

# Strategies Contents for Financial Independent RIS in Proton Accelerator Science and Technology

**Bae, Khee-Su**

School of Business, Chungbuk National University  
410 Seongbong-ro Heungduk-gu Cheong-Ju Chungbuk 361-763, Korea

## ABSTRACT

*This research would be the first step toward in the long processes of proton technology industrial cluster development by focusing on the region's readiness and acceptability of the proton technology project. As is shown in our questionnaire survey, the top priorities needed to consider for the Proton Technology project are found to be job creation (mean 3.74), regional economic development (mean 3.72), industry infrastructure(3.54), institution for science and education(3.53), economic inequalities(3.33), tourism industry revitalization(3.20). For public servants top priorities in order found to be regional economic development, job creation, industry infrastructure, institution for science and education, economic inequalities, tourism industry revitalization. Universities' priorities in order found to be job creation, regional economic development, institution for science and education, industry infrastructure, economic inequalities, tourism industry revitalization. The mean reliability score for the each party was found to be mayor(3.04), citizens(2.99), province(2.97), private corporation(2.96), and universities((2.93). Of particular note, the mean score except the mayor were all below median (3.00). province(3.24), city council member(3.20), public employees (3.09), private corporation(3.03), nonprofit organization (2.97), mass media (2.96), citizens(2.96), and universities(2.89). The universities and colleges also should revise their strategic plans and thus restructure their internal academic programs, and must develop their own collaborative programs with Proton Engineering Frontier Project, related industries, city, and other government units. Not only educating, training, and providing top-notch man powers to the proton technology industries will be one of their primary missions.*

**Keywords:** Proton Technology, Regional Economic, Strategic Plans, Province

## 1. THE OBJECTIVE OF RESEARCH PROJECT

Proton Accelerator Science and Technology Cluster Project in region has been not endogenously emerged, but rather initiated as a part of national government's science policy and industry development plan. Therefore, the efforts to minimize the consequent distortion from the state initiated policies must be exerted by putting in order the strategic plans and road-map of the proton technology industrial cluster formation in the long-term plans.

In order for the regional innovation system and regional collaborative governing system for the proton technology project to be developed, the data base of the region's geo-economic environment, culture, history, social capital, governing structure, finance, and banking infrastructure, university and research capacity must put in place.

This research would be the first step toward in the long processes of proton technology industrial cluster development by focusing on the region's readiness and acceptability of the proton technology project. The perception survey of the region's major stakeholders would be the major part of the research project. This research results can be used as a useful

basic data base for the strategic plans of each related decision maker.

## 2. THE CONTENTS AND SCOPE OF RESEARCH PROJECT

Providing the knowledge base on which Regional Innovation System(RIS) for proton technology will be established. Developing an indigenous model of Regional Innovation System(RIS) for proton technology by taking into consideration the regional characteristics and factors including culture and social capital to bolster the regional innovation capacity. As eventual effects of the Regional Innovation System(RIS) formation for proton technology, the setting up of infrastructure for regional science and differentiating industry will be the strategic goals(Anderson and Karlsson 2002, Cook etc 1997).

The development stage of the proton technology will go through introduction(seeding, testing waters) → rowing → aturing (Capello 1999, Carlsson 2002). This research will limit its scope to the initial stage of the processes, and mainly explore the region's socio-economic conditions and readiness which will help to develop regional collaborative system and networking(Athreye 2001, Bert et al. 2002). Some efforts to identify the region's endogenous resources and potential mobile

\* Corresponding author. E-mail : ksbae@chungbuk.ac.kr

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resources and exogenous resources will be made(DTI 2001, Duch 2003, Freeman 1995).

As is shown in our questionnaire survey, the top priorities needed to consider for the Proton Technology project are found to be job creation (mean 3.74), regional economic development (mean 3.72), industry infrastructure(3.54), institution for science and education(3.53), economic inequalities(3.33), tourism industry revitalization(3.20). For public servants top priorities in order found to be regional economic development, job creation, industry infrastructure, institution for science and education, economic inequalities, tourism industry revitalization. Universities' priorities in order found to be job creation, regional economic development, institution for science and education, industry infrastructure, economic inequalities, tourism industry revitalization(Garnsey 2005, Global 2006, Gunasekara 2004).

Overall mean score was relatively low for private business compared to other groups. Top priorities in order found to be regional economic development, job creation, institution for science and education, industry infrastructure, tourism industry revitalization, and economic inequalities. For citizens, top priorities in order found to be job creation, regional economic development, institution for science and education, economic inequalities, industry infrastructure, and tourism industry revitalization. For most groups, regional economic development and job creation were perceived most important priorities. This result shows that people in the region expects most economic effects from the proton accelerator technology project(Porter 1999).

### 3. RESEARCH RESULTS

#### 3.1. Desired Applicable Areas of Proton Accelerator Technology

For mean value analysis, top priorities for the desired applicable areas of proton accelerator technology were found to be energy (3.54), transformation of material structure(3.38), IT(3.34), bio-science(3.31), environmentally sustainable(3.28), and medical science(3.21).

#### 3.2. Success Factors for the Proton Technology Project

The preempting conditions for the proton technology project would be expanded financial support by central government (3.79), vision providing of proton technology project(3.63), collaboration among stake holders(3.57), City's proactive role(3.53), Tangible economic outcomes(3.53), public relations and marketing (3.4), and building-up finance infrastructure(3.35).

#### 3.3. Power and Influence of Major Stakeholders

The perception value of the influencing power of each party is as follows: central government(3.52), mayor (3.45), province(3.24), city council member(3.20), public employees (3.09), private corporation(3.03), nonprofit organization (2.97), mass media (2.96), citizens(2.96), and universities(2.89).

There was some variance among groups. City employees replied that mayor, central government, city council member, public employees, province were ranked in order of power and

influence. Universities replied that central government, mayor, private corporation, and universities were ranked in order of power and influence. NGOs perceived that central government, mayor, province, city council member, and public employees, were ranked in order of power and influence(Smith 1990, Teece 1997).

#### 3.4. The Trust Level about the Major Stakeholders

The mean reliability score for the each party was found to be mayor(3.04), citizens(2.99), province(2.97), private corporation(2.96), and universities((2.93). A noteworthy phenomenon, the mean score except the mayor were all below median (3.00). province(3.24), city council member(3.20), public employees (3.09), private corporation(3.03), nonprofit organization (2.97), mass media (2.96), citizens(2.96), and universities(2.89).

#### 3.5. The Major Stake holders of the Proton Technology Industrial Cluster

The current industrial base and governing structure of the region is more resemble the developmental state model of the early economic development of our nation, that is characterized by government-initiated, top-down, and very authoritatively decision- making process(Chrys 2004). It is expected that the development of proton technology industry cluster will be initiated by government in the early stage and for the time being, and then will be integrated into the mature stage of the private sector-driven industrial model. This means the governing model itself will shift from the bureaucratic governmental model to the horizontal collaborative governance model where government, private sector, universities, nonprofit organizations would work together in solving societal problems(Choi et al. 2003).

The major stake holders of the proton technology industrial cluster will be municipal government, city council, universities and research institutes, private corporations and chamber of commerce, NGO, mass media, and citizens.

The researched samples include the government(Proton Engineering Frontier Project, city, city council. city employees), educational sector, Private sector, NGOs, and mass media.

Overall, preeminent companies and infrastructure of finance institutions are absent; social capital is lacking; the understanding, and informed level of the proton technology project were low; and the expectation about the project was not bright.

#### 3.6. Perception Survey Results for Proton Technology Collaborative Region Innovation System

The research respondents were not well informed of the proton technology project. The primary medium through which constituents get informed about the project were mass media and marketing of the city.

The most enthusiastic groups who were willing to support the proton technology project were city officials and universities. However, they perceived that the efforts and activities related to the proton technology project in the region were not very visible to them(Craig 1997).

The research respondents would expect that the proton technology project greatly influence the region development, in

particular in economic vitalization and job creation. The most appropriate field of technology application would be energy.

The respondents' time frame for the expected outcome would be rather long-term, ten years. The respondents replied that the primary essential success factor for the proton technology project at this time would be the enlarged financial support from the central government and the second would be developing and providing the vision of the proton technology project. In the power and influence perception, central government, city mayor, and province governor were ranked highly in order. On the other hand, in the trust perception, central government, and were ranked low.

### 3.7. Informed Level, Support, and Attitudes

The research respondents were not well informed of the proton technology project, but they are willing to support and participate in the programs if given opportunities to do so (Fontana 2006).

On the one hand the research respondents had a high expectation for the economic vitalization of the region, and on the other hand, they did not shy away from revealing their favorable image of as a city of history, vulture, and tourism. This seemingly contending orientation will not be an obstacle toward the image branding of as a high-tech science and industrial city.

The governing system of the region still maintains the traditional top-down and centralized allocation of authority and resources. Collaborative governing system like sharing power and working together with private sector, universities, non-profit organization is still rare. It can be stated that the social capital in the region like trust, supporting, helping each other among diverse parties was not highly developed.

In particular, the region's attitude toward central government was not favorable because of the past central government's unreliable and discriminating behaviors related to the highly discriminating regulation of the region's economic development for historic sites protection, and central government's bidding processes for major high-staked project siting (Jun 2005, Lucio et al. 2005).

Trust-building, thus accepted as reliable partner in the region, in particular in the early stage of the proton technology project should be the top priority of the strategic plans. The strategic plans including the trust-building and public relations programs should be developed. Time, patience, and efforts in the long term perspective can be valuable resources.

## 4. POLICY IMPLICATIONS OF THE RESEARCH RESULTS

Proton Engineering Frontier Project could develop a series of supporting programs including based on the policy options suggested by this research. The research results that are region- and field-based will make it easy for regional collaborative efforts to be materialized and will help to develop and support proton technology related industries.

The city, one of the major stake holders of this proton technology industry cluster could not only restructure its supporting programs for the proton technology project, but also

integrate the policy options developed through this research into its strategic plans.

Business environment for Proton technology related industries will be greatly improved by well-developed collaborative programs including proactive and supportive administrative services of municipal government, consulting and human resources development programs of regional universities, to name a few.

A policy community of proton technology will be identified and formed as an outcome of this research and resultant organic collaborative relationship among diverse stake holders will be developed.

The universities and colleges also should revise their strategic plans and thus restructure their internal academic programs, and must develop their own collaborative programs with Proton Engineering Frontier Project, related industries, city, and other government units. Not only educating, training, and providing top-notch man powers to the proton technology industries will be one of their primary missions

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**Bae, Khee-Su**

He received the B.S., M.S in Business Management from Chungbuk National University and Hanyang university, Korea in 1997, 1999 respectively and also received M.S., Ph.D. in Business Management from Hanyang university, Korea in 2004. Since then, he has been

with the School of business, chungbuk National University. His main research interests include financial accounting contents and accounting information systems.