
An Analytical Study of the Project Performance Achievements of the General Center for Convergence Research: with a Focus on the Performance Achievements for 2017-2020*

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ABSTRACT

The purpose of this study is to examine and understand the current status of the project based on a comprehensive investigation and analysis of the General Center for Convergence Research's project performance achievements established for providing the support of the convergence research support project of the National Research Foundation of Korea, and also examine and understand policies and project plans, etc. which may be used as the grounds thereto. In this study, based on a comprehensive investigation and analysis of the General Center for Convergence Research's project performance achievements established for providing the support of the convergence research support project of the National Research Foundation of Korea, it was ensured that the current status of the project is identified and the basics such as policy and project plans are identified. The analysis of performance achievements was conducted by focusing on the performance achievements of the General Center for Convergence Research from September 2017 through June 2021. The General Center for Convergence Research is operating the convergence research information sharing platform activities, convergence research performance achievements diffusion activities, convergence research academic activities, and the convergence TIMES (status analysis and publicity activities) to expand convergence research culture, share convergence research performance achievements, and expand convergence research networks with a focus on the research teams performing the convergence tasks included for the interdisciplinary convergence research support project and the general joint research support project. When the research results are comprehensively analyzed, it turned out that the General Center for Convergence Research has achieved the Center's target performance achievements every year under a quantitative plan, and if the quantitative performance achievements are not achieved due to the unavoidable circumstances such as COVID-19, the maximum effort that may be seen as performance achievements has been made. Such efforts are intended to adequately perform the roles of expanding the humanities and social based convergence research, serving as a hub among the convergence researchers, which is the mission of the General Center for Convergence Research, and discovering the new agenda for the convergence research, etc.

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1. Introduction

Since the 1960s, convergence research from a holistic perspective engaging not only science and technology, but also all academic fields including humanities, social sciences, and arts and sports began to expand incrementally, thereby making a shift towards a new convergence research paradigm that pursues the sustainable socio-economic development for the future society. In particular, as the global environmental change has accelerated, the socio-economic problems change in a variety of complex ways, and major developed countries are pursuing the sustainable socio-economic development while stressing on the convergence research for the development of new knowledge and innovative science and technology. According to the perception survey of graduate schools of science and engineering, 88% of science and engineering students responded that they needed knowledge on the humanities, which indicates that the non-humanities' interest in humanities has increased (Yi, 2021).

As the importance of interdisciplinary convergence such as the humanities and social sciences has increased in the convergence research, the National Research Foundation of Korea planned an interdisciplinary convergence research support project based on the humanities and social sciences in 2009, and is concurrently continuing it as a general joint research support project (Noh et al, 2018). The interdisciplinary convergence research support project was conducted as a pilot project in 2010 to activate the interdisciplinary convergence research by supporting around 5% of the new project budget for the general basic research support project, and since 2015, the interdisciplinary convergence research support project has been integrated for management, and has also been supported and managed, and since 2019, it has been integrated into the general joint research support project (convergence) for support and management.

The National Research Foundation of Korea perceived the need for the convergence research focused on the humanities and social sciences, and there are over 200 convergence research teams nationwide that have been supported as interdisciplinary convergence research support projects and general joint convergence research support projects from 2009 through 2021. As the number of convergence research tasks continues to increase, the expansion of base and continuous management of interdisciplinary convergence research tasks have become necessary. In a situation where the continuous management of convergence research is required, an organic system was established where the clear definition of convergence research, expansion of base, and performance achievements are linked, and a forum was created for the general joint convergence research support project research teams, and to support the communication between research teams, the General Center for Convergence Research has been operated since 2011.

As the convergence research support project continued, performance achievements for the humanities and social based convergence research incrementally increased, while the role of the General Center for Convergence Research has increased. At such point, the support organization, with a view to maximize the efficiency of humanities and social based convergence research, a systematic and comprehensive survey and analysis of research performance achievements became necessary to determine the future policy directions.

Hence, in this study, through a comprehensive survey and analysis of the implementation status of the project of the General Center for Convergence Research's project performance achievements established by the National Research Foundation of Korea to support the interdisciplinary convergence research support project and the general joint research support project (hereinafter, "convergence

research support project of the National Research Foundation of Korea”), the current status of the project was identified and used as the basic data for the policy and project plans, etc.

2. Previous Studies

The previous studies on the convergence research may be classified into the interdisciplinary research where the academic convergence took place, significance and classification of convergence research, and research on the convergence research support. During the review of previous studies, the significance and classification of convergence research, and discussions of convergence research support were reviewed in accordance with the purpose of research, and additionally, the previous studies on the effectiveness and performance achievements of research support projects were reviewed.

First, the previous studies on the significance and classification of convergence research were analyzed. A discussion study on the possibility of convergence research was conducted (Hong, 2012). In this study, the possible performance achievements of convergence research were presented by analyzing the origin and significance of interdisciplinary convergence research and presenting the success cases of convergence research. Furthermore, an explanation of the meaning of convergence research and a comparative study between interdisciplinary convergence research in East Asia (Korean Social Science Research Council, 2013) were conducted, explaining the significance of convergence research, comparing interdisciplinary convergence research in Korea, China and Japan, and presenting the cases of convergence research such as Korean literacy development and disability research, national brand research, national human resource development research, and movie and game rating classification research, etc. The research points out the limitations of the convergence research support project based on the humanities and social sciences in Korea. First, the research skills of researchers is inadequate. Third, the need for a different approach to the top-down convergence research, etc., was discussed.

Second, the previous studies related to interdisciplinary convergence research were analyzed. The study of humanities based integrated academic convergence research task related derivation method, study of human resources science and engineering interdisciplinary convergence research task related derivation and activation method, study of the humanities and social interdisciplinary convergence research for the mid- to long-term development of key strategic tasks discovery, study of humanities and social interdisciplinary task on how to expand the follow-up project of the convergence research support project, and the study of how to activate convergence research based on case studies at home and abroad, etc., were conducted (Jo, 2009; Jo, 2010; Lim, 2011; Lee, 2013; Kim, 2015; Lee, 2015).

Third, as a result of analyzing the previous studies on the humanities and social science based convergence research, the studies that empirically identified the factors influencing the humanities and social based convergence research performance achievements, and the expansion of the convergence research culture currently pursued by the interdisciplinary convergence research and convergence research among the methodologies to pursue the revitalization of science research, a study that examines the relevance of citizen science, which is grabbing attention for its influence in the field of scientific research, a study on the analysis of factors that motivate the humanities and social based convergence researchers to start research and continue research, how the HubCon conference

can gather humanities and social based researchers to derive new agenda, as well as expand the convergence researchers' research network, symbiosis with other majors, and establish an identity as a convergence researcher were recommended. The studies on industry-academia-research-government cooperation according to the convergence trend, examining various promotion laws existing in Korea, solving the issues currently facing convergence research, and enacting and supporting related laws necessary to activate convergence research were conducted. Furthermore, the studies on the activation of convergence research, study on the relationship between performance achievements and policy decisions, research on convergence research agenda based on the humanities and social sciences, study on ways to nurture convergence talents based on step-by-step roadmaps for convergence education, and convergence in the field of humanities and social sciences, and a study on the long-term support policy of the research support project were conducted (Lee et al, 2018; Jeong and Noh, 2019a; Jeong and Noh 2019b; Noh and Noh, 2020; Noh and Park, 2020a; Noh and Park, 2020b; Park and Noh, 2020; Noh et al, 2021; Noh and Park, 2021; Jeong and Noh, 2021). Furthermore, the National Science Foundation of the United States also presented a study which claimed that it is possible to improve human capabilities such as human health, overcoming obstacles, and military utilization through convergence research, and presented that the convergence of humanities and social sciences and science and technology is important (National Science Foundation, 2003).

3. Research Method

In this study, a comprehensive performance achievements related analysis of the projects conducted by the General Center for Convergence Research was conducted from 2017 through 2020. For the analysis, the General Center for Convergence Research's own annual report and result report were analyzed and used. The General Center for Convergence Research gathered and verified the performance achievements that occurred during the target year of the performance achievements survey to conduct a study on the performance achievements related analysis, confirmed such, and provided the statistics of the final performance achievements.

Classification	Contents
<p>Performance achievements data collection</p>	<ul style="list-style-type: none"> ▶ Survey target: Foundation's 2017-2020 General Center for Convergence Research's performance achievements related tasks ▶ Data collection: Internal annual report and result report within the General Center for Convergence Research
<p>Performance achievements data analysis</p>	<ul style="list-style-type: none"> ▶ General Center for Convergence Research's annual report and performance achievements related quantitative indicator analysis against targets of performance report
<p>Conclusion and Recommendations</p>	<ul style="list-style-type: none"> ▶ Status analysis of the General Center for Convergence Research's operation and recommendations for the future research directions

Fig 1. Research procedures

The analysis of performance achievements was conducted with a focus on the performance achievements that occurred from September 2017 through June 2021 of the General Center for Convergence Research, and the items of analysis were first, convergence research information sharing platform performance achievements related analysis, and for the information sharing platform performance achievements, there are website operation, YouTube operation, information source establishment, and information sharing within the platform. Second, performance achievements were analyzed for the diffusion of the convergence research performance achievements, and the performance achievements diffusion included convergence research council, subject specific seminars, researcher satisfaction surveys, convergence research forums, HubCon conferences, and performance achievements presentations and symposiums. Third, the performance achievements of convergence research academic activities were analyzed, including holding joint seminars and academic conferences, participating in panels, and publishing convergence research journals. Lastly, the diffusion of convergence research performance achievements includes the analysis of performance achievements such as international trend analysis, accumulation and provision of best practices at home and abroad, and publicity.

Table 1. Items of analysis for the performance achievements of the General Center for Convergence Research's convergence research of convergence research support projects

Classification	Analytical details of performance achievements	Details of task for each analysis of performance achievements
Convergence research information sharing platform	<ul style="list-style-type: none"> • Operation of website • Operation of YouTube • Development of information source and sharing of information within the platform 	<ul style="list-style-type: none"> - Development and reorganization of website - Launch of YouTube for convergence research - Operation of YouTube for convergence research - Development and provision of information source (DB) - Big data analysis service - Space for individual research team's research activities - Information on individual research team's research activities
Diffusion activities of convergence research performance achievements	<ul style="list-style-type: none"> • Convergence research council • Subject specific seminar • Researcher satisfaction survey • Convergence research forum • HubCon conference and presentation of performance achievements and symposium 	<ul style="list-style-type: none"> - Formation of convergence research council - Operation of convergence research council - Subject specific seminar (colloquium) (4 times a year) - Results of researcher satisfaction survey - Formation and operation of the convergence research forum committee - HubCon conference and presentation of performance achievements - Holding of symposium
Convergence research academic activities	<ul style="list-style-type: none"> • Holding of joint seminar and academic conference and participation in panel • Publication of academic journal of convergence research 	<ul style="list-style-type: none"> - Joint seminar and academic conference - Convergence panel for academic conference - Execution of MOU - Publication of academic journal
Convergence TIMES	<ul style="list-style-type: none"> • International trend analysis • Accumulation and provision of domestic and international best practices (twice a year) and promotion 	<ul style="list-style-type: none"> - Publication of domestic and international convergence research trend analysis report - Accumulation and provision of domestic and international best practices (twice a year) - Distribution of article - Newsletter - Project unit's promotion email sent out - Social media promotion (Instagram and Twitter)

4. Theoretical Background

4.1 Role and purpose of the General Center for Convergence Research

Convergence research is recognized as a very important field of research in presenting an integrated perspective necessary to solve the complex social problems that cannot be solved by a single academic field. The National Research Foundation of Korea perceives the need for the general convergence research focused on the humanities and social sciences and has subsidized over 200 convergence research tasks for the convergence research teams nationwide as a general joint convergence research support project from 2009 through 2021. The National Research Foundation of Korea perceived the need for a center that oversees and manages convergence research tasks, and established the General Center for Convergence Research towards this end.

The General Center for Convergence Research began its operation in 2011 in a situation where the continuous management of convergence research was required, and established an organic system where the clear definition of convergence research, expansion of base, and performance achievements were linked, and created a forum for the general convergence research support project research team to support the communication between research teams and to efficiently promote the expanding general convergence research project, and for the efficient promotion of general joint convergence research, which is expanding, the National Research Foundation of Korea organized a forum and holds an advisory meeting for the research team of the general joint convergence research support project, and is promoting the activation of general joint convergence research through publicity to the media and the public, and holding joint presentations.

The purpose of the operation of the General Center for Convergence Research is, first, to enhance academic and social contribution, second, to provide convergence research related information, third, to interconnect researchers and share infrastructure, and fourth, to improve the recency and efficiency of access to information (refer to Table 2).

Table 2. Purpose of the General Center for Convergence Research's operation

Classification	Contents	
Enhancement of academic/social contribution	<ul style="list-style-type: none"> - Promote social diffusion of convergence research as well as academic performance achievements - Increase the extent of academic/social contribution 	
Provision of information related to convergence research	<ul style="list-style-type: none"> - Provide information to convergence researchers and research teams at a single site via the establishment of convergence research results 	
Researcher interconnection and sharing of infrastructure	Interconnection of area specific experts	<ul style="list-style-type: none"> - Identify where convergence research related experts, related institutions, and related information materials are located. - Use for interconnection of experts in each field that conducted convergence research
	Contribution to the expansion of science technology and humanities and social convergence research projects	<ul style="list-style-type: none"> - Share infrastructure and interconnection of experts in areas where convergence research is active - Make significant contributions to international science and technology development and humanities, social arts, and physical education
Recency of information and enhanced efficiency of access	Provision of latest and accurate information	<ul style="list-style-type: none"> - Acquire latest, accurate and comprehensive information related to convergence research - Promote autonomous cooperation between organizations or support decision-making of related organizations based on information
	Increased efficiency of access	<ul style="list-style-type: none"> - Increase the efficiency of access and use by designing optimal metadata and constructing the structured meta information from the collected data

4.2 Main functions of the General Center for Convergence Research

The General Center for Convergence Research functions to expand the convergence research culture, share the convergence research performance achievements, and perform the roles for expanding the convergence research networks. Each of the major functions is as follows.

Table 3. Purpose of the General Center for Convergence Research's operation

Classification	Contents
Diffusion of convergence research culture	<ul style="list-style-type: none"> • Build a flexible cooperative system reflecting the voices of the research field by forming a council focused on convergence researchers • Expand the scope of the colloquium for the existing single research team to hold seminars on common topics and pursue continuous cooperation by field • Reorganize the General Center for Convergence Research's website into an information sharing platform and establish and operate additional functions. • Contribute to the expansion of convergence research culture by adding, revising, and publishing new content to the contents of previously published convergence research methodology books
Sharing of convergence research performance achievements	<ul style="list-style-type: none"> • Hold presentation of performance achievements where they synthesize convergence research performance achievements, and presentations of performance achievements are held and demonstrate research performance achievements in various formats such as academic presentations, exhibitions, and conventions. • Present global convergence research trends, issues, and implications for humanities and social based convergence research, derive novel research ideas and design research tasks, present innovative methodologies, and draw policy implications • Regularly publish twice a year to widely publicize Korea's convergence research performance achievements academically at home and abroad, entered among the candidates for publishing in 2020, and seeks to be listed on the KCI in 2022.
Expansion of convergence research network	<ul style="list-style-type: none"> • Focus the conference on network expansion among research teams, methodology sharing, and resolving difficulties and issues throughout research. The convergence research symposium is a forum for discussion and expansion where in-depth discussions are carried out on research trends and current issues, and where interest induced in and support for convergence research from policy makers and the public. • Participate as panel at major academic conferences by field to present the academic, social, and economic values of convergence research, raise perception of convergence research, and encourage participation in research. While expanding the academic base of convergence research by holding joint seminars and academic conferences, build close cooperative relationships with major public institutions and organizations, graduate schools of major universities, and major academic societies with a focus on convergence research as primary business, and build and actively use close networks • Implement publicity to grab attention towards convergence research performance achievements externally via publicity and distribution of performance achievements. Very actively promote publicity by inviting media companies with a wide range of publicity

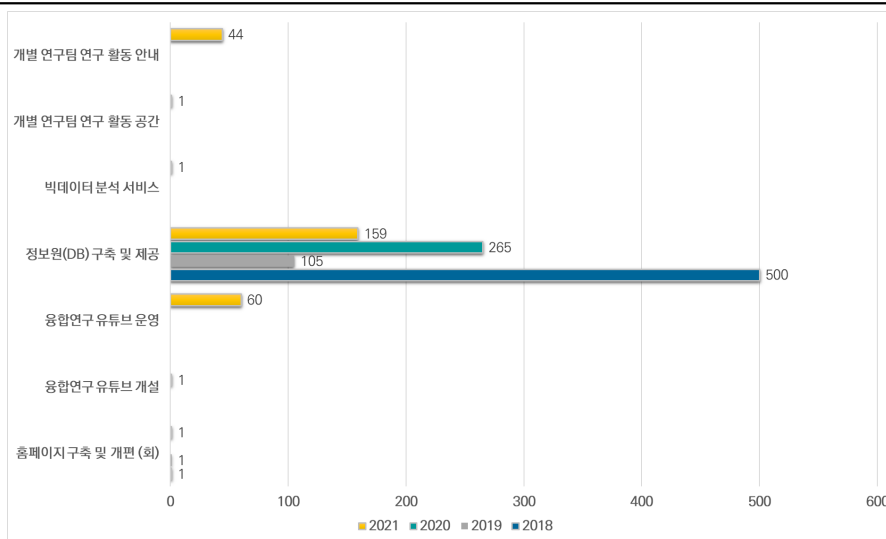
5. General Center for Convergence Research's project performance achievements related analysis (2017–2020)

5.1 Convergence research information sharing platform

The convergence research information sharing platform of the General Center for Convergence Research allows for the website operation, YouTube operation, information source establishment, and the information sharing within the platform. The overall status is organized as follows.

Table 4. General Center for Convergence Research's convergence research information sharing platform

Classification	Name of task	Classification	2018	2019	2020	2021
Operation of website	Development and reorganization of website (session)	N	1	1	-	1
		%	100.0	100.0	-	100.0
Operation of YouTube	Launch of YouTube for convergence research	N	-	-	1	-
		%	-	-	100.0	-
		Operation of YouTube for convergence research (based on 10 cases per year)	N	-	-	-
%	-		-	-	600.0	
Development of information source and sharing of information within the platform	Development and provision of information source (DB) (100 cases provided once per year)	N	500	105	265	159
		%	500	105	265	159
	Big data analysis service (provided once per year)	N	-	-	-	1
		%	-	-	-	100
	Space for individual research team's research activities (building 1 space per year)	N	-	-	-	1
		%	-	-	-	100
	Information on individual research team's research activities (new for 2020-2021)	N	-	-	-	44
%		-	-	-	100	



5.1.1 Status of the website and YouTube operations

The General Center for Convergence Research has provided services such as Center introduction, conference introduction, convergenceNetwork, convergenceINFO, and convergenceTALK since the launch of its website in 2017, and since June 2020, with a view to strengthen its role as an information sharing platform, search functions, event data, and community function have been newly reorganized. The General Center for Convergence Research provides various materials including the information on all studies related to convergence research for the purposes of providing one-stop online service.

The General Center for Convergence Research' website systematically and structurally provides seminar information, performance achievements presentation materials, and trend analysis data of all research teams selected for the interdisciplinary convergence research project, while providing the information on convergence research status, research support status, and convergence research trend analysis. The Center provides the convergence researchers with the latest convergence research trends and ideas by sharing opinions using the various social media such as blogs and Facebook and establishing communication channels between the convergence researchers and the institutions.

The sitemap, which had little to no change since the launch of the website in September 2017 until June 2020, has been reorganized with search functions, event data, and community functions to strengthen its role as an information sharing platform. At the time of initial launch in 2017, it was consisted of information sharing such as data sharing and article sharing. However, when the website was newly reorganized in July 2020, the website was reorganized into an information sharing platform, added functions, strengthened search function, and strengthened event data and community, etc., and after building the website, and based on the steady improvements, site map expansion and change were promoted, and the convergence research was expanded through building a rich database and sharing research results.

Table 5. Status of the General Center for Convergence Research's development and reorganization of website

Name of task	Classification	2018	2019	2020	2021
Development and reorganization of website (session)	N	1	1	-	1
	%	100.0	100.0	-	100.0

Furthermore, a YouTube channel was created to upload the videos related to academic seminars such as HubCon conferences, symposiums, performance achievements presentations, and seminars by topic to ensure that the lively videos may be easily checked. In the case of YouTube, the propagation speed of content is very fast, making it possible to promote the interdisciplinary convergence research to the non-convergence researchers and the public.

The channel has created and provided over 10 video uploads per year related to convergence research, and since YouTube was launched in 2020, the aim was to upload 10 YouTube videos per year by June 2021, and it uploaded a total of 60 YouTube videos in a single year.

Table 6. Status of the General Center for Convergence Research's launch of YouTube and operational status

Name of task	Classification	2018	2019	2020	2021
Launch of YouTube for convergence research	N	-	-	1	-
	%	-	-	100.0	-
Operation of YouTube for convergence research (based on 10 cases per year)	N	-	-	-	60
	%	-	-	-	600.0

5.1.2 Development of information source and the information sharing status within the platform

A one-stop integrated solution was presented, such as the information sharing among convergence researchers, DB establishment, big data analysis service provision, performance achievements of individual tasks, and guidance on holding seminars.

The information sources related to convergence research (books, theses, reports, domestic conference and seminar materials, and government publications, etc.) were established annually and provided on the website. As of June 2021, the information source has created a total of 1,029 cases. In 2018, the first year of information source (DB) development, about 500 convergence research related information sources were established, and from 2019, over 100 sources were steadily established and are serviced via the website.

Furthermore, it support is provided for the big data analysis and individual research team research, and the big data analysis provides convergence research big data analysis once a year based on the latest data related to convergence research. For each individual research team research support, a research activity space is established on the website to provide information on research activities. The research activity space is operated by establishing additional functions to help enhance the convenience of the researchers through the website's reorganization.

Table 7. General Center for Convergence Research's development of information source and sharing of information within the platform

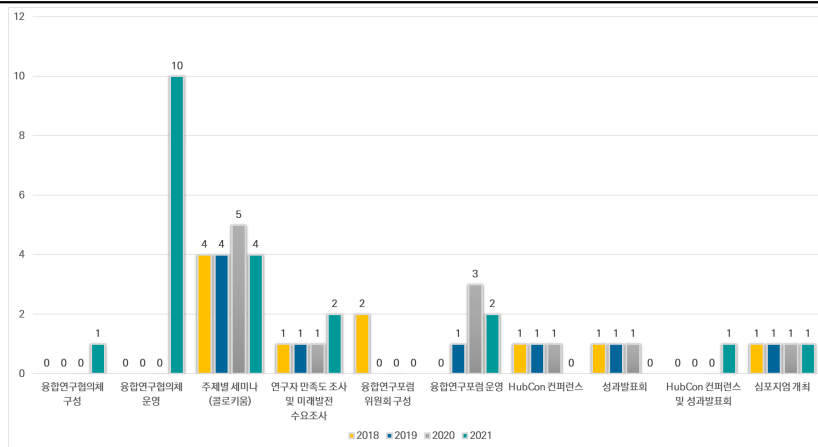
Name of task	Classification	2018	2019	2020	2021
Development and provision of information source (DB) (100 cases provided once per year)	N	500	105	265	159
	%	500	105	265	159
Big data analysis service (provided once per year)	N	-	-	-	1
	%	-	-	-	100
Space for individual research team's research activities (building 1 space per year)	N	-	-	-	1
	%	-	-	-	100
Information on individual research team's research activities (new for 2020-2021)	N	-	-	-	44
	%	-	-	-	100

5.2 Diffusion activities for convergence research performance achievements

The General Center for Convergence Research's convergence research performance achievements related diffusion activities include convergence research council, subject specific seminars, researcher satisfaction surveys, convergence research forums, HubCon conferences, and performance achievements presentations and symposiums, while the overall status is organized as follows.

Table 8. General Center for Convergence Research's convergence research performance achievements diffusion activities

Classification	Name of task	Classification	2018	2019	2020	2021
Convergence research council	Formation of convergence research council	N	-	-	-	1
		%	-	-	-	100
	Operation of convergence research council (operated 3 times per year)	N	-	-	-	10
		%	-	-	-	333
Subject specific seminar	Subject specific seminar (colloquium) (4 times a year)	N	4	4	5	4
		%	100	100	125	100
Researcher satisfaction survey	Researcher satisfaction survey and future development demand survey	N	1	1	1	2
		%	100	100	100	100
	Results of researcher satisfaction survey	N				
		%				
Convergence research forum	Formation of the convergence research forum committee	N	2	-	-	-
		%	100	-	-	-
	Operation of convergence research forum	N	-	1	3	2
		%	-	100	100	100
HubCon conference and presentation of performance achievements and symposium	HubCon conference	N	1	1	1	-
		%	100	100	100	-
	Presentation of performance achievements	N	1	1	1	-
		%	100	100	100	-
	HubCon conference and presentation of performance achievements (integrated)	N	-	-	-	1
%		-	-	-	100	
Holding of symposium	N	1	1	1	1	
	%	100	100	100	100	



5.2.1 Status of the convergence research council

A solid and flexible cooperation system was developed by forming a council focused on the working-level convergence researchers, collecting opinions on the practical technical, administrative, and advisory needs for the field of research, holding customized seminars by field, and organizing event programs at the General Center for Convergence Research.

Since July 2020, with a view to realize the branding of convergence research projects, the convergence research council was formed to operate a forum for exchange where the networking among researchers could be expanded. The convergence research council was conducted with the goal of operating the convergence research council three times from July 2020 to June 2021, and contributed to the expanding effect of networking among researchers through the operation exceeding a total of 10 times (333%).

Table 9. General Center for Convergence Research’s convergence research council

Name of task	Classification	2018	2019	2020	2021
Formation of convergence research council	N	-	-	-	1
	%	-	-	-	100
Operation of convergence research council	N	-	-	-	10
	%	-	-	-	333

5.2.2 Status of seminars (colloquium) by subject

In the case of the subject specific seminars (colloquium), they are operated for the purpose of pursuing continuous cooperation by field by holding seminars on common themes and expanding the scope beyond the colloquium for a single research team. The subject and scope of the colloquium began to be made available to research teams in similar fields with a common denominator of research. They also actively participated in the events of other research teams and provided a certain level of contribution to promote communication and cooperation. The colloquium is efficiently operated by analyzing and systematizing subclassified variables.

Examining the status of seminars (colloquiums) by subject, in 2020, a total of 5 sessions (125%) were operated the most, followed by 4 sessions in 2018, 2019, and 2021, each respectively.

Table 10. General Center for Convergence Research’s subject specific seminar (colloquium) (4 times a year)

Name of task	Classification	2018	2019	2020	2021
Subject specific seminar (colloquium) (4 times a year)	N	4	4	5	4
	%	100	100	125	100

5.2.3 Status of the researcher satisfaction survey

A satisfaction survey was conducted for the events such as the operation of the General Center for Convergence Research, website service, HubCon conference held by the Center, and performance achievements exchange meeting. Based on the satisfaction survey, problems or improvements are identified, and based on which, the efficiency of project promotion and the effectiveness of project performance achievements are provided.

As a result of analyzing the satisfaction survey status, problems were derived by conducting a researcher satisfaction survey for continuous development in large scaled events where the convergence research teams such as HubCon conferences and symposiums gather.

The researcher satisfaction survey was conducted once per year on the average in 2018, 2019, and 2021, and twice in 2021. As a result of analyzing overall satisfaction, 2018 turned out to be the highest at 92.31%, and 2021 was 92.3%, which was high. In the case of 2020 and 2021, as online events were held, the number of participants in satisfaction was found to be relatively low.

Table II. General Center for Convergence Research's researcher satisfaction survey

Name of task	Classification	2018	2019	2020	2021
Researcher satisfaction survey and future development demand survey (count)	N	1	1	1	2
	%	100	100	100	100
Results of researcher satisfaction survey	N (participant)	52	32	19	17
	% (satisfaction)	92.31	84.38	84.2	92.3

5.2.4 Status of the convergence research forum

In the case of the convergence research forum, a committee (writing staff) was formed to present the actual cases of convergence research experiences and share the convergence research methodology to contribute to the expansion of convergence research culture. The convergence research forum was intended to provide helpful guidelines for the convergence research for the follow-up researchers.

As part of the convergence research forum, convergence research performance achievements expansion committee was formed, and in 2018, a book was published on convergence research methodology, and thereafter, through the convergence research forum meetings held once in 2019, 3 times in 2020, and 2 times in 2021, discussions were held on sharing research performance achievements and publishing a revised methodology.

Revolving the authors of methodology, the convergence research mentoring was revitalized, development was achieved towards the civic education based on methodology books, perception of convergence research was raised, academic follow-up generation was fostered through the book development, and the influx of new convergence research teams was further expanded.

Table 12. General Center for Convergence Research's convergence research forum

Name of task	Classification	2018	2019	2020	2021
Formation of the convergence research forum committee	N	2	-	-	-
	%	100	-	-	-
Operation of convergence research forum	N	-	1	3	2
	%	-	100	100	100

5.2.5 Status of HubCon conference, performance achievements presentation, and symposium

The General Center for Convergence Research promotes the convergence research agenda of convergence researchers, serves as a hub between researchers, and promotes convergence research by holding HubCon conference, convergence research performance achievements presentation, and symposium.

First, the convergence research HubCon conference is a forum for the exchange of researchers and new research design, focusing on expanding the research network among research teams based on the humanities and social sciences, sharing research methodologies, and resolving difficulties and issues throughout research. Next of which, the convergence research symposium is a venue for discussion and expansion, conducting the in-depth discussions of research trends and current issues, and inducing interest in and support for the convergence research from policy makers and the public. Lastly, the convergence research performance achievements presentation is an event that synthesizes convergence research performance achievements on an annual basis and presents and demonstrates research performance achievements in various formats such as academic presentations, exhibitions, and conventions. The performance achievements related data book, which collects and publishes achievements, contains various information on the convergence research's excellent performance achievements and convergence research performance achievements by field of convergence.

As a result of analyzing the status of HubCon conferences and performance achievements presentations, the HubCon conferences and performance achievements presentations were separately operated and operated twice a year, once each year from 2018 through 2020. However, since 2021, a forum for presenting the research performance achievements of convergence researchers based on the humanities and social sciences was prepared and operated in an integrated manner to expand support and interest in convergence research through response from policy makers and ordinary citizens, and is operated for a total of 1 session for two nights one day. The convergence research symposium was held once a year, and was conducted online in 2020 and 2021 since the outbreak of COVID-19.

Table 13. General Center for Convergence Research's HubCon conference and presentation of performance achievements and symposium

Name of task	Classification	2018	2019	2020	2021
HubCon conference	N	1	1	1	-
	%	100	100	100	-
Presentation of performance achievements	N	1	1	1	-
	%	100	100	100	-
HubCon conference and performance achievements presentation (integrated)	N	-	-	-	1
	%	-	-	-	100
Holding of symposium	N	1	1	1	1
	%	100	100	100	100

5.3 Convergence research academic activities

The convergence research academic activities of the General Center for Convergence Research include holding joint seminars, academic conferences, participating in panels, and publishing convergence research journals. The overall status is organized as follows.

Table 14. General Center for Convergence Research's academic activities of convergence research

Classification	Name of task	Classification	2018	2019	2020	2021
Holding of joint seminar and academic conference and participation in panel	Joint seminar and academic conference	N	1	1	1	2
		%	100	100	100	100
	Convergence panel for academic conference	N	4	5	4	4
		%	100	125	100	100
Execution of MOU		N	3	4	4	-
		%	100	100	100	-
Publication of academic journal of convergence research	Publication of academic journal	N	2	2	2	2
		%	100	100	100	100

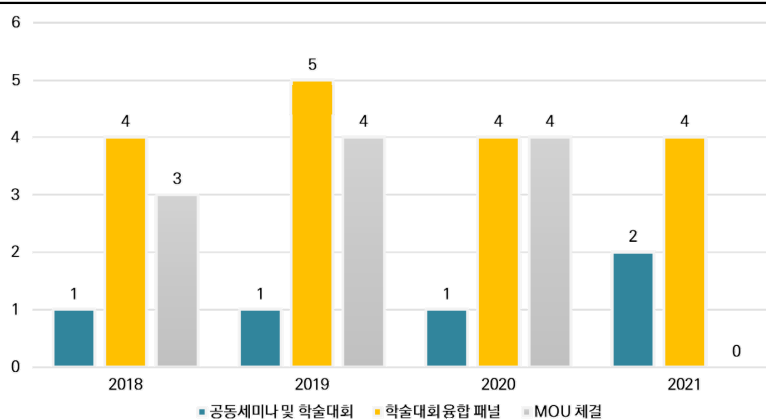
5.3.1 Status of the participation in joint seminars, academic conferences, and panel

Joint seminars, academic conferences, and panel participation primarily revolve the General Center for Convergence Research, and an academic conference that synthesizes convergence research performance achievements for a year is held by a program in association with external convergence research related public institutions, organizations, and academic societies. A convergence research panel is organized separately at the comprehensive academic conference of major academic societies by field to expand the convergence research atmosphere to major academic circles.

As a result of analyzing the status of joint seminars and academic conferences, it turned out that joint seminars and academic conferences were held once a year from 2018 to 2020 and twice a year in 2021, and as for the current status of convergence panels at academic conferences, it was found that participation was made at the General Center for Convergence Research via 4 annual conferences as a convergence panel since 2018, and attended 5 conferences in 2020.

Table 15. General Center for Convergence Research's holding of joint seminars and academic conferences and participation in panels

Name of task	Classification	2018	2019	2020	2021
Joint seminar and academic conference	N	1	1	1	2
	%	100	100	100	100
Convergence panel for academic conference	N	4	5	4	4
	%	100	125	100	100
Execution of MOU	N	3	4	4	-
	%	100	100	100	-



5.3.2 Status of the convergence research journals (JTS)

The General Center for Convergence Research established the convergence research society to expand the convergence research in the humanities and social fields, widely publicize Korea's convergence research performance achievements domestically and internationally, and discriminate and disadvantage convergence researchers when they submit to a single interdisciplinary journal, and since 2017, JTS (convergence research journal), an academic journal focused on the humanities and social sciences, has been published continuously. JTS was first published in December 2017, and from 2018, it has been regularly published twice a year.

Table 16. General Center for Convergence Research's publication of journal

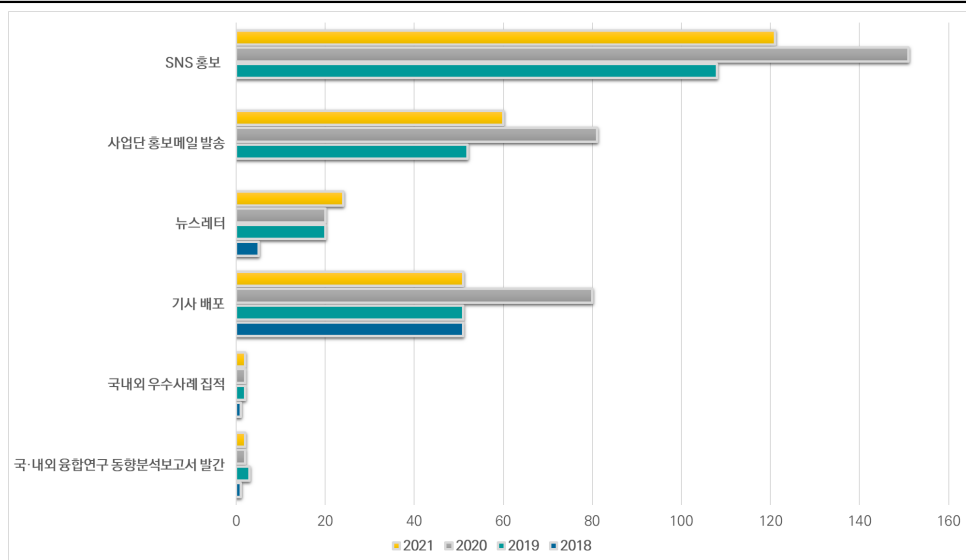
Classification	2018	2019	2020	2021
N	2	2	2	2
%	100	100	100	100

5.4 Convergence TIMES

The convergence TIMES of the General Center for Convergence Research analyzes international trends, collects and provides the best practices at home and abroad, and operates public relations. The overall status is organized as follows.

Table 17. General Center for Convergence Research's convergence TIMES

Classification	Name of task	Classification	2018	2019	2020	2021
International trend analysis	Publication of domestic and international convergence research trend analytical report	N	1	3	2	2
		%	100	100	100	100
Accumulation and provision of domestic and international best practices	Accumulation and provision of domestic and international best practices (twice a year)	N	1	2	2	2
		%	100	100	100	100
Publicity	Distribution of article	N	51	51	80	51
		%	102	102	160	102
	Newsletter	N	5	20	20	24
		%	100	100	100	100
	Project unit's promotion email sent out	N	-	52	81	60
		%	-	104	162	120
	Social media promotion (Instagram and Twitter)	N	1 (개월)	108	151	121
		%	100	216	302	242



5.4.1 Current status of the provision of international trend analysis of convergence research

The publication of the domestic and international trend analysis of convergence research report presents global convergence research related trends, issues, and implications for humanities and social based convergence research, identifies research areas that are rising as issues, reads the changing trend of society, and promotes significant progress in the field of research. As a result of analyzing the current status of international trend analytical reports, it turned out that they were published once a year in 2018, three times a year in 2019, and twice a year from 2020 to 2021.

Table 18. General Center for Convergence Research's provision of international trend analysis of convergence research

Name of task	Classification	2018	2019	2020	2021
Publication of domestic and international convergence research trend analytical report	N	1	3	2	2
	%	100	100	100	100

5.4.2 Accumulation and provision of the best practices at home and abroad

Based on the in-depth analysis and provision of success factors, failure factors, and convergence research performance achievements know-how of various convergence related research cases at home and abroad through the domestic and international casebooks, they have encouraged the researchers to create convergence research ideas and motivate them to research. As a result of analyzing the current situation, it turned out that the collection and provision of best practices has been published twice a year since 2019, starting with the once per year publication in 2018.

Table 19. General Center for Convergence Research's accumulation and provision of best practices

Name of task	Classification	2018	2019	2020	2021
Accumulation and provision of domestic and international best practices (twice a year)	N	1	2	2	2
	%	100	100	100	100

5.4.3 Status of publicity

The General Center for Convergence Research may be largely classified into performance achievements of the convergence research project group, promotion of promotion events, and reporting on General Center for Convergence Research activities, and they are actively promoting publicity through methods such as recruiting media companies with a wide range of publicity, social media, and mailing.

It may be largely classified into performance achievements of the convergence research project group, promotion of promotion events, and reporting on the General Center for Convergence Research activities, and they actively promote publicity by inviting media with a wide range of publicity. Furthermore, the newsletter is regularly published twice a month for the researchers participating in the convergence research support project to provide the information related to academic support projects, and a monthly newsletter 2 for the researchers participating in the convergence research support project. They regularly send out promotional emails for 6-7 articles and provide the General Center for Convergence Research and project related information. Lastly, as for the social media (Instagram and Twitter), by utilizing the characteristics and strengths of social media, the convergence researchers were enabled to easily check various events and services provided by the General Center for Convergence Research. Through social media, the users' opinions are collected in real time or a communication channel is established by and between the convergence researchers and institutions.

As a result of analyzing the General Center for Convergence Research's promotion status, the convergence research publicity and performance achievements articles are distributed through the national media companies, with 51 articles published in 2018 and 2019 each, 80 articles in 2020 and 2021 annually, and it turned out that over 50 articles were published annually with 51 articles. Next of which, the newsletter has expanded from 5 times a year in 2018 to over 20 times a year, 2 times a month from 2019 onwards. and convergence researchers, 51 cases per year in 2019, 81 cases in 2020, and 60 cases in 2021. Lastly, for the social media promotion, the General Center for Convergence Research created accounts with Instagram and Twitter in 2018, and began operating social media full fledgedly in 2019, and in 2019, 108 promotions were carried out, 151 in 2020, and 121 promotions in 2021, respectively.

Table 20. Promotion of the General Center for Convergence Research

Name of task	Classification	2018	2019	2020	2021
Distribution of article	N	51	51	80	51
	%	102	102	160	102
Newsletter	N	5	20	20	24
	%	100	100	100	100
Project unit's promotion email sent out	N	-	52	81	60
	%	-	104	162	120
Social media promotion (Instagram and Twitter)	N	1 (개설)	108	151	121
	%	100	216	302	242

6. Conclusion and Recommendations

6.1 Conclusion

With a focus on the research teams that are included in the interdisciplinary convergence research support project and general joint research support project and that perform the convergence tasks, the General Center for Convergence Research is operating the convergence research information sharing platform activities, convergence research performance achievements diffusion activities, convergence research academic activities, and convergenceTIMES (status analysis and publicity activities) to expand the convergence research culture, share convergence research performance achievements, and expand the convergence research networks, whose performance achievement analysis may be organized as follows.

First, as a result of analyzing the performance achievements of the convergence research information sharing platform, the convergence research information sharing platform operates website operation, YouTube operation, information source establishment, and information sharing within the platform, and the results of analyzing the overall performance achievements are as follows. First, the website was reorganized once in 2017, reorganized once in 2019, and reorganized once in 2021. Next

of which, after launching YouTube in 2020, 60 videos per year in 2021 (600% compared to the initial goal) were uploaded. As of June 2021, as of June 2021, a total of 1,029 books, dissertations, reports, among other databases were established as a source of information on the website, and over 100 cases per year, up to 500 cases (2018) were developed, while the big data analysis service was provided once a year and a space for research activities was provided.

Second, as a result of analyzing the convergence research performance achievements and diffusion activities performance achievements, as for the convergence research performance achievements diffusion activities of the General Center for Convergence Research, convergence research council, subject specific seminars, researcher satisfaction surveys, convergence research forum, Herbcon conferences, and performance achievements presentations and symposiums are operated, and the overall status may be organized as follows. First, in 2021, a convergence research council was formed and 10 meetings were held. Next of which, subject specific seminars are aimed at operating 4 times a year, 5 times in 2020, 4 times each in 2018, 2019, and 2021. Furthermore, for the continuous development of the Center, a researcher satisfaction survey was conducted once a year to examine and understand problems. In the case of the satisfaction survey, it was the highest at 92.31% in 2018, followed by 92.3% in 2021, 84.38% in 2019, and 84.2% in 2020, respectively. Furthermore, the convergence research performance achievements diffusion committee was formed, and the convergence research performance achievements diffusion committee was operated 1-3 times a year. Furthermore, in the case of the Hubcon conference and performance achievements presentation, they were operated twice each, once each from 2018 to 2020, but from 2021, they were operated once in an integrated manner to expand the performance achievements and promote the participation.

Third, as a result of analyzing the performance achievements of convergence research academic activities, the convergence research academic activities of the General Center for Convergence Research include holding joint seminars, academic conferences, participating in panels, and publishing convergence research journals, whose overall status is organized as follows. First, joint seminars and academic conferences were held once a year from 2018 to 2020 and twice a year in 2021. Furthermore, JTS, a convergence research journal for the convergence researchers based on the humanities and social sciences, was published, which was launched in December 2017 and published twice a year from 2018 (issue 1 on June 30th, and issue 2 on December 31st).

Lastly, as a result of analyzing the convergence research TIMES performance achievements focused on publicity of convergence research and publication of best practices, the convergence TIMES of the General Center for Convergence Research analyzes international trends, collects and provides best practices at home and abroad, and operates publicity, whose overall status may be organized as follows. First, international trend analysis was published once a year in 2018, 3 times a year in 2019, and twice a year from 2020 to 2021, and the collection and provision of the best practices was published once a year in 2018 and twice a year from 2019. Furthermore, as a result of analyzing the current status of public relations, 51 articles were published in 2018 and 2019, 80 in 2020, and 51 in 2021. In the case of the newsletter, it has been published 5 times a year in 2018 and 2 times a month and 20 times or more per year since 2019, and mailing was carried out to send newsletters and articles to the project groups and convergence researchers, and 51 cases were sent out in 2019, 81 cases in 2020, and 60 cases were sent out in 2021. Lastly, it turned out that

as a result of analyzing the current status of social media operation, it turned out that since launching the social media in 2018, 108 cases were operated in 2019, 151 cases in 2020, and 121 cases were operated in 2021.

6.2 Recommendations

When the research results are comprehensively analyzed, the General Center for Convergence Research has consistently achieved the Center's target performance achievements each year under a quantitative plan, and if the quantitative performance achievements are not achieved due to unavoidable circumstances such as COVID-19, it turned out that the maximum effort that may be seen as performance achievements has been made. Such efforts are aimed at fully fulfilling the roles of expanding humanities and social based convergence research, thereby serving as a hub among the convergence researchers, which is the mission of the General Center for Convergence Research, and discovering new agenda for the convergence research.

Based on this research analysis, first, the research status of convergence research based on website analysis, humanities and social sciences, research support status, and convergence research trend analysis information are provided, opinions are shared by using various social media, and a communication channel between convergence researchers and institutions was established, and by providing trends and ideas for the researchers, it promoted the expansion of convergence research ideas. Furthermore, by uploading performance achievements of the General Center for Convergence Research and convergence research teams, it is possible to publicize the humanities and social based convergence research to the non-convergence researchers and the public, thereby expanding the field of convergence research.

Second, it has contributed to the activation of convergence research mentoring focused on authors of methodology, development achieved towards the civic education based on methodology books, raising perception of convergence research, nurturing the next generation of academics through book development, and expanding the influx of new convergence research teams. The in-depth discussions of research trends and challenges were conducted, and the interest in and support for the convergence research were increased for the policy makers and the public.

Third, it yielded the expansion of support for the convergence research by presenting countermeasures for the new trends and challenges to the policy makers, including convergence researchers, and the public, and conducting the in-depth discussions. Furthermore, by holding joint conferences, exchanges between the research teams were expanded and the convergence research activation was induced through participation in the domestic convergence research related societies and research institutes, and a new convergence research agenda was discovered through the joint conference of convergence research. Through such role of the Center, the researchers who seek to challenge pursuing the humanities and social based convergence research can relieve the trouble and effort of finding partners with whom they can collaborate, and expect the academic development through publications such as journals and domestic and international academic seminars.

Lastly, a report which analyzed the overall trend of the convergence research projects conducted by major foreign institutions can help contribute to the convergence researchers' identification of domestic and international convergence research trends, establishment of research directions, and

the performance of research.

In this study, the operational status was analyzed based on the rate of achievement against the goals of the existing General Center for Convergence Research based on the quantitative indicators of the General Center for Convergence Research. Yet, the qualitative evaluation standards for the General Center for Convergence Research were prepared and the opinions of comprehensive researchers were collected to examine and understand the need to establish a direction for the Center. However, this study conducted only the analysis of the project performance achievements of the General Center for Convergence Research, and it was difficult to identify as to what are needed for the provision of services and programs needed for the convergence researchers other than the current functional analysis of the General Center for Convergence Research. Hence, it would be necessary to propose the ways to strengthen the hub function of the General Center for Convergence Research through the researcher surveys and interviews in the future.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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