Interview with Shinichi Yamaguchi, Associate Professor at the Center for Global Communications, International University of Japan

Towards a Balanced AI Strategy That Achieves High Productivity, Creativity & a Just Society

By *Japan SPOTLIGHT*

The "Hiroshima AI Process", proposed by Prime Minister Fumio Kishida at the G7 Hiroshima Summit in 2023, is an international consensus-building effort to address the various risks of generative AI and maximize its contribution to the economy and society, and the Japanese government's AI Strategy Council has helped to create a compass for this process. We interviewed one of its members, Shinichi Yamaguchi, associate professor at the Center for Global Communications, International University of Japan, about the focus of future AI strategies.

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Economic Benefits of AI

JS: It is said that AI will transform our lives in the 21st century, and we may be standing on the threshold of once-in-a-century innovation. Let me first ask you about AI's economic impact.

Yamaguchi: One of the most commonly mentioned positive economic effects of AI is increased productivity. Faster data processing and analysis improves the quality of decision-making and simplifies administrative tasks. This in turn increases the productivity of the entire industry. It is already being used in product development, inventory management, and improved customer service. It is also being introduced in Japan, but especially in other countries, where its introduction is considerably more advanced and productivity is increasing.

Furthermore, with regard to generative AI, I believe there is an improvement in creativity. In other words, it can create ideas, or images and videos, that humans would never come up with. It can make plans based on them, or it can create new content by combining images and videos. In other words, a major characteristic of generative AI is that it can be a great help in tasks that require imagination. I think these two things, increased productivity and increased creativity, are what is happening in the world today. In this process, simple tasks and situations where humans have had to make rational decisions may disappear or be replaced by AI, while new tasks and businesses are being created. This could this be a solution to Japan's declining population, but I believe it would be a natural one. In other words, it is a given that the population will decline, and the use

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of AI is a natural solution to this problem. As a result, I believe that the introduction of AI will be promoted and spread throughout the country.

For example, one industry that is experiencing such a phenomenon ahead of others is agriculture. The number of farmers is declining incredibly, and the average age of key farmers is now 67, and they are rapidly retiring with no successors. If this situation continues, Japanese agricultural products will become inedible. On the other hand, because of this situation, the term "smart agriculture" has been attracting attention, and robotization and IT are being promoted.

In the field of agriculture, in the past there was a trend toward mechanization subsidized by the government, which was successful at the time. However, later, when the IT age came, the rate of IT capital equipment in the agriculture, forestry, and fisheries industries in the United States was completely different from the growth rate in Japan, and there was almost no growth in Japan. In the US, the rate of IT capital equipment in 2010 was already seven times higher than the 1995 level. So, there is a big gap between the productivity of the agriculture, forestry, and fisheries industries in the US and Japan.

In the end, however, in the context of trying to deal with labor shortages, smart agriculture is now finally spreading, and agricultural output, which had been falling, has leveled off. This is probably going to happen in various industries. I believe this will happen naturally and that it is inevitable.

JS: Can we assume that AI will stimulate competition among firms and make them very competitive?

Yamaguchi: There must be a difference in competitiveness between companies with AI and those without it. For example, a company that has not installed personal computers is still basically less competitive in any field. The personal computer has become almost like an infrastructure, and in the same way AI will become an infrastructure. If it is not used, productivity will not increase and competitiveness will not grow, so it will be introduced. And since there are an infinite number of ways to utilize AI, I think that companies will focus for some time on how to use it productively in the future. So I am certain that market competition will intensify with the introduction of AI.

JS: Japanese IT may become a bit more competitive through the use of AI. In other words, is it correct to think that platform companies will become easier to create, and as a result of the increase in IT services, the industrial structure will have higher added value?

Yamaguchi: I hope that high added-value services will be developed. It is important to note that, for example, the lack of a platform in Japan is not due to technological inferiority, but rather to a lack of superiority in the way services are created or in business strategies. It is not that Japan does not have the technology to create Facebook, for example. In the end, it was the way the service was designed and the way it was launched on the market that had an impact, and I don't think that is necessarily something that can be solved immediately by using AI.

In the end, I believe that we are not good at providing appropriate services from the consumer's perspective. For example, home appliances have high performance and come with various functions, but the user interface is not necessarily user-friendly. It is often pointed out that Japanese products have various problems, such as not being simple or only adding more and more functions. Naturally, manufacturers understand this and have been making various improvements recently. This is probably one of the reasons for Japan's low productivity and lack of competitiveness.

The same is true for AI. Assuming that AI technology is available, how to make it into a service to people is an extremely important issue. It is important that Japanese companies have an advantage there or can do it well. If they can do it well, I believe they will be able to add high value to the market. If many companies develop a variety of services with good ideas, society as a whole will become richer, and so will the companies. But if Japan is still not good at that, it is possible that we will stumble. That is why we would like Japanese companies always to have a perspective on how to design services, and this is true even if they are trying to increase productivity and creativity by introducing AI within their companies. I think the key to introducing AI is to think about what kind of rules can be created to make good use of it, and to design those rules.

JS: I think that a hierarchical structure is dominant in Japanese corporate organizations, and that seniority lists and lifetime employment still remain in many places. Isn't that contradictory to the exercise of creativity? Wouldn't it be important in an AI society to have a flat organization, a more fluid workforce, and more people transferring to different companies to take advantage of the skills they possess?

Yamaguchi: I think that is a very important viewpoint. Innovation is also less likely to occur due to low job mobility. Also, my research has shown that when the organizational climate is creative, we get more effective use of data. On the other hand, the most common type of organization in Japanese companies was a hierarchical organization, so I think breaking out of this is essential for innovation.

It is said that as a workforce becomes more mobile and more people transfer from one company to another, their salaries will increase, but they will also become more skilled and able to do many things with a broader perspective, and in the process will be able to better utilize AI. Also, if everyone is employed for life, it will be difficult to introduce new technologies. The metabolism of a company is important, after all. Analysis has shown that companies with low metabolism are less creative.

On the other hand, from the company's point of view, the traditional Japanese corporate practice of spending money on training and other programs, because it is based on the premise of lifetime employment and those who learn through such programs are later successful in their careers, has worked well for some time. I think this was partly because employees themselves were more likely to work, and partly because it was easier to make plans due to a sense of stability to begin with. I don't think it is all bad, but certainly in this IT age, lifetime employment has become one of the biggest drags. There is no doubt that too little job mobility has led to a decline in competitiveness, so I think it is necessary to find a good balance between the good and bad aspects.

In the US, many people are laid off because of AI, but in Japan people are not laid off and can only enjoy the positive aspects of simply having their work made easier and more efficient. I think this will contribute to the social acceptability of AI in Japan. But from an overall perspective, the negative effects are still significant, so I think it is necessary to strike a balance and make efforts to further increase employment mobility.

Dealing with the Negative Impacts of AI

JS: In Europe and elsewhere, there is a great deal of emphasis on AI's negative aspects, and the need to regulate it is very much on the rise. In Japan, too, there is a lot of talk about how to make basic legislative allowances for invasion of privacy and fake news. What aspects should be weighed and regulated in this regard?

Yamaguchi: The negative aspects of AI cannot be ignored. However, in situations such as legal interpretation, court cases, and politics, AI judgments may come up with more rational results than those of humans. For example, it has been pointed out that in the US federal courts, judgments often reflect a bias based on the majority political beliefs of the several judges present. However, it is better to have no bias in a court of law. AI analyzing a large amount of data may produce a more rational and fair result than a human.

Politics is the same. Various vested interests can distort political

decisions, but AI does not have such vested interests. So it is not surprising that it may be better for human society if AI makes decisions. I think that the extremely ethical issue of whether we really want a society in which AI makes decisions, and how we should treat AI in such a society, will probably be discussed in the coming decades, such as whether laws should be amended or new ones created.

But I would like us to deal strictly with areas that can be dealt with under existing laws. For example, defamation using deep fake technology will increase in the future, and I would like to see that dealt with strictly under existing laws first. If that proves difficult, then new rules should be created. The government's AI Strategy Council, of which I am a member, is currently talking a lot about such guidelines and rules. These rules should not be overly restrictive, but should be based on the perspective that healthy market competition among companies under appropriate rules maximizes social welfare and does not inhibit innovation. In other words, it is important to take the viewpoint of not strictly regulating anything, but rather to create rules that are based on the premise of utilization, and that appropriately promote the utilization of the system.

I also believe that unemployment due to AI is absolutely inevitable. Historically, when mechanization progressed, there was a lot of unemployment, but only temporarily. Of course, new jobs will be created, so the increased unemployment rate will eventually decrease. But there are always temporary periods when the unemployment rate increases significantly. In order to be able to move quickly toward reducing such pain, it will be important to prepare training venues where people can learn and reskill, and to provide government support for such places, and to create pathways and an environment where, if people lose their jobs due to AI, they can quickly find other jobs.

JS: From what you have said, it sounds like there is a lot of work to be done. I think the government and the private sector must work together with great determination to review regulations and prepare for reskilling. Looking at international discussions, I see that this is gaining momentum in Europe and the US, but how about Japan?

Yamaguchi: I think the Japanese government has been paying a lot of attention. In particular, Prime Minister Kishida has established the AI Strategy Council, and draft guidelines for companies and businesses have already been published. The government may have reached the point where it is in a hurry to get on with things by seeing what other countries are doing, but discussions in society as a whole have not been very prominent yet. I think it is very important for the public and private sectors to work together to discuss this issue.

JS: Innovation should not be stifled, but in order to achieve this I think that a very interdisciplinary discussion must be promoted, bringing together both technical experts and economic experts.

Yamaguchi: I think you are right. From the viewpoint of maximizing social welfare, it is important to have not only legal experts but also experts in technology and economics, and others with various viewpoints. For example, if we impose obligations on AI providers that are so heavy that newcomers cannot enter the market, then some companies will become more and more bloated, and innovation will be stifled.

I would also like to see restrictions on the size of companies and other factors when applying regulations. So, for example, the EU's DSA regulation for platform operators targets only huge platform operators, whether the content itself is good or not. But at least targeting is good.

As for AI, I think that footing the bill by size of company is also an idea. But what is noteworthy about this issue is that even an AI service created by a small venture can have a significant impact if it becomes popular. I understand the argument that platform operators can be ignored if they are small, because they can hardly function as a forum for discourse without a large number of people first. But I understand that this is not necessarily true in the case of AI, which is one of the difficult aspects of the argument. But in any case, we must never forget the issue of not inhibiting market competition and innovation.

JS: Economic disparity is now an issue in many places. As the term "digital divide" suggests, what do you think about the possibility that this disparity will widen, in the sense that those who cannot use AI very well will suffer big losses? Can that also be solved by reskilling?

Yamaguchi: It is possible to talk about a huge gap opening up between those who can use AI and those who cannot. However, the opposite is also possible. In other words, income disparity may not have much to do with the spread of the excellent tool called generative AI, because it is free, has many functions, is very easy to use, and can be used with a smartphone. So it can rather be seen as a tool that allows people who have not studied very hard or accumulated much knowledge to get there in one fell swoop. There are some indications that it has the potential to jump over fixed educational disparities and the like. So perhaps it can be both.

However, it is important to improve general AI literacy because it means that everyone could use generative AI. AI literacy here is not literacy in AI development, but only literacy in using generative AI. Whether this will widen the gap or narrow it is a matter that will need to be closely observed, as it could be both in the future.

JS: In the past, when PCs were introduced, there was a gap between those who could use them and those who couldn't. Does this mean that such a gap may not arise?

Yamaguchi: That is a possibility. If you have a smartphone, install the app first. Even if you can't type, you can listen to it via voice input. That level is fine. Even people who don't have technical knowledge or are not familiar with IT can do it to some extent, so in that sense my view is that it has the potential to rather close the gap in the digital divide.

JS: If regulations have to increase, I think that international harmonization will be necessary, otherwise there will be inequalities among nations. Is international harmonization of AI regulatory laws necessary?

Yamaguchi: That is already true, of course. International cooperation is a prerequisite. The Hiroshima AI process, which the government announced late last year, is just such a story. At the Hiroshima Summit, the ministers of the G7 countries signed the guidelines to be followed, which were drawn up with Japan, the host country, taking the lead. Furthermore, it was promised that the next G7 meeting in Italy would develop discussions based on the Hiroshima AI process. I think it was very good that Japan was able to lead those discussions.

Conversely, without it, it would be very difficult to make rules regarding AI. Therefore, it is extremely important to continue this framework of international cooperation. We do not want to force countries to do so, but I think it is important to agree on important considerations.

The Role of Econometrics in AI Governance

JS: Your specialty is econometrics. As you mentioned, it is important to have balanced and appropriate governance, so evidence-based policymaking is important for this. Is econometrics used for this very purpose?

Yamaguchi: Yes, it can make a significant contribution in terms of quantitative analysis of how AI will affect society, or in providing a scientific basis for policy making and regulation formulation. It is also highly significant to quantitatively analyze the social acceptability, i.e. what people are anxious about with the spread of generative AI, or how society can accept it.

In fact, I am currently doing just such an analysis. I am working with Google JAPAN on a research project called Innovation-Nippon. The two themes for this fiscal year (FY 2023) are "false/misinformation" and "generative AI". Under the theme of generative AI, we are analyzing people's evaluation of social acceptability and its impact on society. I feel that studies such as econometrics are indispensable in clarifying the realities of such areas and considering policies from there.

JS: In that case, I think that data would be important. We should use the most recent data to make a decision, as it wouldn't make much sense if only data from a year or two ago is available.

Yamaguchi: First of all, you are right that data is important. However, we know in the field of AI, and we also know in the field of econometrics, that no matter how big the data is, if there is bias it will not produce very good results. The recent trend is to collect small data, e.g. personal data, but as there is a risk just to have it, there is a lot of discussion around the world about deleting or reducing such data as much as possible and keeping only the data that is necessary.

I think it is important not only to collect data, but also to collect the necessary data with a clear purpose and with a firm view to its utilization.

AI's Impact on Security

JS: Finally, I would like to ask you to answer the following questions. I have heard there is a considerable impact of AI on security, and that there are both positive and negative aspects.

Yamaguchi: I am certain that AI will bring a new dimension to security, as it will undoubtedly be used more and more in the areas of military technology and cybersecurity. I think it means that attackers will become stronger and defenders will become stronger. From my professional field perspective, I believe that false information and misinformation is part of security. In this sense, I understand that the popularization of deep fake technology and public opinion manipulation has greatly changed the times of what is known as information warfare.

I often talk about the "with-fake 2.0 era". I am talking about the fact that while there has always been fake information, it has now become 2.0 in the age of generative AI. It is a fact that false information and misinformation will increase explosively in the future, and there will be much that will be used to influence operations in the context of security. It is actually quite difficult to counter such a trend, and I believe that the spread of technology to determine whether something is created by AI is now required.

Ultimately, what we need is a society where people are aware of what is going on. For example, Meta recently announced that it would label any image if it was created by a generative AI. Right now, it is still labeling only those created by Meta's own generative AI service, but it has declared that it will expand this to those created by various services such as DALL-E. I think this is a very good move, and although the technology to determine whether an image was created by AI or not is available in Japan now, until it is implemented in society and everyone can recognize it, it will not be possible to respond to the rapid increase in fakery in the future. I think it is very important for Japan to develop more countermeasures and implement these technologies in society, and for the benefit of security.

JS: Could cybersecurity and other issues be more serious?

Yamaguchi: I am sure that is true. I can't speak to the details, but as cybersecurity technology improves, so does the attackers' ability to attack, and naturally the defenders must improve as well. Therefore, the threats will probably increase. In terms of security, cyberattacks and information warfare through false information or misinformation will definitely come at the same time. So it will be important for the defenders to use AI in responding to them. **JS**