

Bridging Session

New Trends in the Innovation Policy of Japan —Conversion from Social Value to Economic Value—



Speaker

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Summary

New Trends in the Innovation Policy of Japan

Conversion from social value to economic value

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Title Slide

National Innovation Policies ①

- Overseas policies (Innovate America, Lisbon Strategy etc.)
Objective: To strengthen the competitiveness of each country (region)
Focus on : infrastructure
human resources
investment
- Japanese policy "Innovation 25 Strategy"
Eco-system
Focus on people capable of thinking "out of the box"
Public needs
Safety & Security
Disease-free life
Appreciation of diversified cultures
Solutions to global problems

Slide 1

(Slide 1)

The innovation policies of countries or regions such as the U.S., Germany, and EU are developed and implemented for the purpose of improving national competitiveness against global competition. As such, their focus is on establishing infrastructure, developing human resources and making investments for the purpose of improving competitiveness.

In my opinion, Innovation 25 contrasts sharply with these initiatives in the following aspects;

1. It incorporates the concept of ecosystems in which both collaboration and competition exist among a diverse group of players for innovation,

2. It specifies the type of people required for innovation, namely, people who are unorthodox and therefore capable of thinking “out of the box”
3. It clearly states that innovation should be aimed in the direction of achieving “justice” shared among us and the young generations to come.

These three features are unique to Innovation 25, and set it apart from other national innovation initiatives. At the same time, these three features of Innovation 25 mark a new phase of innovation policies in Japan, as none have been found in the national innovation policies in Japan in the past.

The basic principle of science and technology in Japan had been to forecast the future of technology and to project future life-styles based upon the forecasted technology. However, in the case of Innovation 25, the idea of the public's needs was used as the starting point, with attempts then being made to identify what would be expected of scientists and engineers to meet those public needs. Some of these needs include safety and security, disease-free lives, appreciation of diverse cultures and solutions to global problems. It is my personal belief that Innovation 25 is epoch-making in the history of Japanese national policies in that it clearly states dedication and commitment to the resolution of human problems, regardless of nationality or cultural and other differences.

Innovation, when perceived as the means to lead to national competitiveness, is limited in scope and application. When perceived, on the other hand, as the means to resolve global issues, it has unlimited potential. Innovation 25 shows the commitment of the Japanese government and of the Japanese people to seek social reform. This is a new and unique approach, very distinctive from conventional policies.

Innovation-Past and Future ^②

- Innovation was focused on technological development
- → Measured in terms of convenience
- The new “Innovation” of Japan
 - in addition to “convenience” and “now”
 - in “spiritual” terms, “our mission” with a focus on “the future & our children”
- → Changes in the social system

TSlide 2

(Slide 2)

In the past, innovation has been measured in terms of convenience. I propose that a “new” innovation should be measured in spiritual terms and in terms of the human mission, in addition to the conventional measures of convenience. The time frame of innovation is the future rather than the present, and its beneficiaries should be the next generation, our children.

Here, I would like to introduce the results of an international survey of children to compare the status of the next generation in Japan with those in other countries. The recent survey by Japan Youth Institute shows how Japan is perceived by our own children, the very next generation. The younger generation in the West and other Asian countries have high hopes for the future (65% of children think the future will be better). On the other hand, only 35% of the Japanese children have higher hopes for the future. The vision of Japanese children most widely accepted in the poll is to “live each day happily”. As for children's perception of adults, only 30% of Japanese children think that their parents are living with high motivation. It is possible to portray Japan as a country whose next generation has lost hope or expectation for the future. In other words, our country is one in which our own children have “become increasingly opportunistic” and “adults are tired from their daily lives, and have no mission or vision to live for.” Perceived as such, Japan is in a poor condition in spite of her economic prosperity.

New Vision ③

In spiritual terms, with focus on our Mission for “the future”, and “our children”

- What to preserve as legacy and heritage for the future
- What challenges to excite the youth
- ←Issues facing humanity
 - Environmental issues
 - Culture
 - Mutual understanding, communication
 - Health

Slide 3

(Slide 3)

Here I want to discuss innovation in a new light; i.e. in terms of our mission and spirit. Innovation must not deprive the next generation of either assets or environment. Innovation is meaningless unless it can provide the next generation with hope. It should set the high, aspiring goal of resolving human issues related to the environment, culture, communication and understanding, and health in the sense that all people are able to live good and active lives.

Issues facing humanity ④

- Infectious disease, poverty
- Symbiotic life with nature
 - energy, natural resources, water, atmosphere
- Culture and its diversity
 - Easy access to culture world wide
- Mutual understanding, communication
- Health
- Life without fear of disease

Slide 4

(Slide 4)

Then the question becomes, “How then can we present the next generation with the aspiring mission and goal of resolving global issues? This slide shows some specific items.

Role of the Government ⑤

- Transform innovation with social value to products/services which benefit the public through economic incentives
 - Economic incentives at each step
 - High, challenging goals and targets for the future
 - Leave a legacy and heritage to our children

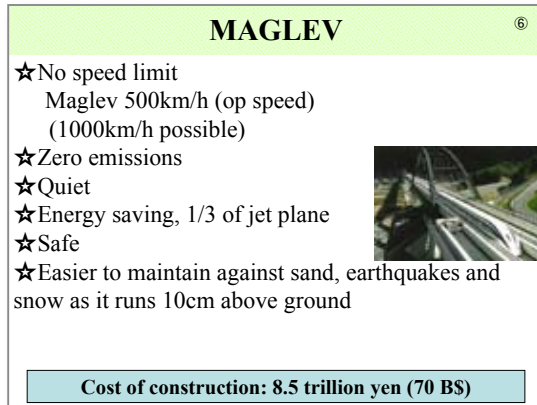
Slide 5

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The next questions we need to address are “How can we convert socially beneficial innovation into a form that society can clearly benefit from?” and “How can we ensure that the economic incentives are there to do so?”

This question of providing economic incentives is important because without them the private sector cannot and will not take action. At the same time, without high and aspiring goals, the younger generation will not join in our effort, and children will not have high hopes for the future. What we need then is to make sure we present the next generation with what we wish to pass on as the legacy and heritage of Japan and to install mechanisms to give economic incentives so that innovation will be realized in the form of actual products and services.

Let me now take the example of the Maglev linear motor car to show how this can be viewed from an economics stand point.



Slide 6

(Slide 6)

The Maglev, a so-called “linear motor car” in Japan, has many desirable features including:

No speed limit

Zero emissions

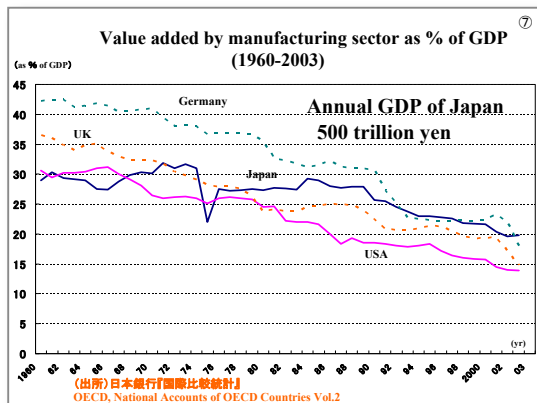
Quieter (in comparison with cars)

Energy saving as it requires approximately one third of the energy of airplanes

Safer (in comparison with conventional railroads as it has a bigger surface to grasp)

Easier to maintain against sand, earthquakes and snow as it floats 10cm above the ground

It also requires large investment. It would cost 8.5 trillion yen (US\$70 billion) to build a Maglev system between Tokyo and Osaka. This investment translates into 80,000 yen per capita. Because of this “huge” cost, many people object to the development of the linear motor car as they perceive this investment to be too large for us to support.



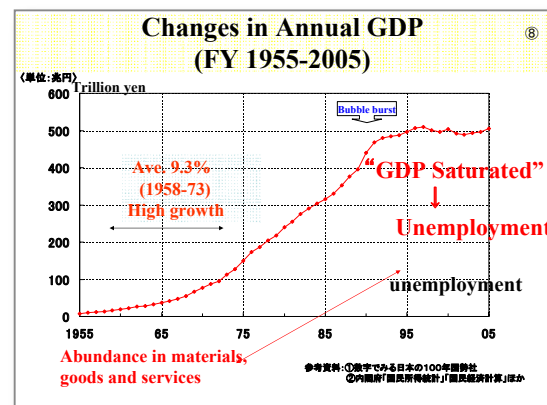
Slide 7

(Slide 7)

In order to discuss whether an 8.5 trillion yen investment would be a waste of money or not, I would like to show the investment of US\$70 billion in a bigger context.

First of all, let us step back to see where Japan stands in the world economy. As this slide shows, the value added by the manufacturing sector as a percentage of GDP has declined steadily since 1960. The ratio for advanced economies has already fallen to the 20% level and has continued to decline. I believe this overall trend of decline will continue in the future.

This ratio is significant in understanding the structure of the Japanese economy. We often talk about Japan's international competitiveness by referring to the manufacturing sector. However, the manufacturing sector accounts for only 20% of its total GDP. It is a fact that 80% of the Japanese economy is determined by sectors other than the manufacturing sector.

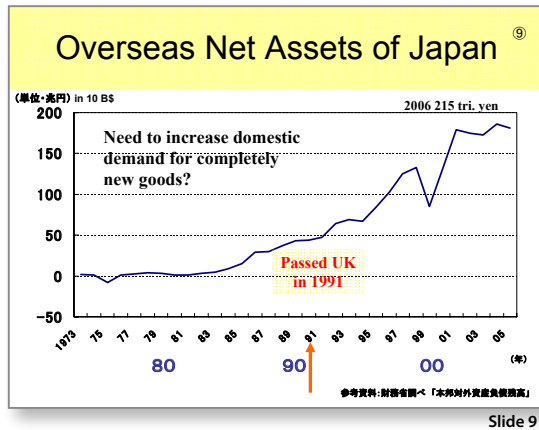


Slide 8

(Slide8) shows that the GDP growth of Japan saturated some 15 years ago, with little growth taking place since that time. From this figure, we can see that Japanese society today is facing the problem of “saturation of needs” with enough supply of materials, goods, food and services.

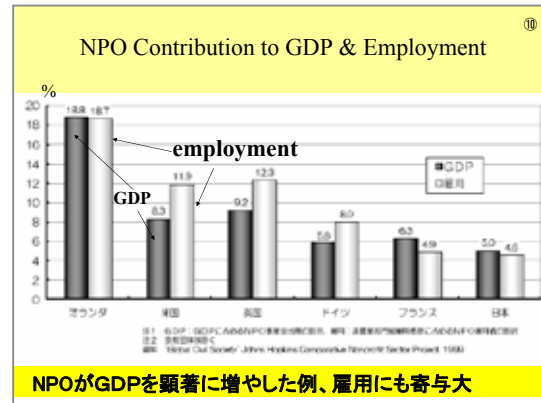
Some people may claim that low GDP growth is acceptable per se. However, with social productivity becoming more efficient by 2% or so per year, GDP needs

to grow at least as much to sustain employment.



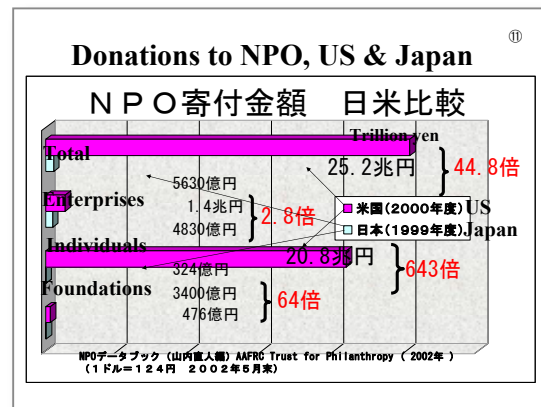
Let us turn our eyes to Japan's accounting with overseas. (Slide 9) shows the historical development of the overseas net assets Japan owns. Japan has enjoyed an annual trade surplus which amounts to roughly 10 trillion yen over the past two decades. It now has net assets of 215 trillion yen overseas, which made Japan by far the largest asset-owning nation, surpassing Britain in 1991.

From these figures, we can see that it is almost impossible for Japan to increase only its trade surplus, as this would create political tension in the international community. The only alternative we have then is to create more domestic demand in order to increase Japan's GDP. In addition domestic should satisfy the needs of the next generation in order to be acceptable. We need to create totally new services and goods beyond our past imagination. As we are in an "era of GDP saturation", we need new goods which surpass the expectation of the public and go beyond the imagination of consumers. They cannot be an extension or improved version of what is available.



(Slide 10)

Let me introduce another piece of data. NPO contributions to GDP and to employment have become very significant in some advanced economies. For example, Holland has NPOs accounting for close to 20% of both GDP and total employment. This figure contrasts well with the contribution from the manufacturing sector I referred to earlier. NPOs are a potential sector for the further growth of GDP.



(Slide 11) shows the U.S.-Japan comparison of donations and contributions to NPOs. Individual contributions to NPO in Japan stand at only 300 yen per capita, while that in the U.S. is 100,000 yen. The Japan-U.S. ratio is 1:643. Companies in Japan donate more to NPOs than individuals do, but U.S. enterprises still contribute 2.8 times more than Japanese companies. Individuals are a significant source of contribution and funding for NPOs.

Annual Expenditures in Japan

• Total GDP	500 tri. yen
• Value added by mfg. sector	100 tri. yen
• Entertainment	100
Public gambling & pachinko	35
• Medical expenses	34
• Electricity	18
• Public expenditure for R & D	4
=>Compare with Maglev (Tokyo-Osaka route)	8.5

Slide 12

(Slide 12) shows the breakdown of annual expenditure in Japan. Total GDP is 500 trillion yen, and value added by manufacturing is one fifth of GDP, at 100 trillion yen. Expenditure for entertainment is at the same level of 100 trillion yen, out of which public gambling and pachinko accounts for 35 trillion yen. These expenditures compare with medical expenses of 34 trillion, electricity at 18 trillion and public investment in R & D at 4 trillion yen.

Let me now remind you that the total cost of constructing the Maglev between Tokyo and Osaka would be 8.5 trillion yen or 80,000 yen per capita. Though an 8 trillion yen investment for the Maglev has been perceived as a large amount when taken in isolation, it appears less significant in a larger context when compared with other expenditure items. If we position the Maglev as a kind of "entertainment" it appears to be very cheap, because we are able to spend 30 trillion yen every year on pachinko. Perception, however, changes when we position the Maglev as a means of advanced transportation. This is an irony.

Transformation of Innovation with Social Value to Goods through Economic Incentives

- Most important task for the government
- Comprehensive mechanisms needed
 - Education and enlightenment
 - Taxation system
 - ex. Carbon tax
 - Award, reward system
 - NPO promotion, volunteer support
 - Link to CSR
 - Donation system
 - "citizens who can donate 2% of salary"
 - Regulation, proactive regulation
 - ex.(1970) Muskie Law, Calif.

Slide 13

(Slide 13)

I want therefore to emphasize the need for transforming social value to economic value so that the private sector feels incentives to work for it. That is, we need economic incentives. This is where the government can play a significant role by establishing various mechanisms to encourage the private sector to translate innovation into social benefits for the public.

One example would be to let NPOs grow. Because they work for social benefits and the size of their activities could be as large as that of manufacturing industries, the government can transform social value into economic value in an indirect manner by encouraging the growth of NPOs. For this purpose, like in the US or some European countries, tax reforms would be effective so that individuals receive tax deductions when they make contributions to NPOs. Through such tax reforms, we may be able to make NPO account for 20% of GDP as in the case of Holland. I have heard that in the U.S. parents raise their children to grow up to be good citizens capable of contributing 5% of their salaries to good causes. Education is also of critical importance in this regard

Another potential policy and mechanism the government can develop to translate innovation into products and services is "regulation". It was in 1970 when the state of California established the Muskie Law. Under the Law, auto manufacturers were forced to cut NOx (Nitrogen oxide) and SOx (Sulphur Oxide) in gas emissions to a very low level within a given time frame. Auto manufacturers and related associations strongly objected to the law, and yet Honda Motors cleared the regulatory level of emissions for the first time in history. This action by Honda set the tone for emissions regulation. Toyota's hybrid car has appeared on the extension of this line.

Regulations should not be used too often, but they can be an effective means for providing economic incentives, if thought out carefully and implemented well

Mechanisms to Transform Innovation to Goods via Economic Incentives (Continued)

- Assistance and support at R&D stage
 - R&D tax exemption
 - R&D government project
 - R&D subsidy
 - Pro-patent policy
- Support to users, final consumers
 - Guaranteed use (government will buy at flat rate)
 - ex. agreement to buy back electricity at flat fixed rate if solar system is adopted (Germany)
 - Private investment at 300 billion yen/year
 - Subsidy ex. NEDO annual depreciation system
 - Government procurement

Slide 14

(Slide 14)

Let me introduce a new initiative in Germany to give incentives to the public to invest in solar energy. The German government established a kind of “feed-in tariff” system in which the government lets the electric appliance companies buy the electric power generated from the renewable energy sources at prices that allow investors to recover the investment in 20 years. The government does not need to make any cash outlay now, and the public may invest in the new energy source of their own will. The public investor is guaranteed to receive the money on the basis of “guaranteed fixed price purchase” by the electric appliance companies for 20 years which will make their investment in solar energy attractive enough. The German government has given the German people the “economic incentive” to invest in solar energy systems, a new energy source. It remains to be seen whether this feed-in tariff system will work or not, as there are many uncertainties such as the viability of solar energy systems as a new energy source. However, this government policy has helped the German public to adopt the new energy source. Up until 2004, Japan led the world in installed solar energy system bases, but the year 2005 saw Germany take over the top position as a result of the above feed-in tariff system. This would appear to suggest that government policy worked as one way of encouraging the public adoption of innovation.

It would be an interesting exercise to compare this country (Germany) where the public invest 300 billion yen a year in solar energy, to another country (Japan) where 30

trillion yen is spent on pachinko game each year.

Summary

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- Can we present our vision?
 - Can we share our vision with the youth.
- Can we present a challenging vision?
 - Can we share these challenges with the youth, across different generations?
- Can we build a Global Innovation Ecosystem?
 - Can we set up mechanisms for economic incentives in order to transform innovation into actual goods/services

Slide 15

(Slide 15)

In summary, let me repeat my main point. I believe that innovation policies such as the Innovation 25 strategy will succeed if they can present a future vision made possible by innovation to the younger generation which can be shared by them. Whatever national innovation policies are developed, if the youth of the country cannot possess hope for their future, they are bound to fail. The issue of whether we can present challenging and aspiring tasks to the youth and allow them to share in those tasks will determine the future of the country. Will we be able to share a future vision across different generations? If we can, policies will succeed and the country will prosper. The business community, government and academic community will build the fields in which social value is transformed into economic value within the ecosystem. I believe this is what Global Innovation Ecosystem is trying to establish.