POLICY NETWORKS IN COMPARING SCIENCE TECHNO PARKS MANAGEMENT IN UNIVERSITIES AND REGIONAL GOVERNMENTS IN INDONESIA

ARIEF ARIANTO[1,2], BUDIMAN RUSLI[1], ARRY BAINUS[1], SINTA NINGRUM[1], DUDI ISKANDAR[3]

Faculty of Social and Political Sciences, Universitas Padjadjaran, Bandung 40135, Indonesia[1]
Research Center for Agroindustry, National Research and Innovation Agency, Jakarta 10340, Indonesia [2]
Directorate of Research Policy Evaluation, National Research and Innovation Agency, Jakarta 10340, Indonesia[3]
arie010@brin.go.id[1,2]
budiman.rusli@unpad.ac.id[1]
arrybainus@unpad.ac.id[1]
sinta.ningrum@unpad.ac.id[1]
dudi002@brin.go.id[3]

Abstract – Start with the mandate in the Nawa Cita program of the President and Vice President Administration, RPJPM 2015-2019, and Presidential Regulation Number 106 of 2017 concerning Science and Technopark Areas (KST). KST, or Science and Technology Park (STP), is a place professionally managed to facilitate the development of SMEs. KST organizers can be central government, regional government, university, or the community. This research takes the modeling of local government and universities because these models are currently developing in society. The modeling taken was STP IPB in Bogor as the university and Cimahi Techno Park (CTP) in Cimahi as the regional government with descriptive qualitative research data collection methods through semi-structured interviews. Process data using a theory Waarden policy networks approach. The results show that STP IPB and CTP have different policies in the seven-dimensional view of Waarden's theory. On the other hand, the product downstream process also has different rhythms.
Keywords: *Policy Networks; Science Techno Park; Regulation; Technopark Science Area*

INTRODUCTION

Innovation is the result of human thought. The role of human resources can produce innovation by utilizing various knowledge points of view to develop it. A growing economic industry will increase productivity and competitiveness among business actors. In this regard, the government has taken on its role by designing nine priority agendas for Nawa Cita Development and the 2015-2019 Medium Term Development Plan (RPJMN). The sixth point of Nawa Cita reads, "increasing people's productivity and competitiveness in international markets," and the seventh point, "realizing economic independence by mobilizing domestic economic sectors," makes the government build and develop 100 national science and technology parks in several Indonesian territories. This development was also strengthened by Presidential Regulation Number 106 of 2017 concerning Science and Technology Areas. This regulation helps facilitate the growth and development of innovation-based industry and research in Indonesia. This science and technology area facilitates interaction and communication between the main actors involved in creating innovation, whether technology developers, technology users, or facilitators. The Science and Technology Park (KST) or Science and Technology Park (STP) is a professional area with sustainable research and development collaboration between the central government, regional governments, universities, research and development institutions, and industry. This area has the function of encouraging and developing economic growth by utilizing science and technology and the evolution of technology-based start-up companies. The establishment of KST aims to accelerate the delivery of research and technology results to the public. KST provides technical services, technology development, business incubation, and support services in its functions. KST organizers comprise the central government, regional governments, universities, and the community (*Peraturan Presiden Republik Indonesia Nomor 106 Tahun 2017 tentang Kawasan Sains dan Teknologi*, 2017).
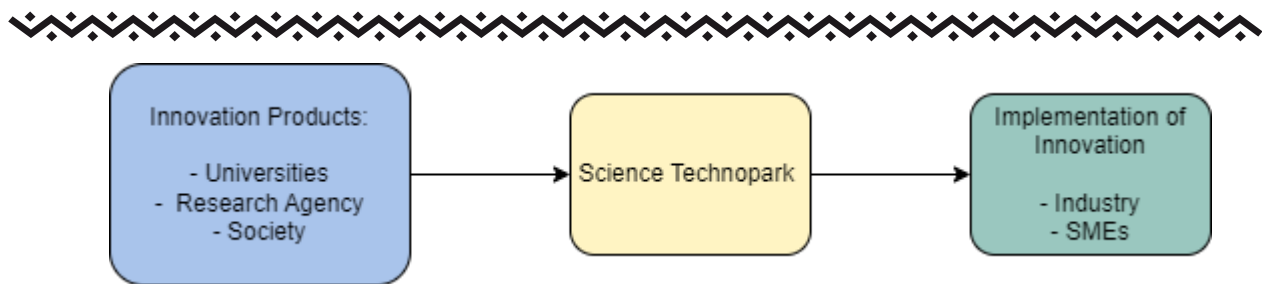
Figure 1: The Relationship between stakeholders in Science Technopark

Figure 1 shows that the simple workflow of STP follows government and regulatory ideals. Innovation producers produce innovative products in the form of research, hardware, or software produced by universities, research institutions, or the community (public). The role of STP is to accommodate, bridge, and test innovation needs from producers to industry to carry out products downstream. The hope is that with this activity, the creativity of the Indonesian people will result in increased innovation, increased economic value, and reduced unemployment.

Research (Widharetno, Cahyati and Awalia, 2022) compares five STP developments with regional government administrators, which require precise and integrated institutional, financial, and collaboration development strategies to exploit the great potential of the creating innovations. Based on the review, the STP development strategy in Indonesia in various forms of implementation has not followed the actual STP rules because the division of actor roles and policy-making competence is not yet clear to increase the role of STP science and technology to the community (Pitaloka and Humaedi, 2020). This research uses policy network theory as an analytical tool in reviewing the modeling of regional government KST organizers and higher education KST in Indonesia because these two forms of organizers are currently developing in society. The use of policy networks provides a new perspective in verifying the roles of various stakeholders based on Waarden's theory. In modeling higher education KST and local government KST, the author took the IPB STP in Bogor and Cimahi Techno Park in Cimahi by considering that this KST has fulfilled its proper service function following Presidential Regulation Number 106 of 2017 concerning Science and Technology Area (Peraturan Presiden Republik Indonesia Nomor 106 Tahun 2017 tentang Kawasan Sains dan Teknologi, 2017).

The development of STP IPB to become an organ of IPB as the Regional Institute for Science and Technology (KLST) IPB by IPB Board of Trustees (WMA) Regulation Number 06/MWA-IPB/P/2020. The presence of STP IPB supports IPB's 2019-2045 vision to "Become a research-based university and at the forefront of innovation for national independence towards a techno-socio entrepreneurial university that excels at the global level in the fields of agriculture, marine and tropical biosciences." STP IPB has produced achievements, including the SINTA Award in the category of the most patent producers, the Widyakrida Award for fostering technology-based startup companies, and the Widyapadhi Award for innovation management. The superior products from STP IPB include production and packaging manufacturing services. Cimahi Technopark (CTP) is a Technical Implementation Unit (UPT) under the Office of Cooperative Trade, Small and Medium Enterprises and Industry (Disdagkoperind) of Cimahi City. CTP has a focus on economic growth based on the creative economy with 16 subunits, namely application and game developers, fine arts, television and radio, fashion, interior design, advertising, visual communication design, photography, product design, animation, and video, film, music, culinary, publishing, performing arts, crafts, and architecture. CTP is vital in developing, fostering, launching, and creating startup entrepreneurs (Widharetno, Cahyati and Awalia, 2022).

In this research, the author will use policy network theory to see how policy networks play a role in developing KST as a strategic area for building a research and innovation ecosystem in Indonesia. Waarden mentions seven dimensions in policy networks: actors, functions, structures, institutionalization, power relations, rules of action, and actor strategies (Van Waarden, 1992). KST management by local governments takes the form of technical units under ministries or non-ministerial government institutions. Meanwhile, the management of KST by universities takes the form of management provisions of the organizing university. There are differences in actor roles between local government and higher education KST management, which can lead to different

ecosystems and implementation characteristics. Based on the background of the problem, the author found several indications of the problem, namely: 1) differences in the ecosystem for the development of university techno parks and local governments, especially the actors involved, 2) different sources of innovation between universities and local governments, 3) product downstream processes between techno parks for universities and local governments thereby generating economic value.

METHODS

1.   Science Techno Park IPB

Figure 2 shows in August 2014 the beginning of the first business incubator at IPB, namely PIAA-IPB under the research and community service institute. PIAA begins a new era in providing integrated services for SMEs and startups during the three-year incubation period. This service develops SMEs by graduating superior entrepreneurs to independent SMEs in agribusiness and agroindustry. After going through two merger processes with other units, the IPB business incubator changed to STP IPB with the issuance of IPB MWA Decree No. 06/MWA-IPB/P/2020. Figure 3 shows STP IPB forms an organizational structure to improve the performance of each work area.
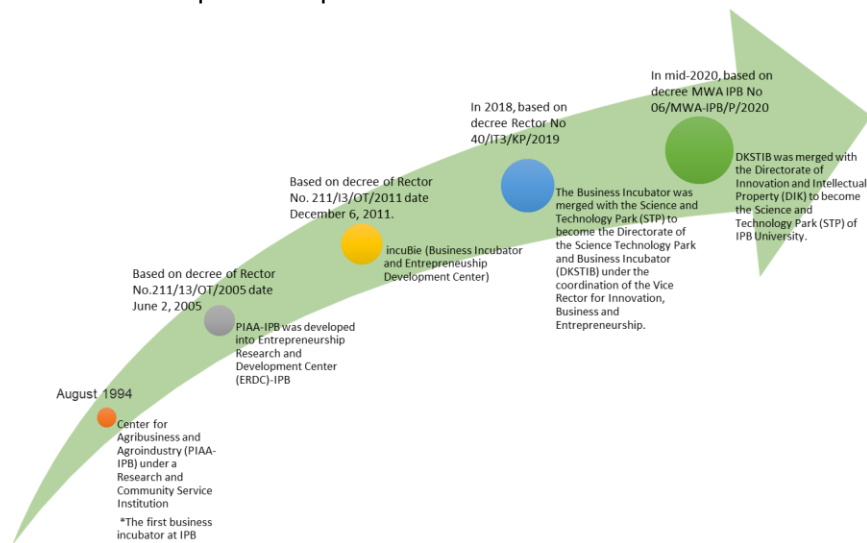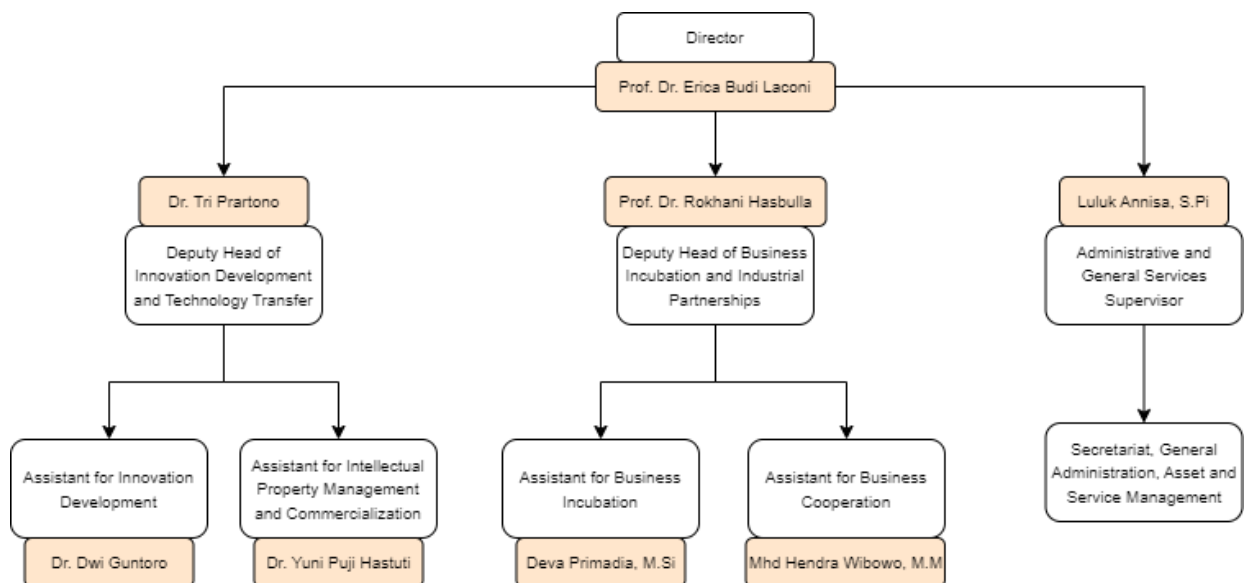

Figure 2: Milestone of STP IPB

Figure 3: STP IPB organizational structure 2023-2028
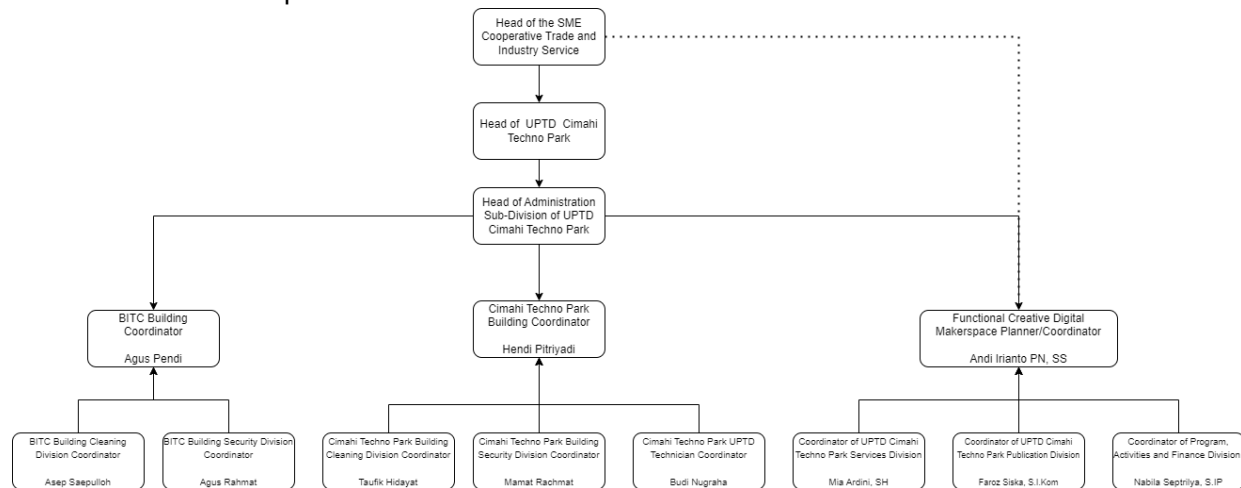
2.   Cimahi Technopark

Figure 4: CTP organizational structure

Techno Park is one of the priorities in the Nawacita. It reads, "We will build several Science and Technoparks in the regions, polytechnics, and vocational schools with infrastructure and facilities with the latest technology." Cimahi City is one of the selected cities for constructing a technopark by the 2015-2019 RPJMN mandate. Cimahi Technopark (CTP) has a Penta Helix collaboration concept, namely stakeholders in the form of local government, the research community (academicians), the business community, and the media, which utilize the technopark. There are three activities at Cimahi Technopark: the Cimahi Technopark building, the BITC building, and the Cimahi Makerspace. Among these three activities, Cimahi Makerspace is the leading activity at CTP because it prioritizes increasing unemployment absorption, income, and collaboration between academia, government, media, and business in the graphic design sector. 25 creative IT tenants fill other forms of business in the BITC Building. CTP has an organizational structure that supports CTP's performance as a regional government STP organizer, as seen in Figure 4.

3.   Descriptive Qualitative Research

This study uses descriptive qualitative research focusing more on observing phenomena and examining the meaning of phenomena. It is in line with the opinion of (Basri, 2014), who states that the essence of qualitative research is related to the process and the meaning of the results. In addition, other aspects concern qualitative research, namely the human aspects, objects, and the relationship between these aspects to explore an event, behavior, or social phenomenon (Mohamed, Abdul Majid and Ahmad, 2010). The purpose of using qualitative descriptive research in this study is to obtain information regarding the management of STP carried out by IPB and Cimahi Technopark organizers and the role of stakeholders in-depth and overall. With a qualitative approach, the role of stakeholders can be open to seeing the situation and problem.

4.   Data Collection Techniques

One important aspect of qualitative research is how the author uses the data. Data is a unit of information recorded by the media so that it can be distinguished from other data and analyzed, eventually becoming relevant to particular problems (Tanzeh, 2011). Data has two types: primary data (main data) and secondary data (additional data). The primary data comes from interviews, surveys, observations, experiments, and so on. Meanwhile, additional data can be in charts, graphs, or tables containing necessary information. This study took the observation method by systematically observing and recording the symptoms that appear on the research object. The author's position here is as participatory observation, which, apart from being directly involved as a full observer in the daily activities of the stakeholder object, has a data focus that needs to be observed by stakeholders related to the management of STP IPB and Cimahi Technopark as the locus of the research object. Apart from observation, to strengthen information, data collection can use interviews. This study uses field data collection methods with semi-structured interviews with object stakeholders with guidelines. Interview techniques are used to reveal data about the extent of the role of each stakeholder in STP management. Another important thing is also doing

documentation. Researchers used Presidential Regulations on Science and Technology Areas, Decrees of the Minister of Research and Technology on Science and Technology Areas, RPJMN, IPB Chancellor's Decree, and National and International Journals on KST.

The research location at STP IPB Bogor and CTP in Cimahi City with respondents selected based on a purposive sampling technique, namely a technique for selecting respondents to obtain data sources based on people who are considered to know best about what the researcher hopes. The research results will be processed using triangulation techniques. This analysis technique combines the results of observations, literature, and interviews to draw conclusions from the research objectives.

5.   Data Analysis Techniques

The process of collecting data in the field cannot be separated from the data analysis process of the data that has been collected (Sugiyono, 2009). This research uses data analysis techniques introduced by (Miles, 1992), as seen in Figure 5.
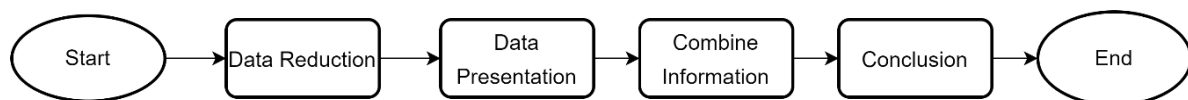

Figure 5: Flow of Data Analysis

The first stage starts with data reduction, simplifying the raw data appearing in the field to eliminate irrelevant information. Next is data presentation by translating structured information, which allows for drawing conclusions and taking action. The final information is compiled effectively and efficiently to carry out conclusions or verification.

6.   Policy Networks

Table 1 Dimensions of Waarden's policy network theory

Dimensions	Information
Actor	The number of people involved in a policy can be individuals or organizations representing certain groups.
Function	An instrument for intensifying interactions between parties involved in the creation or execution of public policy.
Structure	The pattern of relations between the actors involved.
Institutionalization	The level of institutionalization of the network structure refers to the higher the level of institutionalization, the more influential the policy network will be.
Rules of Conduct	A game rule or habit in managing a network. The actors' role perceptions, attitudes, interests, social background, and education influence this.
Power Relations	It is in charge of distributing resources and requirements among the organizational structures and participants.
Actor Strategy	The capability of actors to exchange benefits with partners in terms of the needs, interests, and goals.

Policy networks guide policies to organize everything related to objects to improve people's welfare and fulfill public policies in the public interest (Suwitri, 2008). (Van Waarden, 1992) and (Garcea, 1996) introduced policy networks as a relationship formed after a coalition between government actors and society, including the private sector. Based on the two previous statements, the policy network is a formal and informal institutional relationship between the government and community actors in fulfilling public services through public policy. Policy networks also review the relationship dynamics between actors, interests, and resources to influence a policy process. In the world of literature, there are many mentions of various kinds of policy network theories originating from

previous policy figures. However, this research shows that the concept of public policy network theory (Van Waarden, 1992) is more suitable for analyzing STP because it discusses and considers seven dimensions, namely: (1) actors, (2) functions, (3) structure, (4) institutionalization, (5) rules of conduct, (6) power relations, and (7) actor strategy. It should be noted that implementing a policy requires coordination and collaboration between many actors, including government institutions, non-governmental organizations, and other stakeholders. Public policy network through seven dimensions, as seen in Table 1.

RESULTS AND DISCUSSION

1.   Policy Networks Theory

This research uses the Waarden policy networks approach with seven dimensions for its research focus. At the interview and observation stages, the researcher changed the results of the interviews into verbatim transcripts to facilitate the process of combining information.

Table 2 Comparison of Waarden's theory between STP IPB and Cimahi Technopark

No	The Waarden Policy Networks	STP IPB	Cimahi Technopark
1	Actor	Rector, STP managers, researchers (lecturers & students), partners.	Members of Provincial Legislative Council (DPRD), Mayor, Head of Department, Head of UPT, partners.
2	Function	Pursuing downstream results of research from professors and students.	Conduct downstream results of research partners from the community.
3	Structure	It is under the direct responsibility of the Rector of IPB.	It is under the responsibility of the head of the economic and trade department.
4	Institutionalization	Acting as an organization under the Rector of IPB	Serve as an operational Technical Implementation Unit (UPT) under the trade department, cooperatives, SMEs, and industry.
5	Rules of Conduct	Based on statutory regulations and the rector's decree	Based on the statutory rules and regulations of the mayor of Cimahi.
6	Power Relations	The role of the director of STP IPB is appointed and responsible to the rector.	The CTP director is appointed and responsible to the mayor of Cimahi but coordinates activities with the head of the department, and the mayor and DPRD determine the budget
7	Actor Strategy	Rector of IPB	Mayor and DPRD

2.   Products Downstream

One of the essential parts of technopark activities is the process of downstream products from innovations that have been created. This stage will increase economic value and promote healthy price competition. Between STP IPB and CTP, there are different market demands. STP IPB has a target market in the agroindustry and agribusiness sectors. STP IPB supervises and develops students by implementing licenses from lecturer innovations, from marketing to counter agreements with partners. Apart from that, STP IPB also provides production, manufacturing, and packaging facilitation services in the context of innovation development services and pilot-scale production trials for lecturers/researchers, startups, SMEs, and industry.

Cimahi Technopark has a different market demand with digital innovation. The development focus program includes:

•   Telematic animation (apps, games, web, etc.).

•   Food and drink.

•   Fashion and crafts.

•   Creative digital maker space.

In increasing the potential of creative digital maker spaces, CTP is collaborating with one of the startups in the CTP area, which focuses on commercializing creative digital assets to become a

collaborator. The downstream flow of CTP products is by fostering incubation companies until they can compete and looking for partner companies to collaborate until the work contract is approved. If the work contract has been approved, the CTP's role is to assist the incubation company.

CONCLUSION

This research uses qualitative research by conducting in-depth interviews with actors managing STP IPB and CTP. Based on the perspective of policy network theory, the management characteristics of STP IPB and CTP differ in implementing the seven dimensions of Waarden's policy network. These differences in characteristics include (1) actors involved, (2) applicable bureaucratic system, (3) product downstream process, and (4) innovation resources. These many differences result in different achievements. The achievements shown by Cimahi Techno Park are more about collaboration between actors, which can increase the amount of economic value in turnover.

Meanwhile, STP IPB focuses more on increasing scientific publications in the scientific field. This phenomenon occurs because universities (STP IPB) must pay more attention to the entrepreneurial function, and the local government (Cimahi Techno Park) needs more innovation resources. Through the interview process, the author discovered differences in the flow of funding applications between STP IPB and Cimahi Technopark. These conditions imply that the government still needs a generic design for STP management in Indonesia. The level of success in STP IPB and CTP implementation is greatly influenced by the ability and initiative of the implementing actor who organizes CTP and STP activities. The Head of UPT CTP and the director of STP IPB to make STP more secure. Therefore, STP organizers in Indonesia need support for a generic design regarding STP management that follows applicable statutory guidelines and increases the competence of the actors involved to act in the various conditions that STPs face actively.

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