

Summaries

AI Overview, Transition, and Future Prospects

Akira Otsuki, Toru Sakano

Within the research theme “The impact of artificial intelligence (AI) on industry” (2018 Joint Research Project of the Research Institute of Economic Science, College of Economics, Nihon University), “AI” is defined not in the “pure” sense of fully simulating human emotions and creativity but as machine learning or deep learning that should be used as a “tool for humans.” As a basis for pursuing this research theme, this paper presents an overview of AI, its transitions, and the results of a survey on the impact of AI on industry in July 2018.

Matching Algorithm Using Depth Weighted Core Matching and Dice Similarity Coefficient

Akira Otsuki

Currently, Japan is in the sharing economy era. By sharing information and resources, new value can be created. The Japanese economy is preparing for nomad or remote workers. In the sharing economy era, online matching services are crucial for relaying information to remote workers. Accordingly, in this study, we propose a matching algorithm. Specifically, this algorithm performs two key functions. First, using a thesaurus, it matches categorical variables such as job descriptions to change categorical variables. Second, using the dice similarity coefficient, it matches the categorical variables to certain ranges such as period or cost. Finally, these scores are matched by linear combination.

AI-like control in a queuing system

Hideo Osawa

This paper describes a method for reducing the loss of customer calls being made to a limited buffer-type queuing system.

Generally, in a system where the arrival rate is λ , the service rate is μ , and the number of servers is c (when the utilization rate ρ is such that $\rho = \lambda / c \mu > 1$), the system becomes heavily congested, which leads to a large number of call losses. This paper introduces the results for a queuing system in a congested state $M/M/c/K$ in the basic well-known limited buffer-type queuing system. Particular attention is given to the heavily congested state where $c = 1$, exemplified by the simulation of a state where call losses occur incessantly. Although increasing the buffer capacity seems a likely solution, this paper confirms that this has absolutely no effect on preventing call loss.

Therefore, a new index is defined for alleviating the call loss and a method proposed, based on a Boolean equation (logical formula), for the introduction of AI to control call flow. With this method, a movable (flexible) capacity of the waiting room is enabled and the reception of call arrivals can be determined with a Boolean equation for setting parameters. Based on the above, this method was applied to several cases and enabled a major decline in call loss (with an arrival-call status identical to the simulation stated above).

As this method provides control via setting of parameters, it can be expected in the future to be utilized in a system that instantaneously changes parameter settings in response to system states, based on results likely to be obtained via machine learning.

**Global Integration of Human Resources and Knowledge Creation:
The Digitization of Ship Operations in the Global Maritime Industry**

Satoshi Yonezawa

This study focuses on the digitization of ship operations in the global maritime industry. The conceptual framework of maritime companies developing the digitization technology is discussed from the perspective of knowledge creation. This article also reports the requirements for successful knowledge creation, considering the factors specific to the relevant industry and occupation.

First, this study examines the outline, background, and importance of digitizing ship operations. Second, as a case study, the efforts made towards the digitization of ship operations by major Japanese maritime companies are discussed and organized based on qualitative data obtained from interview research. Third, previous studies on knowledge creation are reviewed and the general conceptual framework and issues around the digitization of ship operations are clarified. Fourth, this paper proposes a conceptual framework for knowledge creation in the development process of digitization technology for ship operations in the global maritime industry at industry, occupation, and task levels. Finally, based on the conceptual framework and the case study, this article discusses the requirements for the successful digitization of ship operations from the perspectives of knowledge integration, facilitation of *Ba*, the transition from socialization to externalization, and management of principle.

Marketing using AI and consumer privacy issues

Shiori Iguchi

The purpose of this paper is to clarify future research topics on marketing that uses artificial intelligence (AI). We first investigated how marketing has changed due to the use of AI. Traditional marketing practice set up “hypotheses,” whereas AI marketing often places emphasis on the collection of “big data,” which includes purchase and browsing histories. With AI, big data is used to discover “division markers” and “characteristic quantities” in data, things that are otherwise impossible for humans to do alone. Thus, in marketing that uses AI, the accumulation of data is expected to open up new marketing possibilities.

Based on the premise that big data accumulation leads to new possibilities in marketing, we next investigated the effects of this accumulation on consumers and society. For platform companies to accumulate big data, they use a “privacy nudge” design in an attempt to manipulate consumer privacy-related responses. This is thought to have led to serious concerns about privacy.

Following this, we analyzed the kinds of arguments required for the alleviation of privacy concerns were analyzed. The point was raised that an asymmetry exists between consumers and companies accumulating big data with regard to “information concerning the use of personal information.” Furthermore, numerous activities are performed online today, which makes it even more difficult for consumers to secure “private spaces” for themselves. In terms of personal information and data on the Internet, the need to demand the “right to be left alone” has been acknowledged.

From the above discussion, future research regarding marketing that uses AI must focus on consumer privacy issues. The disclosure of privacy can also be useful, in that privacy is a kind of social capital, as demonstrated by the #MeToo movement. Various claims about privacy should not be accepted as is, including “privacy has no uses” and “one should not do anything that one does not want other people to know about.” How should consumers’ need for “the right to be left alone” be positioned within marketing and consumer lifestyle? With further development in AI and big data looming, this will be a key issue for future research.

Problematic aspects of AI and big data marketing

Satoshi Egami

The artificial intelligence (AI) society using big data has arrived. AI is causing major changes to marketing strategies. Companies face particular issues regarding social network services (SNS), namely, determining the best uses of SNS within their business management. Meanwhile, major changes are also occurring in our consumption practices; for example, algorithms based on AI have changed communication between companies and consumers. According to marketing scholar Philip Kotler, marketing approaches have changed from “bowling-type” to “pinball-type”—the start of a kind of “indirect marketing.” Corporate management orientations are therefore vectored toward marketing that places a greater emphasis on consumer information than before, which entails prioritizing customer intelligence (CI) data. CI data have become big data owing to SNS and other developments and companies are using AI to analyze such data. This means that even more detailed analyses are being made of both customer and consumer information. Throughout this process, AI is applied not only to consumer analysis but also to “management”—for example, management of company employees. Such management methods are also called “business administration driven by customers” or “internal marketing.”

This paper uses cases from IBM and Calbee, Inc. to discuss the state of affairs as described above. The discussion analyzes existing problems with collecting consumer information that can serve as the basis for management. The results of the data analyses are filtered and screened, and then used by companies to identify customers. The discussion then shifts focus to a researcher, John Cheney-Lippold, associate professor at the Department of American Culture at the University of Michigan, who has made an insightful analysis of related issues in his book *We are Data: Algorithms and the Making of our Digital Selves* (2017). A technical and logical analysis is made of an issue in online marketing, namely, that some consumers are correctly “ascertained,” while errors (“discrepancies”) occur for others, and concrete considerations of specific problem types (“recommendations,” for example) . To conclude, this paper clarifies the problematic aspects of whether or not “real” consumers are being correctly ascertained in current online marketing.

Socio-economic Thought of the *Teikei* Movement and the Early Organic Agriculture in Japan: Overcoming ‘Natural and Human Alienation’

Shihoko Nemoto

This paper has two purposes. First, it introduces a prehistory of the early days of the *teikei* movement in 1970s’ Japan, which was one of the origins of global CSA. Second, it re-evaluates the *teikei* movement as an alternative to the capitalist market economy in the form of a recovery from ‘natural and human alienation’; it does so by introducing the socio-economic thoughts of Yoneo Okada, Yukio Tsuyuki, Teruo Ichiraku and Setsuko Shirone, who were the theoretical leaders of the *teikei*. The re-evaluation of their thought is not meant to address the philosophy behind Japan’s organic agricultural movement and the *teikei*, but it also allows us to learn about their ideals and that of the movement, by which our life is based on living nature and living peoples’ labour. Such approach will make us reconsider our life within the global division of labour and the increasing environmental problems.

Okada conceived his own ‘consumer self-sufficiency/self-defence farm’ inspired by Marx’s theory of alienation. Based on that concept, Okada organised a kind of economic model for the *teikei* and organised its consumer networks, which became one of the foundation of the movement. Ichiraku brought co-operativism and the emphasis on face-to-face relationships based on mutual assistance as an alternative to the capitalist market economy in the *teikei* movement, following the anti-commercial unionism advocated in the 1930s in Japan. Shirone founded Tokorozawa Seikatsumura (‘village for life in Tokorozawa-city’) – a consumer purchasing group of housewives – and aimed to build a community to realise a daily life that excluded chemical pollutants and products made from or by using petroleum products. On the other hand, Tsuyuki did not propose a socio-economic model as an alternative but guided the natural farming method to adapt to nature and called for consumers’ self-reform. His farming way warned that agriculture and life were far from the ‘order of nature’ and urged to reconsider our society from the viewpoint of the mechanism of nature.

The ideal of the *teikei* movement was to connect producers and consumers through food to recovery from ‘natural and human alienation’ – an idea that still has potential to become a foothold for environmental ethics in reconsidering relationship between individuals, society and nature. This is because the ‘face-to-face’ relationship in the *teikei* provides an opportunity for us to know that we are made alive by the natural circulation and the people in it. Food, the most familiar and essential element in our daily lives, is produced by ‘living soil and living people’. At

the same time, consumers, who are aware of this, can support and preserve them. Then, it might be said that the *teikei* movement's early leaders aimed to restore the cyclical relationship between nature and people by uniting them on the idea of 'living food'.

The Politics, the Social, and the Market: Tocqueville, Arendt, and Polanyi

Koichi Kanada

Alexis deTocqueville pointed out two related problems on democracy in his book, *Democracy in America*. One was that the development of equality necessarily entailed the increase of inequality caused by the industry system and competition, which leads to “manufacturing aristocracy” or “aristocracy of money.” Therefore, politics needs to cope with the problem of poverty. The other was that in the future, the “immense and tutelary power” of governmental bureaucracy, which will rule people absolutely and mildly, look after people’s lives, and which people will obey willingly, will emerge.

Hannah Arendt tacitly carried forward Tocqueville’s perspective in her book, *On revolution*. She insisted that by the revolution, the problem of poverty had been introduced to the political realm, and this realm transformed into the social realm, where life was the highest good. However, for her, the original meaning of politics was freedom, not as liberation from necessity, but as participation in politics. Although people were liberated from despotism and necessity, they sought enjoyment in life. They did not become political subjects (citizens), but objects of administration (mass). Because, Arendt said, the problem of poverty could not be resolved by political means, but only by administrative means.

However, it is not that she insisted that true politics should not cope with the social problem. For Arendt, the political and the social were not problems of choice, but problems of priority. Unless people become active citizens, the social problem cannot be resolved by politics, discussion and persuasion. So long as social problems cannot be addressed through political means, they will remain administered and controlled by governmental bureaucracy. Therefore, politics has fallen into the social and has been degraded.

Arendt’s view of the degradation of politics concurred with Karl Polanyi’s study of economic liberalism (the laissez-faire theory), which, in his view, was a movement to enlarge the principle of the market beyond it to the entire society. Consequently, nearly anything was converted into a commodity, and almost all parts of society were made to obey the market principle. In this “market society,” people have to work as laborers and enjoy life as consumers. There is no need to be a citizen. As the “trouble to think” and “difficulty of living” are dispensed with by “an immense and tutelary power” (Tocqueville), people can do without politics and can do with economics, which is the main means of administrators to tame people. To enjoy comfort, people have to be industrious and competent laborers, and wise and appetent consumers.

Considering that neo-liberalism is the successor of Laissez-fair Liberalism, and that globalism is the worldwide enlargement of a market society, politics and the public realm will disappear completely and pseudo-politics, in the guise of economics, will prevail. Then, all people will become “flocks of timid and industrious animals” guided by the administrator as a “shepherd.” This is the conclusion that Tocqueville and Arendt arrived at, via Polanyi.

Formation and Development of Japanese Development Aid Policies, 1954–1971

Makoto Kishida

This paper analyzes the evolution of Japan's development policy from the 1960s to early 1970s from the perspective of its relationship with the domestic economy, Cold War diplomacy, and North-South issues.

Japanese development aid began with its participation in the Colombo Plan in 1954. In that year, Japan also began providing technical assistance as a form of reparations to Asian countries affected by its actions in World War II. Japanese aid policy in the early 1960s was clearly positioned as a means of pursuing Japan's economic interests, promoting exports to Southeast Asia, and developing domestic industry through aid. The Kishi administration established the External Development Cooperation Council to discuss Japan's development aid policy, but the council ceased to function due to the uncooperative attitude of various ministries, which pursued their own aid policy and objectives.

In the 1960s, against the backdrop of the escalation of the Vietnam War, the United States requested broader cooperation with Japan for the stability of Southeast Asia, and the Sato administration responded with a new framework for Japan's intra-Asian cooperation. At the same time, international organizations had created a new formula for development aid, and developed countries were required to expand their aid (1% GNP ratio, 0.7% official development assistance GNP ratio). Furthermore, the rapid economic development and improvement of the balance of payments that were taking place in Japan raised expectations of and demand for Japan's development aid.

To respond to this demand, the government revived the External Council and pursued an investigation of aid policies in the 1970s involving discussions with the public and private sector. Through the Council's discussions, Japan formulated a policy of quantitative expansion of aid, promotion of untying, and mainly technical and private sector aid cooperation. However, the proposal for a unified aid policy and the creation of an implementing agency failed to materialize.