the latter has the potential capacity to deal with a broader range of valuable events. Value sensing can cover events that are high frequency, low frequency, zero frequency (events that have never observed or captured in data), and even events that occur only in the imagination, whereas chance discovery is mainly focused on the values of low-frequency events stored in real-time data. This expansion enables us to obtain innovative ideas from both human minds that are thinking about personal affairs and computers that are dealing with observed events in a natural/social environment.

In this book, we introduce games we have developed to train and activate value sensing in both individuals and groups. We present case studies showing how our *Innovators' Market Game* (IMG) and *Analogy Game* (AG) make the spiral of value sensing easier to execute and more productive due to enhanced human ability. This process of improvement is called the Innovators' Marketplace. "Market" and "Marketplace" are used metaphorically to describe the interactions among users (players) who communicate with each other to create realistic ideas for business strategies. That is, some players invent ideas by combining pre-existing basic individual ideas, while others evaluate the value of those ideas before deciding whether or not to buy. This interaction is primarily activated in IMG, which, our 10 years of experience with chance discovery, has prompted us to propose it as a tool for aiding innovative thought and communication.

IMG enabled participants (whom we call *players*) to both direct and accelerate the process of innovation, which is our ultimate goal. We consider innovation not pure creativity but rather the creation of a product, service, or a system of products and services that will be viewed as of high-positive impact by consumers and potential customers/clients in the real market. We wanted players to not only invent a new idea but also evaluate ideas by considering the existing and potential requirements of consumers. IMG is a realization of this requirement, i.e., inventions and the evaluation of inventions, in the market of ideas. The Analogy Game (AG) is used for enhancing the process of Innovators' Marketplace by being combined with IMG. Here, the users basically play alone, arranging and rearranging words on a two-dimensional display so that new concepts common to multiple words can be externalized. This can be used either as a tool for externalizing hidden concepts underlying popular words (discussed in Chap. 5) or as the pre-process of the Innovators' Market Game (discussed in Chap. 9). Case studies of these games in actual use are presented in Chaps. 8 and 9. Note that we could only publish a few cases from among a large number of successful marketplace applications because practitioners seldom allowed us to reveal successful cases to the public.

After playing IMG, the players start to evaluate created ideas more seriously considering actual business situations and choose ideas that are more likely to succeed as products. In Chap. 10, we describe a Web-based environment we created for continuing the flow of innovative thought and communication. Players utilize this resource after completing IMG in order to continue improving obtained ideas.

We also compare the effects of IMG when used as a board game and when used in a Web-based environment. It will be shown that there are some aspects of innovative communication we can enhance, some on the table and some on the Web. Although the results for Web-IMG are not yet as encouraging as those for the board game version (face-to-face), experimental results have shown us where to direct our future work. They also highlighted the practical aspects of merging the face-to-face version with the computer-mediated one. More importantly, the novel model for interaction between the cognitive spirals of inventors and consumers provides us with a new way to discuss the processes of innovation in which individuals, products, and services connect the two spirals.

In concluding this preface, we wish the reader to understand why it is so important to play games. The Innovators' Marketplace is a marketplace of ideas, where various resources representing value – money, stocks, products, services, individuals, technologies, and knowledge – are exchanged. The voices of inventors, consumers, and investors are added to the flow of these resources to construct and deconstruct new ideas about products, services, and all manner of business scenarios. Such exchanges can sometimes involve serious conflicts, which may discourage participants because of the difficulty of surviving the hard times associated with the inventions, evaluations, and realizations of practical scenarios. What would you want the most in such a situation? If we were you, we would desire a joyful communication atmosphere in order to make our organization a sustainable system of innovation. The joyful air thanks to using games is a source of power that is generated by the Innovators' Marketplace and runs itself. The energy for enhancing, training, and reusing individual's thoughts and communications for innovation can be supplied by this self-productive, positive-feedback engine.

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Innovators' Marketplace

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