# Chapter 13
# Conclusion: Three Stages of the Future Internet

**Ryota Ono and Jenifer Winter**

In this book, a diverse group of futures researchers have explored alternative visions of the future Internet, highlighting key uncertainties that are not well addressed in the current discourse about technology and policy developments. Corporate, academic, and policy visions associated with the future Internet present a techno-utopian view, focusing on the integration of myriad computational objects into the everyday environment in order to enable economic growth, strengthen security, enhance business and government efficiency, and promote environmental sustainability and personal convenience. Contributors to this volume probed the underlying values, beliefs, and thinking that are influencing these futures, and presented a compelling array of alternative visions about the future Internet.

## The Value of Futures Scenarios

As Chap. 1 elaborates, futures studies is an academic discipline that helps us to examine uncertainty about the future. Inayatullah (2002a, b, 2004) discusses three different approaches used in futures studies: *predictive* (empirical), *cultural* (interpretive), and *critical* (poststructural). Each approach has different assumptions about present reality and the future. The predictive approach considers how we can develop forecasts of the future by analyzing complex interactions among key trends and events. The cultural approach does not seek to predict outcomes but offers insight into the future by examining how different groups envision their present

R. Ono (✉)
Aichi University, 4-60-6 Hiraike-cho, Nakamura-ku, Nagoya City, 453-8777 Aichi, Japan
e-mail: ryota@aichi-u.ac.jp

J. Winter
University of Hawaiʻi at Mānoa, 2550 Campus Road, Honolulu, HI 96822, USA
e-mail: jwinter@hawaii.edu

reality as well as future possibilities. This helps us to understand that both present and future images are culture-bound. The critical approach regards the present as a product of those in power, and shows that particular futures are created and promoted to serve their interests. The goals of the critical approach are to disturb present power relations and to make the present less rigid by identifying and challenging the assumptions underlying the present and dominant images of the future. The critical approach investigates how a particular problem is framed to privilege one view over others. Central to the cultural and critical approaches is the notion of *civilizational futures research*. Civilizational futures research makes current categories (i.e., ways of conceptualizing the world that we take for granted) problematic, since they are often based on the dominant civilization. These two approaches inform us that behind the level of empirical reality is *cultural reality* (reflections on the empirical) and behind that is a *worldview* (unconscious assumptions on the nature of the real) (Inayatullah 2002b). All contributors to this book have incorporated both the cultural and the critical approaches into their research about the future Internet.

Examining alternative scenarios helps us to better understand how certain trends and events might work interactively to shape the future. Such an understanding fosters development of a new epistemological framework, which guides us to observe developments as they unfold in the future and to reflect more deeply on their meaning (Heijden 1996). This new futures-oriented framework is more holistic than those developed in other disciplines, as others typically focus on extracting certainty from uncertainty. In contrast, futures studies understands that the future(s) is, by its very nature, uncertain. The greatest benefit of alternative futures scenarios is that they open our eyes to a wide range of uncertainties in the future, allowing us to identify and test assumptions, and respond to challenges more creatively. It is critical that we learn to see the future not as a compilation of randomly occurring trends and events, but as a coherent system in which these trends and events interact with one another (Heijden et al. 2002). The success of an alternative futures scenario depends upon how holistically and comprehensively the reader comes to understand possibilities for the future (Heijden 1996).

## Macroanalysis of Alternative Scenarios for the Future Internet

In this concluding chapter, we perform a macroanalysis of the scenarios presented in the preceding chapters from predictive, cultural, and critical futures studies perspectives.

### *Predictive Perspective*

First, we extract predictive aspects from the scenarios in this volume. Figure 13.1 depicts a map of the relationships between the Internet and three key stakeholders: citizens, states, and corporations.
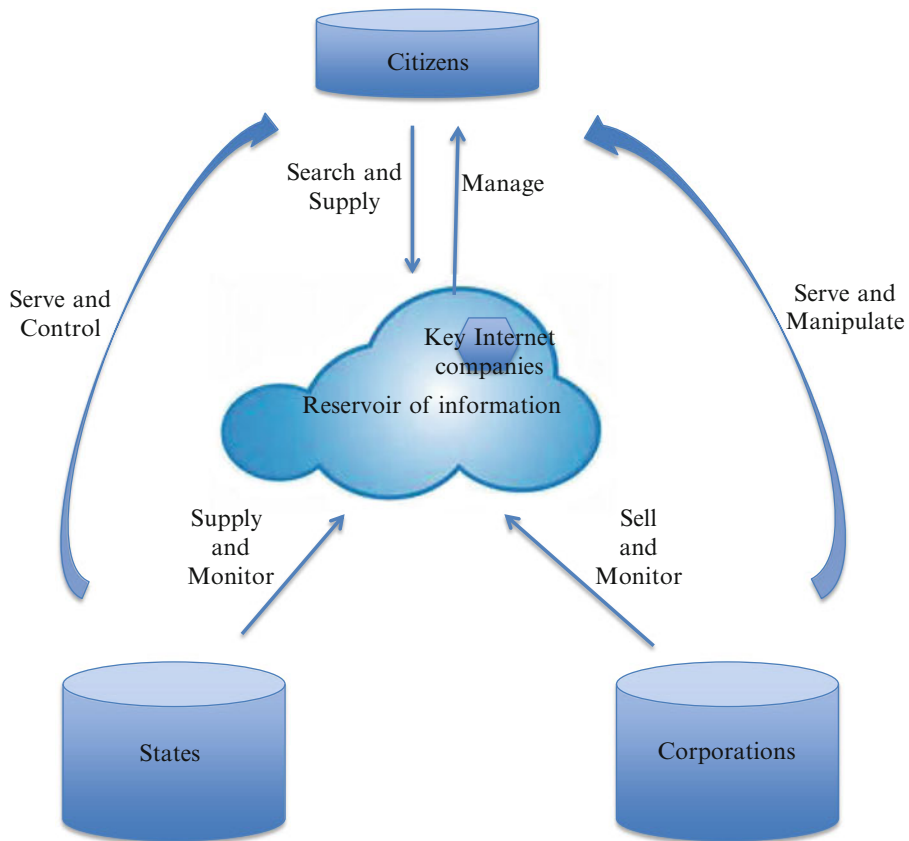
**Fig. 13.1** The Internet as a reservoir of information

From the predictive perspective, it is argued that the condition of the present and near-term future of the Internet might be described as a "reservoir of information." Citizens used to employ the Internet to search for certain information, often locating it free of charge (aside from any connection costs). Key Internet companies such as Yahoo and Google laid out the basis of such a business model on the Internet in the late 1990s. As the number of Internet users increased, Internet companies began to realize the potential capitalization of the information that users leave behind as they traverse the Internet. As such, the Internet has become an important reservoir of information. Nowadays, most citizens are aware that they cannot help but leave information about themselves on the Internet through a variety of daily activities. As the types and quantity of data collected increase, the "reservoir" gets filled with an extensive variety of information, and the intelligence of computers that underlie the Internet is advancing rapidly—some believe that it will soon surpass human intelligence. Gradually, the degree of citizens' dependence on the Internet has

increased and, as a result, we are getting *managed* by the Internet. Concepts discussed in futures scenarios, such as "safety Net," "increased Internet dependence," "a digital meanings society," "infectious connectivity," "split Internet," "autonomously governed communities," "noosphere," "IoT," and "IoE," indicate variations of these relationships between citizens and the Internet.

States and corporations have not missed the opportunity to take advantage of this reservoir of information, as the Internet enables the recording and storage of countless communications and transactions. States are eager to know as much as possible about their citizens, especially about their political attitudes and economic conditions. The 9/11 events in the USA in 2001 made the world realize that a terrorist attack could take place anywhere and at any time. This fear led to states passing legislation to authorize collection and analysis of personal information, ostensibly so that states can prevent the next terrorist act from happening. States, of course, continue to supply useful information for citizens on the Internet. Increasingly, however, they are busy monitoring the information that citizens and corporations gathered during their use of the Internet—things like location data, metadata from phone calls, and relationships gleaned through social media use. States seek to expand their control over citizens, a possibility discussed in the scenarios under concepts such as "surveillance" and "no right to refuse." The possible reactions of those who refuse the increasing control of the state are also described in a few scenarios.

Since the US government decided to let corporations use the Internet for commercial purposes, a variety of business models have emerged in the virtual market of the Internet. At first, corporations were busy selling their products and services on and through the Internet. Gradually, however, they have become more effective at selling their products to choice segments of the Internet market, basing these choices on analytics that exploit the data recorded and stored on the Internet. Corporations continuously monitor the "reservoir of information" and use the necessary information not only to predict customers' buying habits but also to manipulate them to buy their products.

In the present, as well as in some futures scenarios, the status of citizens in the reservoir of information (as represented by the relative heights of the cylindrical objects in Fig. 13.1) is the lowest. A number of scenarios discuss possibilities related to these relationships among citizens, states, and corporations.

## Cultural Perspective

Futures scenarios can also demonstrate the cultural aspect of futures studies. As Inayatullah (2002b) observes:

> Through comparison, through examining different national or gender or ethnic images of the future, we gain insight into the human condition … Learning from each model – in the context of the search for universal narratives that can ensure basic human values – is the central mission for this epistemological approach. (p. 8)
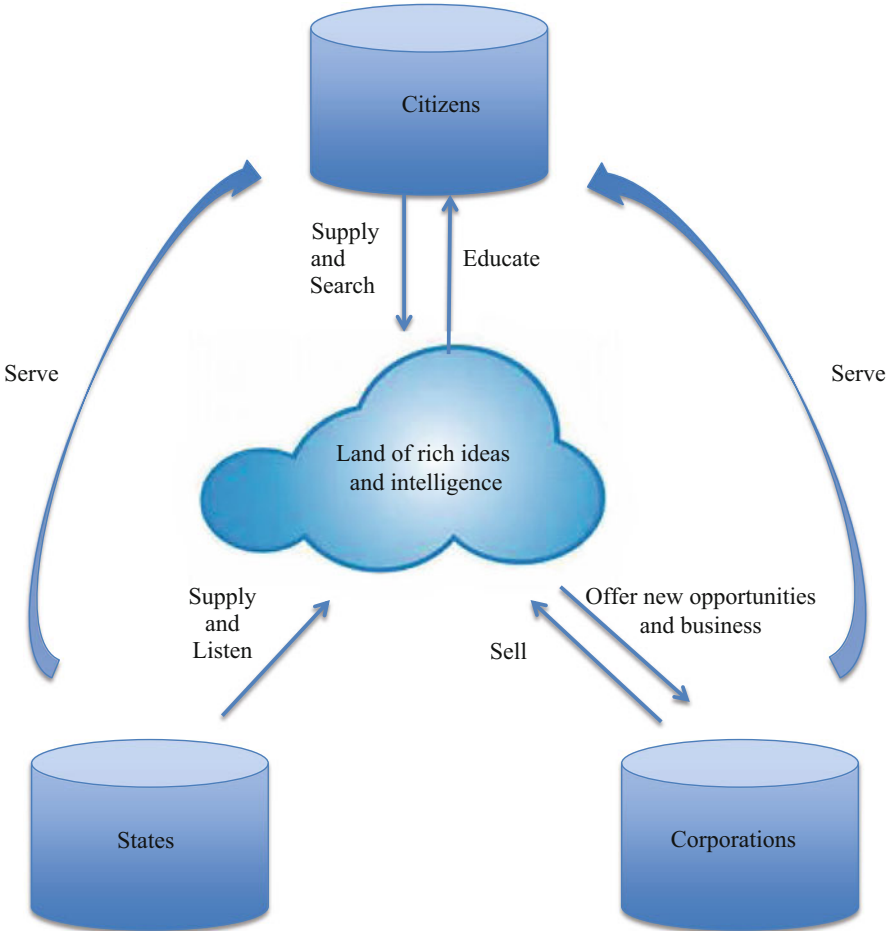
**Fig. 13.2** The Internet as a land of rich ideas and intelligence

Figure 13.2 shows a future map of the Internet in which the cultural role of the Internet is depicted as a "land of rich ideas and intelligence." Some scenarios depict citizens exerting a more significant influence on development of society and, as a result, they begin to actualize untapped potential. These scenarios regard the Internet not as a technology into which humans are assimilated but as the source of political and social innovation. Concepts such as "liquid democracy," "collective intelligence," and "disappearance of various boundaries" are possible stories on this map.

The culture of mechanical information retrieval and secretive monitoring is replaced by a new culture of reciprocal communication with conscience. The basic tenet in these images of the future is that humans are more willing to work together and more capable than they believe. Citizens are more actively engaged in generating, as well as learning from, knowledge and wisdom on the Internet. Instead of

allowing the Internet to manage and shape their behaviors, they find ways to augment themselves in a human-centered way, without sacrificing identity or autonomy. Both states and corporations benefit from the knowledge and wisdom of citizens, and they focus on serving them in return.

From this perspective, the status of citizens in the "land of rich ideas and intelligence" is more balanced with that of corporations and states. Some of the scenarios reflect these potential shifts in power dynamics.

## *Critical Perspective*

The critical perspective helps us to pay attention to a variety of implications of power imbalances among key stakeholders, including not only majorities but also minorities. This perspective argues that the present condition is the product of unbalanced power relationships and that very different conditions could emerge in the future. According to the predictive and cultural perspectives, citizens, states, and corporations are key stakeholders, and the Internet mediates their relationships. Most work, operations, and learning take place through the Internet. The critical perspective leads us to question such a relationship (i.e., the existing condition) and to imagine different scenarios. Figure 13.3 represents a synthetic image of preferable scenarios in the preceding chapters.
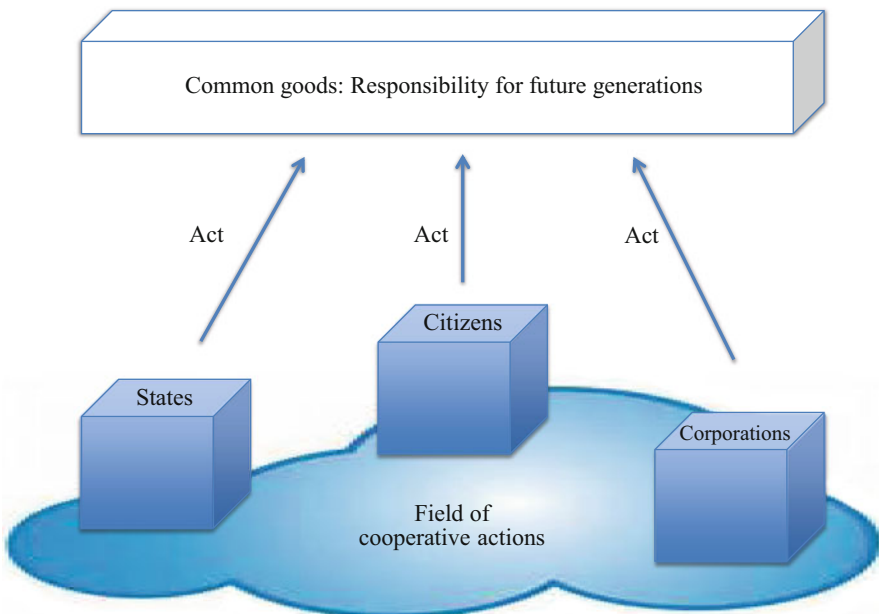


**Fig. 13.3** The Internet as a field of cooperative actions

Some of the authors' preferred scenarios argue for a "Gaia of civilizations," "political culture of deep engagement," or "collaborative practices." Those scenarios aim at achieving something significant for society and humanity: the *continuing proliferation of human civilization* (see Tough 1991). Given that the history and the future of the Internet will be too short to be remembered even ten generations ahead, it is argued that technologies like the Internet, which possess great potential, should not be placed at the center of society but made use of as a powerful base upon which humans can face global and local challenges and carry civilization towards more mutually desirable futures. In such an image, the future Internet is described as a "field of cooperative actions." And by acting together on such a field, humans might be able to find a better understanding of the meaning of our lives on Earth.

## Image of the Future Internet

Polak (1973) argues that a positive image of the future always precedes a positive, real development in that society. Bell (1997) presents an example of this causal relationship between an image of the future and its consequence in the future. The Allensbach Institute in the former West Germany has interviewed a representative sample of 2000 people every December since 1949. One of the questions in the interview schedule asks, "Is it with hopes or with fears that you enter the coming year?" (p. 247). It was found that there had been a striking causal relationship between people's mood towards the next year and the real growth of the GNP. That is, people's anticipation in a certain year has been a strong predictor of the change in economic conditions in the following year. What this finding indicates is that past developments are not necessarily predictors of the future, whereas an image of the future indicates more accurately what kinds of development might be unfolding over time.

Rubin (1998) emphasizes the power of images of the future in perceiving "large and complex wholes" (p. 499). Reflecting on images of the future encourages holistic thinking about problems, and leads us to reflect on institutional contexts and various sociotechnical elements. As we become increasingly comfortable with complexity and the idea that there is no single, right answer, or "right" future, exploring images of the future can hone our analytical ability to locate key driving forces and uncertainties and learn to imagine multiple, alternative possibilities. Masini (2001) has noted that citizens are empowered by becoming aware of the many changes occurring around us and argues that a futures-oriented and interdisciplinary perspective is needed to "empower analysis and actually reflect society in its continuous dynamicity" (p. 637). By stimulating our creative and critical thinking processes, we can improve decision making in the present.

Although present circumstances do constrain the development of future events, the future *can* be influenced by human action. "Even coming events beyond human control can be adapted to successfully if they can be anticipated" (Bell 1996, p. 13). The goal of considering the future carefully and thoroughly is neither to satisfy our

curiosity nor to predict the future accurately. Rather, it is to help us to gain insight into possible futures *in order to make better decisions in the present* (Bell 1997; Dator 1996). A common practice in planning is to examine both the present and the immediate future and determine what actions we must take to fulfill our immediate needs (Tough 1991). What is missing in this process is a careful consideration of the other consequences of taking these actions. Due to multiple interrelationships and contingencies, a decision pursuing just an immediate benefit will very often affect other system elements in the long-term future. It is hoped that the research on the future Internet in this book, using a futures approach and focusing on a long-term view, will help all stakeholders make truly "better" decisions about the future.

# References

Bell W (1996) What do we mean by futures studies? In: Slaughter RA (ed) New thinking for a new millennium. Routledge, New York, NY, pp 3–25

Bell W (1997) Foundations of futures studies: human science for a new era, vol 1. Transaction Publishers, New Brunswick, NJ

Dator J (1996) Introduction: the future lies behind! Thirty years of teaching futures studies. Am Behav Sci 42(3):298–319

Inayatullah S (2002a) Layered methodology: meanings, epistemes and the politics of knowledge. Futures 34:479–491

Inayatullah S (2002b) Questioning the future: futures studies, action learning and organizational transformation. Tamkang University, Taipei

Inayatullah S (2004) Causal layered analysis: theory, historical context, and case studies. Proceedings of the international Asia-Pacific course in futures studies and policymaking. Tamkang University, Taipei, pp 1–52

Masini EB (2001) New challenges for futures studies. Futures 33:637–647

Polak F (1973) The image of the future. Elsevier, Amsterdam

Rubin A (1998) Giving images a chance: images of the future as a tool for sociology. Am Behav Sci 42(3):493–504

Tough A (1991) Crucial questions about the future. University Press of America, Lanham, MD

van der Heijden K (1996) Scenarios: the art of strategic conversations. John Wiley & Sons, Hoboken, NJ

van der Heijden K, Bradfield R, Burt G, Cairns G, Wright G (2002) The sixth sense: accelerating organizational learning with scenarios. John Wiley & Sons, Hoboken, NJ