Chapter

Perspective Chapter: Comprehensive Cooperation Agreement with the University Community

Tsutomu Kibayashi, Keisuke Machino and Shinichiro Maeshima

Abstract

Universities are the centers of society's intellectual activities and are places where highly skilled professionals are trained. For managers and businesses, universities are a valuable resource for revitalizing and promoting communities and industries. Achieving this requires multifaceted cooperation and collaboration with universities. In 2017, our university concluded a "comprehensive cooperation agreement" with the city of Hakusan, where the university is located. Last year, the university signed an agreement with Dai-ichi Life Insurance Co., and this year it signed one with Eon Mall Co., Ltd. A variety of projects are currently being planned to be carried out at Eon Mall Hakusan, a major supermarket in the community. The main purpose of these agreements is to help the community develop by solving local problems and fostering new professionals.

Keywords: comprehensive agreement, regional contribution, university, industry-government-academia partnership

1. Introduction

The novel coronavirus has accelerated various changes that had been expected to occur gradually in the future [1, 2]. Amid the major transitions occurring under the "digital transformation" (DX) label, there has been a surge in motivation for "industry-government-academia partnerships," in which universities form cooperative relationships in society to undertake various projects.

Industry-government-academia partnerships can make major contributions to revitalizing universities and developing society, and for some time there have been calls to improve and strengthen these endeavors. Universities play an important role as sources of knowledge for society as a whole, and because they are places for training highly specialized professionals, for local governments and companies they are a valuable resource for vitalizing and promoting communities, industries, and other sectors. One current trend is that companies are no longer seeing universities merely as a source of workers, but also as partners in producing creative seed technologies

and as places to outsource research development (R&D) and personnel development. In response to this, university education is diversifying with the goal of fostering creative and practical professionals in ways that takes the needs of industry into account. Needs for lifelong learning, such as through recurrent education, have also increased in recent years, as part of efforts to adapt to trends including the "new normal," changes in management to incorporate VUCA (volatility, uncertainty, complexity, and ambiguity), and the increasing sophistication of industrial technology.

University education needs to be sensitive to rapidly changing societal conditions and be able to adapt quickly. To achieve this, education must not only give students problem-solving skills but also help them develop the ability to first identify problems. Our university trains students in the fields of health, medical, and welfare, and can provide assistive technology to address aspects of community and industrial health from prevention to rehabilitation. The university is capable of exploring and intervening in issues related to frailty caused by measures to control the novel coronavirus. (In this context, frailty is the deterioration of mental and physical functions and the loss of social connections from restricting one's behavior.) To put its powers to full use for the good of society, the university has concluded comprehensive agreements with local governments and industries and is engaged in health-related initiatives to help create vibrant and independent communities. Within the university, efforts are underway to discover and develop promising seeds that will produce support and creativity based on original concepts.

2. Significance and fundamental role of universities in partnerships among industry, government, and academia

"Industry" refers to the corporate sector in a broad sense, which includes private companies and nonprofit organizations. Industrial R&D plays an important role in that it is tied directly to economic activity. Companies conduct various surveys to find out the needs of their target customers. Companies that manage large shopping centers have concluded that "health" is one of the main concerns of their customers. The same is true for life insurance companies, which are always thinking about how to provide health-related initiatives. In addition, the sale of sports-related products, shoes, and clothes is no exception to this. In this, we can find some points of connection with the seeds related to health promotion developed at our university. Specifically, we have made proposals on sports/training instruction, matching the fit of footwear to growth, continuous regular exercise, and walking in large shopping centers, and have worked with companies to implement these ideas.

"Government" refers to publicly funded, government-affiliated research institutes such as R&D-type incorporated administrative agencies, as well as national and municipal organizations. Public research institutes carry out strategic research with specific goals to improve scientific and medical technology, in ways that follow basic research, cutting-edge research, and societal needs. For example, the university has collaborated with the National Center for Geriatrics and Gerontology at the Japan Science and Technology Agency, to develop effective exercise regimens for elderly people who have been forced to restrict their lifestyles due to the coronavirus pandemic, and has helped produce videos for public education. We are already looking to the post-pandemic world and exploring initiatives for the new normal. National and local governmental organizations play an important role in improving systems. The main objectives of and important challenges for public community comprehensive aid

centers that support the long-term care insurance system are "preventing the need for long-term care" and "promoting health." Through an industry-government-academia partnership, the university is planning a sustainable and effective initiative aimed at elderly people at a major shopping center. Municipal bulletins, which have a high level of public trust, will be used to promote participation. As an example of the strategic partnership, a fun setting where different age groups, including students, can interact will be used to collect data on factors such as physical function, activity levels, and psychological/behavioral changes. This will then be objectively analyzed and assessed to provide participants with feedback. It is also important to use these processes and results in educational areas.

"Academia" is the academic sector that includes universities, inter-university research institutes, and higher technical colleges. The basic mission of these institutions is to provide education and conduct academic research, but also to contribute to society. Their role is to train and secure top-level professionals who can create new knowledge and carry forward intellectual assets into the future. The university offers off-campus practical training for nurses, physical therapists, occupational therapists, social workers, and long-term care workers to deepen students' understanding of society. Having students learn in hospitals, care facilities, and companies will help them to reflect on and organize their own work, create new perspectives, and provide opportunities to verify outcomes. Universities contribute to their communities through a cycle of research followed by applying that knowledge to education. Constantly thinking about social significance, considering the strengths and weaknesses of one's knowledge and wisdom, and learning in society create the ability to uncover problems, then solve them.

Industry-government-academia partnerships occur across sectors with fundamentally different missions and roles. When they are formed, it is important for the parties to understand and respect each other's missions and roles, and to use the vitality of each to complement one another. The "cooperation agreements" that are often used in these endeavors are characterized by carrying out things through mutual contact and discussion, but not by creating continuous and stable relationships with strong bonds.

3. Forms of industry-government-academia partnership

1. Research activities such as joint and sponsored research projects.

2. Practical education partnerships such as internships and practical training.

3. Collaborative development of educational programs in clinical and real-world settings.

4. Technology transfers related to research outcomes.

5. Consulting activities such as technical guidance and support.

Partnerships can be put into the above five categories. However, in actual industry-government-academia partnerships, these activities are closely related and it is rare for a single category to exist independently. Industry-government-academia partnerships are often constructed to involve several elements simultaneously. For example,

a partnership related to low-back pain consultations among production engineering workers may include both exercises and treatments for low-back pain (technology transfers) as well as offering consultations in the work environment. In a broad sense, industry-government-academia partnerships can also include things that occur in the lead up to full-scale collaboration, such as dissemination of educational or research data, inter-sector exchanges between stakeholders, holding open lectures such as by sending corporate representatives to speak at universities, and offering space inside a company's industry-academia exchange facility. Considering the diversity of activities associated with industry-government-academia partnerships, research is needed into how they should be implemented and the best policies for them.

To comprehensively promote new academic research, generate technological innovations, and solve social issues through these partnerships, it is important that in addition to medicine and the natural sciences, which have often been the subject of these endeavors, to also promote partnerships in the humanities and social sciences that primarily focus on relationships between people.

There is a growing awareness that as people approach 100 years of life, illness is not something that can be completely cured but is rather something they need to have a relationship with. In other words, modern rehabilitation needs the ability to adapt, to figure out how to come to terms with illness. This ability is affected not only by medical care, but also by the societies in which these people live, their surrounding environments, and their level of psychological satisfaction. Further, keeping in mind the specialization of the companies that play leading roles in industry, government, and academia; the characteristics and types of universities; and that fields of research will be at differing levels of progress, there is also a need to think about how to support progress in diversity and inclusion, or the acceptance of a wide variety of views and people. Each institution needs to make independent and strategic assessments of which activities to focus on based on their individuality and characteristics.

4. University missions and social contribution

Universities have a certain responsibility to society as a whole to promote academic research and train highly skilled professionals. Therefore, it is important to respect the independence of universities, though they must also adopt an approach of autonomously responding to the time's expectations of society.

Historically, education and research have been the missions of universities, but as social conditions change, so are the roles universities are expected to take on. In addition to education and research, universities are now expected to make social contributions, which is becoming a "third mission." Human resource development and academic research make long-term contributions to the development of society, though in recent years shorter-term and more direct contributions have been sought through things like public lectures, commercialization of research results, and technology transfers. These endeavors are often referred to as the "social contribution of the third mission." However, "social contribution" does not mean mere economic revitalization, but contributions made to the development of societies (including local communities, economic societies, and the international community) overall, in terms of local communities and welfare/environmental issues. Our university is engaged in concrete initiatives in the community under the keyword "health." Social contribution by universities, which are institutions for educating students, should not be merely the offering of unpaid labor or the free use of facilities but should utilize

their unique characteristics as bases of knowledge [3]. The goal should be to use the knowledge gained through educational and research activities to benefit local communities through joint research projects and technology transfers as part of industry-government-academia partnerships, which can improve the lives and welfare of local residents and help create a vital and prosperous society. Currently, there is growing public interest in technology transfers and the creation of new industries through industry-government-academia partnerships. These are ways universities can make social contributions, and each school should adopt approaches that are suited to its individuality and characteristics in ways that incorporate the diversity of society.

Diversity needs to be engaged with not only by each university but also at the individual faculty level. However, considering the diversity and originality of the research themes faculty are engaged in, if they are approached by industry about their own research results or themes, they should search for ways to use these results while receiving organizational support, such as by contacting the university department in charge of industry-government-academia collaboration. Therefore, regardless of the academic field, each faculty member needs to be constantly aware that the university is expected to make social contributions.

5. Educational aspects of industry-government-academia partnerships

Industry-government-academia collaboration can also make great contributions to revitalizing university education. Therefore, along with providing opportunities for students to interact with companies through joint research, practical training, and internships, the industry can offer perspectives and cooperation in the realm of university education, such as by developing joint educational programs and hiring people with corporate experience. This can also be effective from the perspective of promoting practical education and training professionals who can meet the needs of industry and the rest of society. It goes without saying that the knowledge and experience faculty members gain through industry-government-academia partnerships will ultimately come back to benefit students through educational activities.

On the research side, in addition to conventional academic research, there is a growing awareness of the significance of research that focuses on and solves social issues. Thanks to rapid progress in DX and ICT, more joint research projects involving various organizations and institutions are expected. Society's expectations and demands for industry-government-academia partnerships that make use of university research results are growing [4].

6. Industry-government-academia partnerships in the community

Technological innovation and the creation of new industries using the resources and potentials from R&D in the community are an important part of promoting community science and technology and of revitalizing Japan's economy. Organic collaboration among regional institutions is needed, such as through the creation of knowledge clusters. It is relatively easy to encourage people to participate because the goal is not to generate profits but to reach out to the local community with the assistance of local governments. Once knowledge is obtained, it must be widely disseminated via feedback and public relations. Doing this over and over will help win the trust of society and lead to more inquiries from companies. No single

intervention or approach is best. Each initiative must bear in mind the characteristics of the community and the conditions of local industries.

Conflict of interest

The authors declare that they have no competing interests.

Author details

Tsutomu Kibayashi*, Keisuke Machino and Shinichiro Maeshima
Kinjo University, Hakusan, Japan

*Address all correspondence to: kiba@kinjo.ac.jp

References

[1] Japan Geriatrics Society. COVID-19, Practice Caution for Older People. Available from: https://www.jpn-geriat-soc.or.jp/citizen/coronavirus.html [Accessed: July 19, 2021]

[2] Japan Foundation for Aging and Health. New lifestyles to prevent contracting or transmitting the novel coronavirus. Elderly edition. Available from: https://www.tyojyu.or.jp/net/topics/tokushu/covid-19-taisaku/new-normal.html [Accessed: July 19, 2021]

[3] Osawa S, Maeshima S, Arai H. At-home exercise interventions during the coronavirus pandemic. Aging & Health. 2021;**30**(1):18-21

[4] Ministry of Education, Culture, Sports, Science and Technology; Science and Technology Council; Basic Technology and Research Subcommittee. Available from: https://www.mext.go.jp/b_menu/shingi/ gijyutu/gijyutu8/index.htm [Accessed: July 28, 2021]