RENCANA STRATEGIS PENELITIAN

Universitas PGRI Semarang
Tahun 2024-2028

Rencana Strategis Penelitian
(RENSTRA)
Universitas PGRI Semarang
Tahun 2024-2028.

YAYASAN PEMBINA LEMBAGA PENDIDIKAN PERGURUAN TINGGI PGRI SEMARANG
UNIVERSITAS PGRI SEMARANG
Jl. Sidodadi Timur Nomor 24 - Dr. Cipto Semarang - Indonesia
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RECTOR'S DECISION

UNIVERSITY OF THE TEACHERS ASSOCIATION OF THE REPUBLIC OF INDONESIA SEMARANG

NUMBER: 035.b/SK/UPGRIS/VII/2024

ABOUT

DETERMINATION OF STRATEGIC RESEARCH PLAN PGRI SEMARANG UNIVERSITY 2024-2028

RECTOR OF THE UNIVERSITY OF THE TEACHERS ASSOCIATION OF THE REPUBLIC OF INDONESIA, SEMARANG,

Weigh : **a. that in order to guarantee the implementation of measurable and competitive research programs at PGRI Semarang University, it is necessary to have a plan for the direction of research development at PGRI Semarang University;**

b. that in connection with point (a) above, it is necessary to have a strategic research plan for PGRI Semarang University as a guide for policy and decision-making in managing research activities over a five-year period;

c. that in connection with points (a) and (b) above, so that the implementation of research within the Semarang PGRI University environment can run well, it is deemed necessary to determine the Semarang PGRI University Research Strategic Plan for 2024-2028 by decision of the Cha

Remember : **1. Law of the Republic of Indonesia Number 12 of 2012 concerning Higher Education;**

2. Government Regulation of the Republic of Indonesia Number 4 of 2014 concerning the Implementation of Higher Education and Higher Education Management;

3. Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 53 of 2023 concerning Quality Assurance of Higher Education;

4. Decree of the Minister of Education and Culture of the Republic of Indonesia Number 143/P/ 2014 dated April 17, 2014 concerning the Merger of IKIP PGRI Semarang and Semarang Technology Academy organized by YPLP PT PGRI Semarang in Semarang city, Central Java province to become PGRI Semarang University organized by YPLP PT PGRI Semarang in Semarang city, Central Java province;

5. Decree of YPLP PT PGRI Semarang Number: 075/PY/U/Kpts/3.1/YPLP PT PGRI/V/2019 dated May 10, 2019 concerning the Statute of PGRI Semarang University; 6. Decree of YPLP PT PGRI Semarang Management Number 095/PY/U/Kpts/3.1/YPLP PT PGRI/V/2022 dated May 20, 2022 concerning the Appointment of the Chancellor of PGRI Semarang University for the 2022-2026 term.

In view of: Decision of the Senate Meeting of PGRI Semarang University Number 002/NR/SENAT/UPGRIS/VI/2024 dated June 24, 2024.

DECIDE

Set : **DECISION OF THE RECTOR OF PGRI SEMARANG UNIVERSITY CONCERNING THE DETERMINATION OF THE PLAN RESEARCH STRATEGY OF PGRI SEMARANG UNIVERSITY 2024-2028**

First : **Establishing the Strategic Research Plan of Semarang PGRI University for 2024-2028 as listed in an integral attachment to this decision;**

Second : **This decision comes into force from the date of stipulation and if there are any errors in the future In this decision, improvements will be made as appropriate.**

Established in: Semarang
On Date: July 1, 2024
Rector,

Dr. Sri Suciati, M.Hum.
NIP 196503161990032002

Copies are sent to:
1. Head of YPLP PT PGRI Semarang 2. Vice Chancellor 3. Dean 4. Director of Postgraduate Studies 5. Head of Institution 6. Head of UPT 7. Head of Bureau within the University of PGRI Semarang

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PIG
INTRODUCTION

A. BASIS OF THINKING

In accordance with the mandate of Law Number 17 of 2007 concerning the National Long-Term Development Plan (RPJPN) 2005-2025, one of the national development missions is to create a quality and competitive nation. To realize a quality and competitive nation, the government needs to develop human resources who have the capability to master and utilize science and technology (IPTEK) through research, development, and application towards sustainable innovation. The government continues to promote higher education as one of the national education systems through the Tridharma of Higher Education to increase research capacity and competence; improve development capabilities towards a science and technology-based creation process; institutional and researcher networks in the local, regional, and global spheres; increase the productivity and relevance of national R&D to answer the technological needs of society; and the utilization of national research and development to create added value to natural resources and national innovation products in order to increase economic competitiveness. As a follow-up to this government policy, the Ministry of Research, Technology and Higher Education through the Director of Research and Community Service has established a tiered and gradual decentralization of higher education research. The government's determination of decentralization of higher education research is intended to encourage each higher education institution to realize research excellence, increase competitiveness in the research field, increase the number of lecturers participating in conducting research, and improve the capacity of research management in higher education institutions.

Through this determination, since 2016, Universitas PGRI Semarang through the Institute for Research and Community Service (LPPM) has obtained authority and delegation of some tasks from the Ministry of Research, Technology, and Higher Education as the manager of research activities in the main cluster. The logical consequence of this authority, Universitas PGRI Semarang has a greater responsibility to continue to strive to play a role in increasing the quantity, quality, and excellence of research, increasing the relevance of research to the technological needs of society, increasing the competitiveness of research and innovation products, and developing institutional and researcher networks at the local, regional, and global levels. Based on this, Universitas PGRI Semarang through the Institute for Research and Community Service needs to establish a Research Strategic Plan (Renstra) as a policy direction and decision-making in managing research activities for the next five-year period starting from 2024-2028.

LPPM Universitas PGRI Semarang has determined research fields that refer to the National Research Master Plan (RIRN) 2017-2045 as stated in Presidential Regulation of the Republic of Indonesia Number 38 of 2018. By considering the potential of scientific fields, human resources, and existing facilities and infrastructure, LPPM Universitas PGRI Semarang has determined 5 (five) fields, namely: (1)
Education, (2) Engineering, Science and Environment, (3) Food Security, (4) Economics, Management and Business, (5) Social Humanities. These five research fields are expected

able to be a direction, reference, and guideline for lecturers or researchers, managers and policy makers in implementing and managing research activities within the PGRI Semarang University environment.

B. Institutional Research Roadmap

Table 1.1

Research Roadmap of PGRI Semarang University

No. Research Topic A.	**2024**	**2025**	**2026**	**2027**	**2028**
Education Field					
1. Human Resource Development (HRD) in the field of education: a. Educators and education personnel. b. Professionalism of prospective educators. c. The role of society in the field of education. d. Implementation of educational standards. e. Character education and competitiveness. f. Cognitive psychology.	v v v v v v	v v v v v v	v v v v v v	v v v v v v	v v v v v v
2 Character Education a. Character Education Curriculum. b. Developing a Character-Based Society. c. System innovation in educational planning and implementation. d. Development of a character-based school model with a global perspective e. Development of learning resources and learning media f. Monitoring and evaluation of character education with a global perspective g. Local wisdom (Indigenous Study)	v v v v v v v	v v v v v v v	v v v v v v v	v v v v v v v	v v v v v v v
3. Educational Development a. Curriculum reform b. Application of technology in education 4. Innovative Learning	v v	v v	v v	v v	v v
Resources and Media a. Educational teaching aids b. Innovative modules c. Innovative learning applications	v v v	v v v	v v v	v v v	v v v
5 Approaches, Models, Methods, and Learning Strategies *a. Digital learning* b. Collaborative learning	v v	v v	v v	v v	v v
6 Learning evaluation a. *Authentic* evaluation b. Output-based evaluation	v v	v v	v v	v v	v v
7 Policy, Education Management, and Learning curriculum for Early Childhood Education, Elementary, Middle, and Higher Education a. Education Policy and Management	v	v	v	v	v

	Early Childhood Education and Elementary School b. Secondary Education Policy and Management c. Education Policy and Management High	vv	vv	vv	vv	vv
8 Guidance and Counseling a.	Guidance and Counseling Services b. IT-based Guidance and Counseling Media c. Guidance and Counseling Management	vv	vv	vv	vv	vv
9 Development of basic education and	medium in an effort to increase the Gross Participation Rate (APK): a. Educators, students and education personnel b. Education financing c. Education policy	vv vv vv vv vv				
10 Language and Literature Education for Early Childhood	Education, Elementary, Middle, and Higher Education a. Indonesian Language and Literature Education b. English Language and Literature Education, c. Regional Language and Literature Education	vv	vv	vv	vv	vv
11. Sports and Recreation Education *a.*	*Sports Pedagogy b.* *Sports Coaching* c. *Sports Recreation*	vv	vv	vv	vv	vv
B Engineering, Science, and Environment						
1 Information and communication technology						
	a. ICT infrastructure b. Software-based development *open source* c. Development of ICT content enhancement technology d. Social research supporting the ICT field	vvv vvv vvv vvv vvv				
2. Transportation	a. Structure and engineering of construction systems Buildings and transportation b. Universal *design* in architecture c. Transportation management	vv	vv	vv	vv	vv
3. Energy	a. Energy conservation and renewable energy b. Energy control *systems system)*	vv	vv	vv	vv	vv
4. Engineering and applied geology 5.		v	v	v	v	v
Provision of Water Resources (SDA) and Sanitation						
	a. Conservation of natural resources b. Sanitation Management c. Natural Resource Control	vv	vv	vv	vv	vv

6. Advanced Materials and Manufacturing a. Advanced materials b. Renewable building materials c. Industrial automation, Industry 4.0 d. Additive manufacturing and subtract manufacturing	ww ww ww ww ww				
7 Buildings a. Building conservation b. Traditional buildings c. Local wisdom in the environmental field d. *Green building* and *green design* e. Behavioral architecture Construction management	ww	ww	ww	ww	ww
8. Environment a. Conservation of natural resources and the environment b. Engineering of natural resources and the environment c. Disaster mitigation d. Regional planning and design Environmental pollution	ww	ww	ww	ww	ww
9 Environmental Biology a. Abiotic and biotic factors b. Eco Enzyme c. Ethnobotany d. Local Wisdom Study *(Indigenous Study)*	ww	ww	ww	ww	ww
10 Botany and applied studies in the field of Botany a. Growing media b. Urban Farming c. Plant tissue culture	ww	ww	ww	ww	ww
11 Zoology and applied studies in the field of Zoology a. Animal feed innovation b. Maintenance management c. Utilization of livestock waste d. Utilization of fishery waste	ww	ww	ww	ww	ww
12 Physics a. Applied Physics b. Theoretical and Computational Physics	vv	vv	vv	vv	vv
C. Food Security Sector 1. Food and nutrition technology a. Food chemistry and analysis b. Food processing engineering c. Food microbiology and safety d. Biochemistry, nutrition and health e. Applied food D. Economics,	ww ww ww ww ww				
Management and Business 1. Creative economy management a. human resource development in the economic sector creative b. development of marketing management in the creative economy sector. Economic contribution	vv	vv	vv	vv	vv

	creative c. development of financial management in creative economy sector d. Tourism development 2.	vv	vv	vv	vv	vv
	Digital Creative Entrepreneur a. digital-based business development b. prototype creation skills development c. software development	vvv	vvv	vvv	vvv	vvv
	3 *Digital Business Analyst Digital mediatics* a. development of business analysis skills *Digital* marketing strategy b. development of data analysis c. development of *machine learning: supervised; unsupervised; semi-unsupervised, reinforcement learning* E. Social Humanities Field 1 Social Humanities a. Transdisciplinarity of Social Studies Education b. Formation of Civil Society in Indonesia	vv	vv	vv	vv	vv
	2 Public Law and Private Law a. Crimes against people b. Crimes against objects c. Cybercrime *law* d. Legislation e. Human Rights (HAM) f. Inheritance Law g. Protection of Intellectual Property Rights 3 Implementation of Law a. Public Legal Awareness	————				
	b. Private Legal Awareness	vv	vv	vv	vv	vv
	4 Protection of children and women a. Protection of children from violence b. Health and nutrition c. Child-friendly schools and environments d. Childcare in the *cyber* era e. *Indigenous* studies	vvv	vvv	vvv	vvv	vvv
	5. Women's empowerment a. Women's dual roles b. Gender studies c. *Indigenous* studies	vv	vv	vv	vv	vv
	6 Population a. Demographic bonus b. Family development c. Reproductive health	vv	vv	vv	vv	vv
	7 Literature a. Concept and Development of Literature b. Study of Literary Works	vv	vv	vv	vv	vv

	c. Literature in Language Learning	v	v	v	v	v
	d. National Literature	v	v	v	v	v
8	Linguistics					
	a. *Micro Linguistics*	v	v	v	v	v
	b. *Macro Linguistics*	v	v	v	v	v
	c. Linguistics in language learning	v	v	v	v	v
9	Translations					
	a. Non-literary language translation	v	v	v	v	v
	b. Literary Language Translation	v	v	v	v	v
10	Culture and Arts	v	v	v	v	v

C. STATUTES OF **PGRI UNIVERSITY OF SEMARANG**

The basis for conducting research activities as the second dharma activity of the Tri Dharma of Higher Education and the Catur Dharma of University is explained in the 2019 Statute of the Semarang PGRI University, Chapter X, Part Two, concerning Research, Article 87 as follows:

Article 87

1) Research activities at the University are integrated activities to support educational, teaching and community service activities.
2) Research activities carried out at the University include research basic, applied research, and development research.
3) Basic research is intended to develop science.
4) Applied research is intended to support education, development institutions, science, technology, and art.
5) Development research to develop education, teaching, science, technology, art and community service.
6) Research is conducted by following scientific rules and ethics in the field. which is pursued.
7) Research results that constitute Intellectual Property Rights (IPR) must be protected. protected in accordance with statutory provisions.
8) Publication of research results is carried out in scientific periodicals with ISSN or accredited or international scientific periodicals recognized by the Ministry and other forms of scientific publication.

Article 88

1) The implementation of research is coordinated by the Institute for Research and Community Service.
2) Research can be conducted by the institution itself or through collaboration. between universities and/or other institutions.
3) Research implementation includes planning, implementation, monitoring, reporting and evaluation activities.
4) Research activities are carried out by lecturers and can involve students and/or educational staff either in groups or individually.
5) Further provisions regarding the implementation of research activities

as referred to in paragraphs (1) to (4) and Article 87 paragraphs (1) to (6) are regulated in the Chancellor's Regulations after receiving Senate approval.

CHAPTER II

BASIS FOR WORK UNIT DEVELOPMENT

A. VISION AND MISSION

1. Vision and Mission of PGRI Semarang University

Vision : To become a superior and authentic university.

Mission : Organizing the University's Catur Dharma (education, research, community service, and role models) to form intellectuals and leaders who excel and have national character for the benefit of life and living.

2. Vision and Mission of LPPM PGRI Semarang University

Vision : To become a research and community service institution (LPPM) in the field of science and technology with excellence and identity.

Mission :

a. Developing an academic culture with character (based on the values of Pancasila, struggle, solidarity, devotion and service) in research.

b. Producing superior, reliable, and dedicated research and service personnel national character.

c. Developing superior research and increasing the role of PGRI Semarang University in terms of research, community service, and international-level publications.

d. Develop and realize superior products resulting from research for the benefit of society.

e. Achieving and increasing the acquisition of IPR for research results and developing community empowerment in the context of IPR protection.

f. Improve and realize internal and external cooperation networks in field of research and community service.

g. Towards a Research University with character by developing the relevance of research and community service based on National Character, ICT, and Local Excellence to improve the quality of education, the needs of the business and industrial world, and society in general.

B. ANALYSIS OF CURRENT CONDITIONS

1. History of the Development of LPPM PGRI Semarang University

The development of the Institute for Research and Community Service (LPPM) is certainly inseparable from the development of the university that houses it, and this is also the case with the LPPM at PGRI Semarang University. The LPPM was established when PGRI University...

Semarang was still known as the IKIP PGRI Central Java. A brief history of its development is as follows.

Until 2000, the Research Institute took the form of a Research Center. From 2001 to 2006, the Research Center was transformed into the Institute for Research and Community Service (LPPM). From 2007 to 2009, LPPM was separated into the Research Institute and the Community Service Institute. From 2010 until now, the Research Institute and the Community Service Institute were merged again into LPPM with Rector's Decree No. 124/SK/IKIP PGRI/IV/2011 which coordinates two centers, namely the Center for Research on the Teaching Profession and the Center for Real Work Lecture Development. Starting in 2015, LPPM developed 4 centers, namely the Center for Community Empowerment and KKN, the Center for Education and Humanities, the Center for Population, Women and Child Protection, and the Center for Science, Technology and Intellectual Property Rights. Furthermore, in 2016, another center was added, namely the Center for Downstreaming of Research Results and Business Incubator with Rector's Decree No. 051.B/SK/UPGRIS/VII/2016. In 2023, based on Rector Regulation No. 007/PR/UPGRIS/III/2023 concerning the Organizational Governance of PGRI Semarang University Article 51 paragraph 2, LPPM has 7 centers, namely: (1) Center for Education and Humanities Studies, (2) Center for Science and Technology Studies, (3) Center for Population Studies, Women and Child Protection, (4) Center for Community Empowerment and Real Work Lectures, (5) Center for IPR Development, Journals and Publications, (6) Publishing Center, (7) Center for Innovation Excellence, Business Incubator and Downstreaming.

2. LPPM Performance Achievements

Since 2016, LPPM Universitas PGRI Semarang has achieved the main cluster with the authority of decentralized research from the Directorate General of Higher Education with Decree No. 2331/DRPM/TU/2016. The Main Cluster continues to this day based on the announcement of the Director of Research, Technology and Community Service number 0183/E5.5/AL.04/2023 dated March 8, 2023 concerning the Announcement of Clustering of Higher Education Institutions Providing Academic Education. LPPM's work achievements from 2019 to 2023 are as follows:

a. Achievements of scientific publications

The achievements of scientific publications from year to year show varying dynamics. Books with ISBNs have tended to decline over the past three years. Reputable international journals peaked in 2020, then declined for two years, then increased slightly in 2023. International journals have tended to decline. Accredited national journals have risen and then fallen with the same pattern each year. Meanwhile, scientific publications indexed by Google Scholar have tended to increase annually. The number of publications is shown in Table 2.1.

Table 2.1
Number of Scientific Publications

No	Publication Type	Year				
		2019	2020	2021	2022	2023

1	Publication in Scopus	73	101	61	36	63
2	Publications in WoS	12	14	6	5	5
3	Publications on Garuda	628	590	678	786	616
4	Publications on Google Scholar	1438	1421	1635	1712 1787	
5	Books with ISBN	45	42	71	52	36

b. Amount of IPR obtained

Of the seven categories of IPR, three were obtained: simple patents, trademarks, and copyrights. There has been a significant increase in the acquisition of copyrights, as shown in Table 2.2 below.

Table 2.2

Amount of IPR Acquisition

No.	Types of Awards	Year				
		2019	2020	2021	2022	2023
1	Patent	-	-	-	-	-
2	Simple Patent	-	-	3	-	5
3	Brand	-	-	4	1	2
4	Geographical Indication	-	-	-	-	-
5	Industrial Product Design	-	-	-	-	-
6	Copyright	30	49	73	150	333

c. Research funds obtained

Research funding was obtained from the Dikti-DRTPM Grant, APBU Funds, and LPPM partners (BKKBN, DP3A Semarang City, Semarang City Population and Family Planning Control Office, BRIN). The funding obtained is shown in Table 2.3.

Table 2.3

Research Funds from Various Sources (in millions of rupiah)

No.	Type of Funding Source	Year				
		2019	2020	2021	2022	2023
1	Dikti-DRTPM Grant	4,139,770,501	3,604,528,000	4,040,281,000	2,952,622,000	3,298,734,000
2	APBU	690,300,000	610,490,000	712,300,000	875,128,000	1,107,738,500
3	Partner Collaborations	50,000,000	50,000,000	115,899,815	125,000,000	325,000,000
	Amount	4,880,070,501	4,265,018,000	4,868,480,815	3,952,750,000	4,731,472,500

3. **Role and Function of LPPM**

LPPM PGRI Semarang University has the following roles and functions:

a. Planning, coordinating, implementing, monitoring and evaluating the implementation of research and community service activities.
b. Developing science, technology, and/or art to support development, especially for marginalized communities. c. Facilitating various
research and community service activities carried out by researchers and community service personnel within the PGRI Semarang University environment.

d. Fostering and developing centers within the LPPM of PGRI Semarang University.

4. **Potential in the Field of Research, Human Resources, Facilities and Infrastructure, Management Organization, and Cooperation**

a. Potential Research Fields

The sources of research and community service funding received by LPPM Universitas PGRI Semarang come from internal and external sources.

The absorption of inter-research funds, including: APBU Funds from PGRI Semarang University, Ministry of Education, Culture, Research, and Technology, Representative of BKKBN of Central Java Province, Ministry of Women's Empowerment and Child Protection of the Republic of Indonesia and Regional Governments. The total amount of research funds obtained over the past five years is presented in table 2.4.

Table 2.4

Research with APBU Funds and Partner Collaboration

No Faculty	2019	2020	2021	2022	2023
1 FIP	111,000,000	104,500,000	107,475,000	195,500,000	331,000,000
2 FPIPSKR	80,500,000	88,500,000	120,000,000	214,520,000	229,000,000
3 FPMIPATI	194,000,000	73,000,000	70,000,000	110,500,000	120,000,000
4 FPBS	120,000,000	77,500,000	122,500,000	141,400,000	273,885,000
5 FTI	149,800,000	117,500,000	100,000,000	108,243,000	112,856,000
6 FH	8,000,000	22,500,000	12,500,000	21,000,000	44,000,000
February 7	27,000,000	27,490,000	37,500,000	47,000,000	90,497,500
8 POST	102,000,000	104,000,000	142,325,000	161,965,000	231,500,000
TOTAL	690,300,000	614,990,000	712,300,000	1,000,128,000	1,432,738,500

Table 2.5

Government-Funded Research

NO	Source of funds	2019	2020	2021	2022	2023
1	DRTPM Grant	4,139,770.501	3,604,528,000	4,040,281,0000	2,952,622,000	3,298,734,000
2	Central Java BKKBN	-	-	807,220,000	-	-
3	External (Partners)	50,000,000	30,000,000	115,899,815	-	-
4	Scientific Research LPDP	-	-	345,000,000	-	-
TOTAL		4,189,770.501	3,634,528,000	5,308,400.815	3,297,622,000	3,298,734,000

b. Potential in the Human Resources Field and Research Topic Interests

Table 2.6

Number of Permanent Lecturers at PGRI Semarang University

Faculty	Study program	2023
FIP	BK	20
	Elementary School Teacher Education	38
	Early Childhood Education	11
	Amount	**69**
FPIPS-KR	Civics	10
	Economic Education	9
	PJKR	22
	Amount	**41**
FPMIPATI	Mathematics Education	19
	Biology Education	16
	Physics Education	8
	PTI	6
	Amount	**49**
FPBS	PBSI	20
	PBI	21
	PBSD	5
	Amount	**46**
F Engineering & Informatics	Electrical Engineering	5
	Mechanical Engineering	13
	Civil Engineering	11
	Architecture	7
	Informatics	10
	Food Technology	7
	Amount	**53**
F Economics and Business	Management	20
	Digital Business	5
	Amount	**25**
F Law	Law	9
	Amount	**9**
POST-BACHELOR	Master of Educational Management Master	14
	of Indonesian Language and Literature Education Master	6
	of Science Education Master of	5
	English Education Master of Elementary	6
	Education Master of Mathematics	5
	Education PPG	5
		5
	Amount	**46**
Total Number of Lecturers		**338**

Table 2.7

Human Resources Based on Educational Level and Functional Position in 2023

Educational level	Functional Position

Doctor	Master	Professor		Lecturer Head	Assistant	Lecturer	Power Teacher
129	209	6		44	201	70	17

Table 2.8
Ranks and Classes of Lecturers at PGRI Semarang University in 2023

No	Rank/Group	Amount
1	Main Supervisor/IVe	1
2	Senior Supervisors, Intermediate/IVd	2
3	Young Main Supervisors/IVc	4
4	Level I/IVb Supervisors	10
5	Supervisors/IVa	23
6	Level I/IIId Arrangers	49
7	Arranger/IIIc	146
8	Young Arrangers Level I/IIIb	103

Table 2.9
Number of research titles based on interest

No	Interest	Year				
		2019	2020	2021	2022	2023
1.	Education Field	23	38	41	47	39
2	Engineering, science and environmental fields	8	12	9	8	8
3	Areas of Food Security	2	6	7	4	3
4	Field of Economics, Management, and Business	12	14	13	12	14
5	Social Humanities Fields	9	21	16	17	19

From the data above, it can be concluded that the quality of human resources owned by PGRI Semarang University is adequate to support research and community service activities.

c. Potential in the Facilities and Infrastructure Sector

Semarang PGRI University has facilities and infrastructure to support LPPM operational activities on Campuses I, II, III, and IV which can be used for research and community service activities.
To support its activities, LPPM has a secretariat, office equipment, scientific research journals with ISSNs, and an IPR Center. These journals serve as a platform for facilitating the publication of research outputs.
In addition, LPPM also provides supporting facilities for research and community service activities as listed in table 2.10 below.

Table 2.10

Supporting Facilities for Research and Community Service Activities

(Facilities, Infrastructure, Activity Funding Sources) 2023

No.	Facility	Is there a number or not?			Information
1.	Management Room LPPM	ÿ		1	LPPM and IPR Center
2 Meeting Rooms		ÿ		6	Available at the Hall and at University
3 Display Rooms		ÿ		2	LPPM
4. Computer (PC/Laptop) ÿ				5	Available at the Secretariat LPPM
5.	Processing Software Data	ÿ		5	SPSS, Minitab, AMOS, NVivo, Winstep
6. Printer		ÿ		3	Available at the Secretariat LPPM
8. Internet Network		ÿ		1	Available at the Secretariat LPPM
9. Library		ÿ		2	Available at the University
10	Laboratory Supporters	ÿ		27	Each study program has a laboratory support for research activities

d. Potential Field of Management Organization

ORGANIZATIONAL STRUCTURE

Research Institute of PGRI University of Semarang

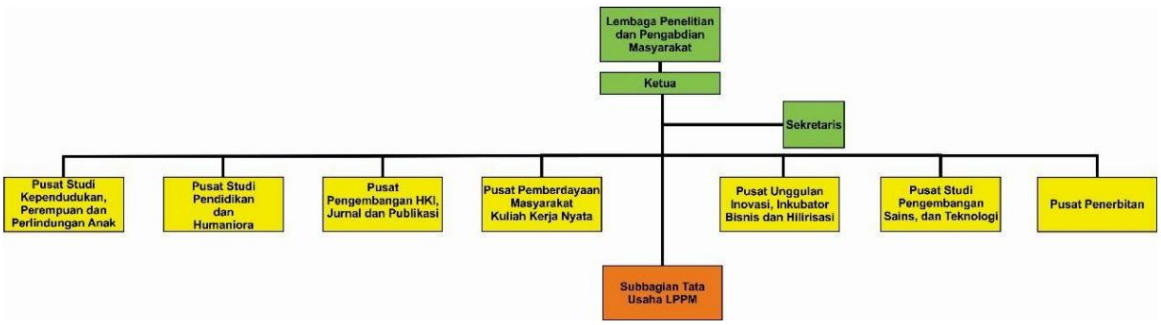

Figure 2.1 Organizational Structure of LPPM PGRI Semarang University

Based on Rector's Regulation No. 007/PR/UPGRIS/III/2023 Universitas PGRI Semarang regarding the Governance Organization of PGRI Semarang University Article 51 paragraph 2, LPPM has 7 centers, namely: (1) Center for Education and Humanities Studies, (2) Center for Science and Technology Studies, (3) Center for Population, Women and Child Protection Studies, (4) Center for Community Empowerment and Real Work Lectures, (5) Center for IPR Development, Journals and Publications, (6) Publishing Center, (7) Center for Innovation Excellence, Business Incubator and Downstreaming. The existence of these 7 centers is expected to increase the effectiveness of LPPM's performance achievements.

The organizational structure of LPPM for the 2023-2027 term of office is shown in Figure 2.1.

e. Potential Fields of Cooperation

Universitas PGRI Semarang has collaborated with various universities at the regional, national, and international levels, such as University Technology Malaysia (UTM), Dusit Rajabhat University and Burapha University, Thailand; the Temenggong Ibrahim Teacher Education Institute, Malaysia, and USAID.

This situation also presents excellent potential for research and community service. The following are collaborations with government institutions.

Table 2.11

Table of Cooperation with Foreign Institutions or Agencies

No.	Institution/Working Partner	Activity	Implementation date
1	Coventry University, United Kingdom	International Research Seminar *The 5th International Conference on Education and Social Science Research (ICESRE)* 2022 with the theme *Enhancing Professional Academic Culture: Freedom to Teach, Freedom to Learn, and Freedom to Innovate"*	October 5, 2022
2	Deakin University, Australia	International Research Seminar *The 5th International Conference on Education and Social Science Research (ICESRE)* 2022 with the theme *Enhancing Professional Academic Culture: Freedom to Teach, Freedom to Learn, and Freedom to Innovate"*	October 5, 2022
3	Schoolcraft College, United States of America	International Research Seminar *The 5th International Conference on Education and Social Science Research (ICESRE)* 2022 with the theme *Enhancing Professional Academic Culture: Freedom to Teach, Freedom to Learn, and Freedom to Innovate"*	October 5, 2022
4	Physics Jan Dlugosz University, Czestochowa, Poland	*Guest Lecture on Theoretical Physics*	November 2022
5	Affairs Offices International (KUI) Ghasimov (University of Samara Russia)	*Offline Joint International Visiting Professors.*	July 15, 2022

No.	Institution/Working Partner	Activity	Implementation date
6	Fatoni University Thailand	*Offline Joint International Visiting Professors.*	July 15, 2022
7	Hassan First University, Morocco	*Offline Joint International Visiting Professors.*	July 15, 2022
8	EIILM Kolkata India	*Offline Joint International Visiting Professors.*	July 15, 2022
9	Universiti Malaya, Malaysia).	*Offline Joint International Visiting Professors.*	July 15, 2022
10	Department of Theoretical Physics, Jan Douglasz University, Poland	Joint Research	February 1, 2023
11	ABES Engineering College (ABESEC), India	Joint Research	February 28, 2023
12	Universities of Technology Malaysia	Joint Research	February 14, 2022
13	RV University India	Joint Research	May 22, 2022
14	Mariano Marcos State University, Philippines	Joint Research	February 14, 2023
15	Universities of Education Sultan Idris	Joint Research	September 13, 2023
16	EIILM Kolkata India	Joint Research	March 24, 2022
17	School of Education, Kathmandu University, Nepal	Joint Research	April 17, 2023
18	GAZI University Türkiye	Joint Research	September 13, 2023

5. **SWOT Analysis (Strengths, Weaknesses, Opportunities, and Threats)**

1) *Strengths* are advantages possessed by an organization that influence its development. 2) *Weaknesses* are deficiencies that an organization has, which, if overcome, will impact development efforts in achieving organizational goals. 3) *Opportunities* are opportunities that exist for an organization to achieve its goals.

Opportunities can have a positive impact if they are quickly seized and implemented. 4) *Threats* (threat) Obstacles are not always negative, they can also turn into positive ones when the entire academic community works together to find solutions.

Self-evaluation is carried out using a SWOT analysis based on strengths *and* weaknesses *as* internal factors that LPPM has to capture opportunities *and* anticipate threats *from* external factors, and strengths that can be used to overcome weaknesses *or* be utilized to capture external opportunities and avoid external threats.

The variables analyzed include: human resources, infrastructure, organization and management/ governance, collaborative relationships, and financial resources, which are described as follows:

Table 2.12
SWOT Analysis

VARIABLES	*STRENGTH*	*WEAKNESS*	*OPPORTUNITY*	*THREAT*
1. Human resources	1. Lecturers' IPR works 1. There are still many do not have a degree 2. The number of lecturers with has increased scientific young potential who are friendly to renewable technology 3. Increased involvement of lecturers in research 4. Increased involvement of lecturers in a scientific meeting at the international level International and national 5. Lecturer potential with a doctoral qualification.	1. The large number of lecturers who expertise/doctoral research opportunities 2. Teaching load Lecturers are still high causing quality Lecturer in science is still low 3. The number of lecturers involved in national competitive research is relatively low compared to the number of existing lecturers.	increasing functional positions to higher levels (adjunct professor and professor) 2. Increasingly open access to information and communication encourage lecturers to interact and collaborate with experts from other countries 3. Ease of access international journals, encouraging lecturers to utilize opportunity to publish the results of his research in the arena international 4. Social influences such as demographic bonuses in 2020 to 2030 and the peak will occur in 2028. Demographics accompanied by the era of Generation Z will influence the number of productive and multi-tasking ages with a progressive way of thinking, creating an opportunity for a larger workforce of lecturers who are more qualified and	1. The speed of change in social phenomena is a new challenge for lecturers in the era of disruption 2. Increasing the number and quality of competitors from within both domestic and overseas 3. Scopus citation and publication ratings as a benchmark for the success of a College The Industrial Revolution 4.0 demands intelligence and long-term vision

			productive so that it can increase more useful research in a way commercialization	
2. Facilities-infrastructure	1. Meeting room facilities can be used for researcher consolidation. 2. Each faculty within UPGRIS has own laboratory 3. The university has subscribe to reputable journals (Scopus)	1. Technicians for repair maintenance research adequate lecturers 2. Information system including database not fully integrated to support research	1. High interest and on equipment lacking need adequate space for consultation 2. Opportunity to play a role in the development and improvement of innovation systems in Indonesia is open width for UPGRIS	1. Adequate meeting rooms can be used for consultations. LPPM activities 2. The rapid development of information technology and the digital world requires big data approach, internet of things, automation, virtual connectivity, and speed increasingly high response
3. Organization and management / Governance	1. Position of LPPM cluster Main based on Decree of the Ministry of Education and Culture No. 0241/E5/DT.06.01/2023 2. Simple organizational structure 3. 5 Study Centers have been established 4. There is internal quality assurance and external 5. LPPM as the manager of Research and Development activities Community Service 6. Research policies from upstream to downstream have been institutionalized and become a guide for programs and development.	1. Areas of expertise that are not evenly distributed according to needs concentration. 2. international scientific publications indexed, accredited national journals, international proceedings indexed, national proceedings and journals published by UPGRIS are relatively low 3. Downstream, implementation and commercialization Research output is still low and needs improvement.	1. Ranking position can be upgraded to LPPM Independent 2. Student potential to support LPPM management 3. Development several fields of science that are fast and growing complex areas such as maritime, aerospace technology, medicine and medical equipment health, *transborders)* security and 4. Development of food security, policies at the national and other advanced levels and technologies	1. Demands LPPM management which is able to synergize with various institutions both within both inside and outside UPGRIS 2. Each unit must certified 3. The development of higher education without limits and across borders *(borderless* and rapid international response requires a wall-breaking response

		4. Lack of use of research results to support teaching and community service.		administrative and technical
4. Network of cooperation	1. Collaboration between institutions and various agencies is increasing 2. Support 2. Acquisition of Regional Government Output, or Outcomes and private institutions, as well as domestic and foreign Universities a willing country cooperate. 3. There are doctors who have just completed their studies and have potential research experiences and ideas as well as ideas for collaboration models with the institutions where they study.	1. Research collaboration is still limited to the national scope. HKI is not yet attractive investor interest in applying lecturer findings	1. Open research collaboration offers and opportunities Cooperation with non-research-based institutions of higher education and dedication 2. The influence of the community on the environment which is initiated by changing by exploring very locally 3. Cooperation with Industry involves students as assistants so that students gain research experience 4. *Joint research* with other lecturers between universities both national scale both international and domestic	1. Fierce competition between universities in Indonesia in establishing cooperation with 2. dynamic, demanding increasingly dynamic research topics and competition. The demand will The recency of research topics and research outcomes is a must so that research can be used on an industrial scale. so that it can contribute to economic acceleration and technology Indonesia
5. Source research financial power	1. Funds are available from APBU 2. Facilities, funding, infrastructure, and information systems and human resources have been developed to support research policies	1. Still limited external funding 2. Research budget from renewable energy APBU is still not 2. ideal	1. Opening of funds 1. Not yet optimal for research funds for the field of disaster mitigation and Inter-PT research Opportunity to submit proposals and ideas for research and studies with government and private agencies at the local, national and international levels.	2. Universities in Indonesia are starting to realize the importance of “fighting” for research funds, both from the Ministry Ministry of Research and Technology/BRIN, as well as from other sources other funding

Based on the SWOT analysis above, conclusions can be drawn from each aspect as follows:

1. Human Resources

   UPGRIS has sufficient resources in terms of educational qualifications and competencies. Ninety-five percent of lecturers are already involved in research. However, many lecturers still do not *qualify* for external grant funding under certain schemes. Therefore, serious efforts are needed to improve lecturers' eligibility for external grant funding.

2. Facilities and Infrastructure

   Each faculty has adequate laboratories. However, their use is still limited to teaching. Going forward, laboratories must be optimally utilized to support research activities. Furthermore, the university has subscribed to reputable international journals (Scopus) to enhance research performance.

3. Organization and management/Governance

   LPPM is in the main cluster. It is expected to be upgraded to an independent cluster within the next five years. The seven centers within LPPM and the study centers within the faculties and study programs are expected to improve research output oriented toward Sinta scores.

4. Collaboration Network

   UPGRIS has established strong partnerships with top-ranked universities, both domestic and international. However, these partnerships are still limited to education. Research collaborations are still under-performing. Therefore, lecturers are encouraged to collaborate on research with lecturers from other universities.

5. Research financial resources

   UPGRIS has allocated funds for research activities, including external incentives. However, this amount still needs to be increased.

6. **Approach to Developing a Research Strategic Plan**

The approach to compiling the research strategic plan follows the flow in Figure 2.2.

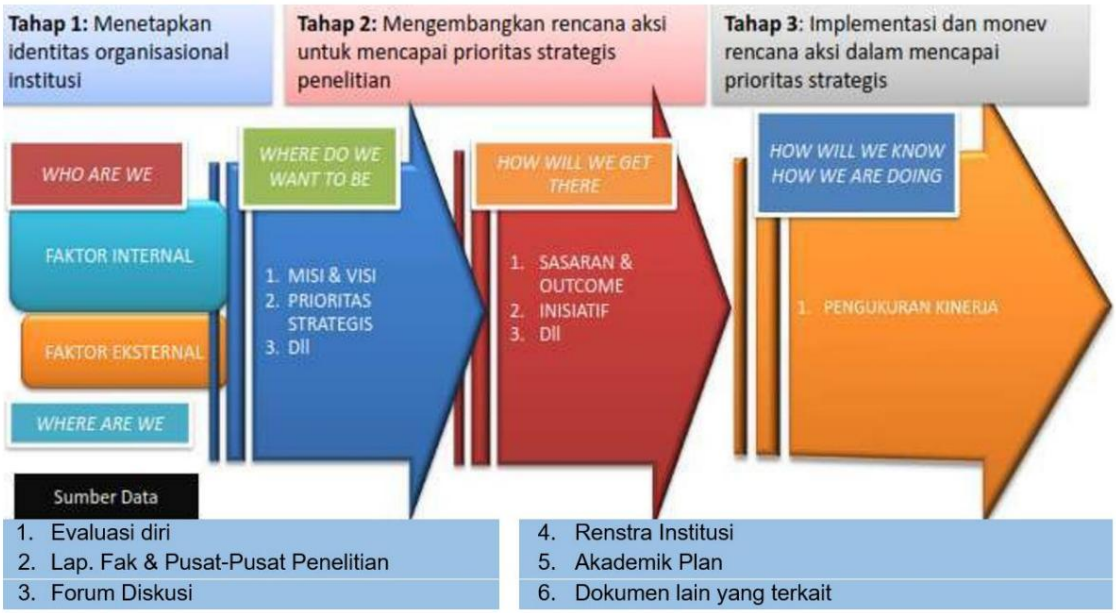

Figure 2.2 Approach to Developing a Research Strategic Plan

CHAPTER III

OUTLINE OF THE STRATEGIC RESEARCH PLAN

A. IMPLEMENTATION OBJECTIVES AND TARGETS

Based on the vision and mission, the objectives of the PGRI University strategic research plan are: Semarang can be described as follows:

1. General Objectives

The general objective of the Semarang PGRI University strategic research plan is to serve as a reference for managers and lecturers in conducting research to realize the university's superior focus in the fields of social humanities; education; science and environmental engineering; digital management and business; and food security.

2. Specific Objectives

The specific objectives of the strategic research plan of PGRI Semarang University,

a. produce various innovations from research that focuses on 5 (five) scientific fields as the research flagships of Semarang PGRI University, both in basic research schemes, applied research, and development research.

b. produce various technologies from research that focuses on 5 (five) scientific fields as the research flagships of Semarang PGRI University, and can be applied in education and community life.

c. Producing outputs from 5 (five) leading research fields of PGRI Semarang University which are published in various accredited national journals, international journals and reputable international journals.

d. Generate IPR and/Patents from various products produced based on 5 (five) leading research fields of PGRI Semarang University.

e. Marketing research products from various fields related to 5 (five) fields that focus on the research excellence of PGRI Semarang University.

f. generate *revenue generation* related to 5 (five) fields that focus on the research excellence of PGRI Semarang University.

3. Main Target

The main targets of the strategic research plan of PGRI Semarang University are:

a. Develop and increase the quantity and quality of research in the fields of social humanities; education; science and environmental engineering; digital management and business; and food security, especially research oriented towards grant funding (off-campus/partner funding).

b. Increase the number of scientific articles in accredited national journals, journals international, and reputable international journals.

c. Increase the number of IPR and Patent acquisitions from research products.

d. Increase the number of collaborative research between universities, both in both domestically and abroad.

e. Developing commercialization and downstreaming of research results *revenue generating* oriented .

B. Work Unit Strategies and Policies

1. **Work Unit Development Strategy Map**

The Institute for Research and Community Service (LPPM) of Universitas PGRI Semarang views that the paradigm of future higher education development is oriented towards being able to face a number of major challenges originating from environmental changes that are anticipatory-innovative steps and have an appreciative impact on society. For this purpose, the role of LPPM is needed in the dynamics of the strategic environment in the future trajectory in a *prefigurative, postfigurative,* and *cofigurative manner.* In other words, LPPM Universitas PGRI Semarang is faced with various changes, both in its internal and external environments, and therefore must be able to provide appropriate answers to various emerging challenges .

The strategic factors examined in the formulation of the LPPM Universitas PGRI Semarang's Strategic Research Plan are grouped into two categories. First, environmental input, which encompasses the dynamics of LPPM Universitas PGRI Semarang's strategic environment. Second, instrumental input, which encompasses applicable regulations and laws that directly or indirectly influence the development of LPPM Universitas PGRI Semarang.

The Institute for Research and Community Service (LPPM) of Universitas PGRI Semarang is preparing itself to meet both internal and external demands. Among the internal demands are autonomy and accountability in implementation, as well as improving the quality and relevance of educational outcomes. Meanwhile, external demands stem from changes in the global environment that require a shift in the role of higher education institutions from traditional learning institutions to knowledge creators and research centers (research universities) developed based on strategic planning that prioritizes a comprehensive multidisciplinary approach.

There are four things that LPPM must pay attention to in contributing to the implementation of the vision and mission of Universitas PGRI Semarang. First, LPPM must be able to accommodate lecturers to produce innovative and creative research outputs in the utilization of science and technology based on the superior research of Universitas PGRI Semarang in 5 (five) scientific fields. Second, LPPM must be able to accompany lecturers in conducting research so that they can adopt science and technology to be subsequently converted into products that are beneficial to the general public. Third, LPPM must be able to improve the quality of research results and have a strong character so that the resulting products are worthy of obtaining IPR or Patents. Fourth, LPPM encourages lecturers to be productive in producing scientific outputs from their research that are published in accredited national journals, international journals, and reputable international journals.

Table 3.1
Research Development Strategy Map

No	Strategy	Year of Implementation					Information
		2024	2025	2026	2027	2028	
1	STRATEGY 1: Optimization of LPPM governance system, development of directory system, research quality assurance,	ÿ	ÿ	ÿ	ÿ	ÿ	Optimization and productivity of each component of governance University LPPM PGRI Semarang
2	STRATEGY 2: Increasing the effectiveness of LPPM performance by establishing centers to support the productivity of LPPM UPGRIS: 1) center of excellence for innovation, business incubator and downstreaming; 2) center for population studies, women and child protection; 3) center for development of intellectual property rights, journals and publications; 4) center for education and humanities studies; center for community empowerment and community service 5) programs; 6) center for development of science and technology; 7) publishing center.	ÿ	ÿ	ÿ	ÿ	ÿ	Target: Increasing number of research products from lecturers with ISBN; increasing number IPR and Patents; increasing number of articles published in accredited national journals, international journals, and reputable international journals; and the development of commercialization and downstreaming of research products through assistance from related units.
3	STRATEGY 3: Improving the quality of research in the social humanities; education; science and environmental engineering; digital management and business; and food security	ÿ	ÿ	ÿ	ÿ	ÿ	Target: Increasing the number and quality (innovation and technology) of lecturer research in 5 (five) leading research areas PGRI University Semarang, especially those oriented towards grant funding (DRTPM)
4	STRATEGY 4: Increasing the productivity *of research groups* that are oriented towards consistency in research fields and support the scientific knowledge of lecturers and ÿ LPPM research roadmap		ÿ	ÿ	ÿ	ÿ	Target: The formation of a research *peer group* of lecturers who are consistent and continuously conduct research in the scientific field

No	Strategy	Year of Implementation					Information
		2024	2025	2026	2027	2028	
							according to the LPPM research roadmap which is able to produce research products that are published at the national level and International
5	STRATEGIES 5: Increasing student involvement in lecturer research to support student research references and integration of research results in the field of education.	ÿ	ÿ	ÿ	ÿ	ÿ	Target: Each lecturer's research title involves a number of students who can be adapted into the student's thesis/dissertation research, and the research results can be integrated into a number of courses in Education and teaching.
6	STRATEGIES 6 Increase the quantity and quality of large-scale research International with funding sources from APBU, Ministry of Education, Culture, Research and Technology, and Foreign cooperation		ÿ	ÿ	ÿ	ÿ	Target: There is an increase in the number of lecturers' research collaborations with other institutions, both domestic and foreign.
7	STRATEGIES 7 Other research enhancements outside the study group are developed through research *peer groups* to build study groups and will eventually form new research centers or other study sections within existing research centers.		ÿ	ÿ	ÿ	ÿ	Target: Generated stub other scientific fields that can support the LPPM research roadmap

2. **Formulation of Development Strategy**

The strategies chosen to achieve the formulated targets are as follows:

a. continuous improvement of the quantity, quality and loyalty of human resources including allocation of time for research and community service,

b. development of infrastructure facilities following developments and the needs of the community researchers,

c. development of research organizations starting from research study groups to research centers to create cross-field collaboration while prioritizing accountability and transparency as well as coordination with LPPM,

d. expanding cooperation networks with industrial, private and government institutions at national and international levels,

e. increasing seminars, *workshops* and other scientific activities in the field of research, And

f. increasing the publication of the work results and products of the LPPM of PGRI Semarang University on the media.

g. To implement the chosen strategy to achieve the target, a strategy is required. thorough planning, with the following details:

1) General plan

a) Developing the quantity and quality of research to achieve competitive government/ private grant schemes at home and abroad.

b) Develop research to obtain IPR.

c) Increase research collaboration with national institutions and international.

d) Increase the number of articles published in accredited national journals and international journals.

e) Developing the *website* directory of LPPM Universitas PGRI Semarang.

f) Improve the culture of research and journal writing through competitive grants.

g) Increase the relevance of research to community needs.

2) Special plans (integration of research activities and community service) public)

a) Increase cooperation in developing research groups in research study groups to strengthen centers in LPPM Universitas PGRI which are able to meet and provide solutions to problems needed by the community. Five leading areas (social humanities; education; science and environmental engineering; digital management and business; and food security) and seven centers in LPPM, namely: (1) center of excellence in innovation, business incubator and downstreaming; (2) center for population studies, women and child protection; (3) center for development of intellectual property rights, journals and publications; (4) center for education and humanities studies; (5) center for community empowerment and real work lectures; (6) center for development of science and technology; (7) publishing center.

b) Increase the number of IPR acquisitions

1) propose research results to obtain IPR,

2) propose the provision of funds for the IPR application process from the University,

3) improve research results to obtain licenses, and

4) create SOPs for managing IPR at LPPM UPGRIS, related to IPR services both inside and outside UPGRIS.

c) Increase research collaboration and community service with universities from within and outside the country

1) strengthening and improving networks with national and international institutions in the field of research and community service.

2) strengthening and improving cooperation with national and international partner institutions.

d) Increase the number of articles published in accredited national journals and international journals

1) increasing access activities for research results and community service in accredited national journal publications and international journals,

2) providing awards or incentives for accredited national and international publications,

3) holding workshops on preparing research and community service proposals for national and international competitive grants, and

4) holding a workshop on writing research articles/scientific works on accredited national journals and international journals.

3) Optimizing the use of the LPPM website, and through the SIMPELMAS program, the results of research and community service are transferred to the LPPM website.

4) Improve the culture of research and community service and journal writing

(1) conducting national and international scientific seminars on research results and community service,

(2) carrying out writing of national and international scientific articles, and

(3) Increase research and community service grants.

5) Increase the relevance of research to community service activities public.

(1) utilize research results for the benefit of society,

(2) utilize the results of community service to meet needs and provide solutions to community problems,

(3) improve research output,

(4) downstreaming and commercialization of research outputs, and

(5) forming a Startup Company (startup company), from research results.

3. **Policy on the Division of Research Types**

LPPM manages several types of research. Broadly speaking, these can be categorized into internal research funded by universities and external research funded by the Ministry of Education, Culture, Research, and Technology, as well as other domestic and international institutions. These types of research can be divided into two categories:

a. **Internal research**

Semarang PGRI University has determined a policy that the direction of superior research for the 2024-2028 period is superior research on "society 5.0 and local wisdom" with five fields, (1) Education, (2) Engineering, Science and Environment, (3) Food Security, (4) Economics, Management and Business, (5) Social Humanities. This was decided based on the consideration that the five fields have a clear and authentic research track record. These five fields are coordinated by the chair by involving various researchers and community service workers from various disciplines in various faculties and study programs at Universitas PGRI Semarang as well as researchers from other institutions with research schemes grouped into several schemes, namely: (1) Fundamental Research, (2) Applied Research, (3) Development Research, (4) Domestic Collaborative Research, (5) Foreign Collaborative Research, (6) Assignment Research, (7) APBU Grant Research.

b. **External research**

External research is research schemes from other institutions, both domestic and international. LPPM facilitates lecturers in obtaining research from external parties such as DRTPM, LPDP, BRIN, BKKBN, and so on.

CHAPTER IV

TARGETS, STRATEGIC PROGRAMS, AND WORK INDICATORS

A. TARGET

The LPPM's targets and work programs are based on its vision and mission, namely to become a leading and distinctive research and community service institution (LPPM). The research areas to be conducted are (1) Education, (2) Engineering, Science and Environment, (3) Food Security, (4) Economics, Management and Business, (5)
Social Humanities. The objectives of the research activities are elaborated as follows:

1. Increasing coordination, cooperation and synergistic interaction between various units at PGRI Semarang University in research activities to create superior and distinctive human resources.

2. Increasing the quality and quantity of Human Resources who are capable of conducting research in a professional, moral and ethical manner, supported by adequate research infrastructure and facilities.

3. Increasing research activities that can be promoted and obtained recognition, both at national and international levels.
4. Increased cooperation and partnerships with other universities, government agencies, the business world, and the community in mastering and utilizing research results.

5. Increasing the development of science and technology inspired by national character and local wisdom for community service and entrepreneurship.

B. RESEARCH PROGRAMS

1. Education

The research program in the field of education focuses on the development and application of science and technology for education as a strategic program/main research priority. Conducting fundamental, applied, and developmental research in the following areas:

a. Development of education
b. Innovative Learning Resources and Media
c. Learning Approaches, Models, Methods, and Strategies
d. Learning Evaluation
e. Education Policy, Management, and Education Curriculum.
f. Guidance and Counseling
g. Development of Primary and Secondary Education for Marginalized Communities in Efforts to Increase the Gross Participation Rate (APK)
h. Language and Literature Education
i. Physical Education and Sports

2. Engineering, Science and Environment

Research, development, and application programs in the fields of engineering, environment, and science as strategic programs/main research priorities. Conducting fundamental, applied, and development research on:

a. Information and Communication Technology
b. Transportation
c. Energy
d. Provision of Water Resources and Sanitation

e. Advanced Materials
f. Manufacturing g.
Buildings h.
Environment i.
Environmental Biology j.
Botany and Applied Studies in Botany k. Zoology and Applied
Studies in Zoology l. Physics m. Geology

3. Food Security

Research, development, and application of science and technology in the field of food security as a strategic program/main research priority. Conducting fundamental, applied, and development research in the field of Food Technology and Nutrition, consisting of:

a. Food Chemistry and Analysis b. Food
Process Engineering c. Food Microbiology and Safety
d. Biochemistry, Nutrition, and Health e. Applied
Food

4. Economics, Management, and Business

Research, development, and application programs in the fields of economics, management, and business as a strategic program/main research priority. Conducting fundamental, applied, and development research on the following:
a. Creative Economy

b. Creative Industry Management c.
Digital Creative Entrepreneur d. *Business*
Analyst Digital Mediatics

5. Social Humanities

The research program in the field of social humanities focuses on the development and application of science and technology for social humanities as a strategic program/main research priority.
Conducting fundamental, applied and development research on the following studies:

a. Law
b. Protection of Children and Women c. Empowerment
of Women d. Population e. Literature

f. Cultural and Philosophical Studies g.
Linguistics h.
Translation i. National
Insight j. Culture and Arts

C. RESEARCH TOPICS

The main research themes and topics at the LPPM Universitas PGRI Semarang are divided into five thematic groups. These themes are detailed in Table 4.1.

Table 4.1. a. Formulation of Research Topics in the Field of Education

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Concept of Thinking (4)	Solution Problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
Development Human resources in the field of education	1. Educators and educational staff.	Education Era Revolution 4.0 21st Century Education Digital era education	Development Human Resources (HR) for increase productivity, professionalism in the field of formal, non-formal and informal education	Research on Educators and Power Education	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
	2. Professionalism Resource Human Resources (HR)	Education Era Revolution 4.0 Student Education Pancasila 21st Century Education Digital era education	Development Human Resources (HR) for increase productivity, professionalism in the field of formal and non-formal education and informal	Research on Professionalism Resources Human Resources (HR)	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Concept of Thinking (4)	Solution Problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
	3. The role of society in the field of formal and informal non-formal education	Education Era Revolution 4.0 Pancasila Student Education 21st Century Education Digital era education	Development Non-educational Human Resources (HR) for formal and informal education increasing productivity and professionalism in the field of formal and non-formal education and informal	Research on	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
	4. Implementation of educational implementation standards	Education Era Revolution 4.0 Pancasila Student Education 21st Century Education Digital era education	Development Resource Human resources (HR) for standards to increase productivity, professionalism in the field of formal and non-formal education and informal	Research on Implementation implementation of education	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
	5. Education character and competitive	Character building Nation	Developing education to enhance cultural values, integrity and national identity	Research on character education and competitiveness	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
	6. Cognitive Psychology of Character Education	Nation	Developing education to enhance cultural values, integrity and national identity	Research on cognitive psychology	v	v	v	Science in the field Social Studies Education and Language and Literature.

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Concept of Thinking (4)	Solution Problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
Education Character	1. Curriculum Character building	Character building Nation	Developing education to enhance cultural values, integrity and national identity	Research on Curriculum Education Character	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
	2. Character-based Society	Character building Nation	Developing education to enhance cultural values, integrity and national identity	Research on Public Characterful	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
	3. Innovation system in planning and implementation of education	Character building Nation	Developing education to enhance cultural values, integrity and national identity	Research on System innovation in planning and implementation of education	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
	4. Development of the Nation's school model characterful global perspective	Character building	Developing education to enhance cultural values, integrity and national identity	Research on School model development characterful global perspective	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
	5. Development of national resources and media learning	Character building	Developing education to enhance cultural values, integrity and national identity	Research on learning resources and media			v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Concept of Thinking (4)	Solution Problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
	6. Monitoring and And evaluation Education character global perspective.	Character building Nation	Developing education to enhance cultural values, educational integrity and national identity	Research on Monitoring and evaluation character insightful global.	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
	7. Wisdom Local *(Indigenous Study)*	Character building Nation	Developing education to enhance cultural values, integrity and national identity	Research on Indigenous *Studies*	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
Development Education	1. Reformation curriculum	Curriculum reform accordance with 21st century developments	Development in curriculum relevant to current developments	Research on reform curriculum	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
	2. Application of technology in education	Application of technology education, education in accordance with quality developments and ready for the 21st century facing the challenges of the times	Development in	Research on the application of educational technology	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
Sources and Media Learning Innovative	1. Tools educative demonstrations	IoT and AI for learning	Sources and Media learning to increase effectiveness achievement of learning objectives	Research on innovative Educational teaching aids	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Concept of Thinking (4)	Solution Problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
	2. Innovative modules	IoT and AI for learning	Innovative learning resources and media to increase effectiveness achievement of learning objectives	Research on Innovative modules	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, Physical Education and Language and Literature.
	3. Innovative learning applications	IoT and AI for learning	Sources and Media learning Applications to improve innovative learning effectiveness achievement of learning objectives	Research on innovative learning	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
Approach, Models, Methods, and Strategies Learning	1. Models, Methods, and Strategies for Digital Learning	Digital Learning	The Need for Models, Methods and Strategies Effective and efficient learning	Research on Models, Methods, and Strategies Online learning	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
	2. Collaborative Models, Strategies collaborative learning	Methods, and Learning	The Need for Models, Methods and strategies for offline learning that are centered on students	Research on Models, Methods, and Strategies Offline learning	v	v	v	Knowledge in the fields of Mathematics, Science, Social Studies, and Language and Literature Education.
Learning evaluation	1. Evaluation based on authentic evaluation process		Evaluation to measure learning output and outcomes	Research on evaluation process-based learning	v	v	v	Science in the field Educational evaluation

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Concept of Thinking (4)	Solution Problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
	2. Evaluation based Evaluation based external	external	Evaluation is an important tool for assessing success and follow-up	Research on evaluation output-based learning	v	v	v	Science in the field Educational evaluation
Curriculum learning	1. Study of Inclusive Education Curriculum, Early Childhood Education and Elementary School	differentiated and holistic	The Need for a Curriculum appropriate development of the times	Research on what is Curriculum Review Early Childhood Education and Elementary School	v	v	v	Science in the field Education Curriculum Early Childhood Education and Elementary School
	2. Study of Inclusive Education Education, and Holistic Education Intermediate	Curriculum, Differentiated	The need for a curriculum that is in line with current developments	Research on Curriculum Review Education Intermediate	v	v	v	Science in the field Education Curriculum Intermediate
	3. Study of Higher Education-based Education Curriculum	competency, entrepreneurship, and user involvement of graduates	The need for competency-based education, Entrepreneurship, and user engagement of graduates	Research on Curriculum Review higher education	v	v	v	Science in the field Education Curriculum Tall
Policy and Management Studies Education	1. Policy Study on Improving Access and Management and Equality, Early Childhood Education, Quality of Educators, and	Elementary Schools technology integration, and parental participation	The Need for Policy relevant to and objectives and management	Research on what is State policies National Early Childhood Education and elementary school	v	v	v	Science in the field Policy and Management Early Childhood and Elementary Education
	2. Policy Study Increasing access to and Management and equality, which is relevant to the Quality of educators, and	the goals of the state and Middle Management national integration education		Policy and Education Technology medium	v	v	v	Science in the field Policy and Management Secondary Education

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Concept of Thinking (4)	Solution Problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
	3. Policy Review Increasing equality, which are relevant to Higher Education	access to the Need for Policy and Management and The quality of educators, and the goals of the state and national integration service		Research on Policy and Management higher education	v	v	v	Science in the field Policy and Management higher education
Guidance and Counseling	1. Guidance and Counseling Study	technology The role of BK in optimizing student potential	The need for the role of BK in optimizing student potential	Research on Guidance and Counseling services	v	v	v	Science in the field Counseling guidance
	2. Digitalization of IT-based Counseling Guidance Media		The Need for Digitalization BK	Research on Guidance Counseling based IT	v	v	v	Science in the field Guidance and Counseling Information Technology
	3. Guidance and Counseling Management	Guidance and Counseling Management with a holistic, collaborative, and systemic approach	The need for innovation in the appropriate BK approach development era	Research on Management Guidance Counseling	v	v	v	Science in the field Counseling guidance
Education Elementary school and PAUD	1. Learning Innovation Values and Moral, Religious, Social-Emotional Values in Children and Children's Social-Emotional Values Early Childhood and Elementary School	Instilling Morals, Religion, from an Early Age	Early Childhood Education and elementary school is the initial foundation for character building and student achievement.	Research on Value Learning Morals, Religion, and Children's Social Emotions Early Childhood and Elementary School	v	v	v	Science in the field Early Childhood Education and Elementary School
	2. Immersion Approach Learning, Language and Social Studies learning based on content, Technology Elementary School	Early Childhood and Integration, and	The need for an approach Immersion, content-based learning, Integration of technology and learning	Research on Learning Language and Social Studies Early Childhood and Elementary School	v	v	v	Science in the field Early childhood education programs and Elementary School

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Concept of Thinking (4)	Solution Problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
		contextual learning	contextual in Language and Social Studies learning for children aged Early and Elementary School					
	3. Mathematics and contextual learning Science for Children Early and Elementary School	STEAM approach	The Need for an Approach STEAM and contextual	Research on Learning Mathematics and Science for Children Early and Elementary School	v	v	v Science in the field Early Childhood Education and Elementary School	
	4. Physical Learning Field-based Childhood Learning and Elementary School	Motor and Arts Learning and Field-based Differentiation Approach	Early and differentiation approach	Research on Physical Learning Motor and Art Early Childhood and Elementary School	v	v	v Science in the field Early childhood education programs and Elementary School	
	5. HI PAUD	Holistic curriculum and learning curriculum	The need for a play-while-holistic and playing while learning deeply HI Early Childhood Education	Research on HI Early Childhood Education	v	v	v Science in the field Early childhood education programs	
	6. Inclusive Education Expansion of meaning Special Needs		The need for inclusive education in the sense of special needs expanded	Research on Inclusive Education	v	v	v Science in the field Early childhood education programs and Elementary School	
Sports Education Sports and recreation	1. Sports Pedagogy The need to improve the quality of physical education teachers in terms of developing physical abilities		Need improving the quality of physical education teachers in terms of developing physical abilities	Innovation in terms of physical literacy related to development	v	v	v	Education Physical Health and Recreation, Management, Science

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Concept of Thinking (4)	Solution Problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
		AUD, elementary, middle and high	AUD, elementary, middle and high	physical abilities for early childhood, Material making And teaching physical education earning, as well as early childhood physical education learning modules (AUD), basic, secondary and school.				
	2. Sport Coaching The need to	improve the competence of athletes, coaches and sports personnel	In achieving success programs in the field of sports, it is necessary to address the prob em of increasing sports resources, human resource programs, namely the development of athletes, sports, coaching guides, and *talent scouting* personnel for sports athletes for each sports organization.	Optimal books and each sport, promotion and relegation regulations athlete,	v	v	v	Education Physical Health and Recreation, Management, Science

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Concept of Thinking (4)	Solution Problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
				as well as guidelines sports For management, sports personnel, sports organizations				
	3. Sports Recreation	Sports Field Sports Field There needs to be an in-depth study of the scope of traditional sports that have the potential in and games that cultivate and sports. preserve sports. workers and skilled workers and Indonesian workers, skilled *outdoor* activities experts in the field of sports , *sports* recreation that includes; recreation that includes; *tourism and* traditional sports, traditional sports tourism, and folk games, and folk games, *recreation & leisure outdoor activity, sport outdoor activity, sport time*	cultivate and preserve as well as *tourism,* and *recreation tourism,* and *recreation & leisure time* *& leisure time*		v	v	v	Education Physical Health and Recreation, Management, Science

Table 4.1. b. Formulation of Research Topics in Engineering, Science, and the Environment

Research Topics (1)	Research Sub Topics (2)	Issues Strategic (3)	Concept of Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
Information and communication technology								
ICT infrastructure	1. IT Security	Digital identity connected network global and vulnerable to hacker attack.	Network security, by Broadband, *Cyber Territory*	1. Research on IT Security	v	v	v	Informatics, PTI
	2. Software Engineering			2. Research on *Software Engineering*	v	v	v	Informatics, PTI
Software Development 3. Open Information System	1. *E-Government*	Implementation Based System *Open Source* on effective governance and public services and quality.	Development 3. Information Systems *open source*	1. Research on *E-Government*	v	v	v	Informatics, PTI
	2. E-Business			2. Research on *E Business*	v	v	v	Informatics, PTI
	Geospatial Source Based			Research on IS/IT systems based on *Geospatial*		v	v	Informatics, PTI
	4. *Framework* creative industry support			4. Research on the supporting *framework* for the creative industry		v		
Development Technology Improvement ICT Content	1. *Artificial Intelligence*	Independence and innovation creative industry	An effort at creative cultural synthesis that unites global and local values	1. Research on *Artificial Intelligence* 2.	v	v	v	Informatics, PTI, Engineering Electro
	2. Big Data / Data *Mining*			Research on *Big Data / Data Mining*	v	v		Informatics, PTI
	3. Digital-based *images Processing/ Computer Vision*			3. Research on *Image Processing/ Computer Vision*	v	v	v	Informatics, PTI

Research Topics (1)	Research Sub Topics (2)	Issues Strategic (3)	Concept of Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
	4. *Deep Learning/ machine learning*			4. Research on *Deep Learning/ machine learning*	v	v	v	Informatics, PTI
Social Research supporting the ICT field	1. *E-learning*	services The need data security on and information	Strategy and implementation of information technology in the field of distance learning Digital	1. Research on E-learning		v	v	Informatics, PTI
	2. *Internet of Things* (IoT)		for support for global-local arrangements and 2. Research for socio-economic support IoT implementation	*Internet of Things* (IoT)	v	v	v	Informatics, PTI, Engineering Electro
	3. *Green Technology*		Model 3 is needed. which is environmentally	Research on *Green* ICT infrastructure friendly *technology.*	v	v	v	Informatics, PTI
Transportation								
Construction Building &Transportation	Structure and engineering systems and Building Construction Construction and transportation	Development 1. Transportation Buildings and Mass transportation	mass Construction Building	1. Research on the Structure and Engineering of Building Construction and Transportation Systems		v	v	Civil Engineering

Research Topics (1)	Research Sub Topics (2)	Issues Strategic (3)	Concept of Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
	2. Universal *design* in architecture	Service Means infrastructure for the disabled community	Rights and status Universal Design in obtaining public services.	2. Research on citizens for Architectural facilities		v	v	Architecture
	3. Transportation Management	Development of transportation management	Environmentally friendly transportation management	3. Research on transportation management		v	v	Civil Engineering
Energy								
Energy	1. Energy conservation and renewable energy	1. Energy Policy	*Low cost energy* environmentally friendly	1. Research on Energy conservation and renewable energy	v	v	v	Mechanical Engineering, Engineering Electrical, Architecture
		2. New energy And renewable	Development of diversity *energy*					
	2. Control system 4. Energy *energy system)*	3. National energy security	Sustainable energy potential	2. Research on *energy control systems*	v	v	v	Mechanical Engineering, Engineering Electro
		required *(control* renewable energy for the community						
Provision of Water Resources and Sanitation								

Research Topics (1)	Research Sub Topics (2)	Issues Strategic (3)	Concept of Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
Conservation of Natural Resources	1. Water availability land	Need provision Infiltration wells and biopores	Efforts to ensure water availability sustainable	1. Reforestation, limitation of artesian wells	v	v	v	Civil Engineering
Management Sanitation	2. Water infrastructure waste and garbage	Septic tank, Regional wastewater treatment plant, TPS/TPA	Healthy residential environment according to service targets	2. Provision of wastewater infrastructure and waste	v	v	v	Civil Engineering
Control Natural Resources	3. Water Management	5. The need for reservoirs, 3. Dams, retention and detention	reservoirs, polder control efforts, embankment ponds, drainage, flooding irrigation networks		v	v	v	Civil Engineering
Advanced Materials and Manufacturing								
Advanced Materials	4. Advanced materials	Technology 4. Research on the characterization of	Development and industry support	advanced materials advanced materials	v	v	v	Mechanical Engineering, Informatics, Civil Engineering
	5. Renewable building materials	Technology Development 5. Research on building	building materials	materials development renewable	v	v	v	Mechanical Engineering, Civil Engineering
Manufacturing	1. Industrial Automation	Internet of Things automation, industrial robotics, industrial 4.0	PLC	1. Research on *Industrial Automation*	v	v	v	Mechanical Engineering, Informatics, Electrical Engineering
	2. Mechanization medicine and orthopedics	Mechanization medicine and orthopedics (Biomechanics)	application of mechanics to artificial bodies	2. Research on the Medical mechanization and orthopedics	v	v	v	Mechanical Engineering

Research Topics (1)	Research Sub Topics (2)	Issues Strategic (3)	Concept of Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
	3. *Additive manufacturing* and *Subtract* manufacturing	*Additive manufacturing* and *Subtract* manufacturing	CAD-CAM-CNC	3. Research on *Additive manufacturing* and *Subtract manufacturing*	v	v	v	Mechanical Engineering
Building								
Building	1. Conservation building	Demolition of heritage buildings culturally preserved through an approach that pays attention to good and correct conservation aspects. conservation	BCB must be	1. Research on Building Conservation		v	v	Architecture, Civil Engineering
	Traditional buildings	Maintaining Sustainability 2. Traditional buildings	Understanding wisdom local is very necessary as a rescue effort 2. Research on and development of traditional buildings		v	v		Architecture
	3. Local wisdom in the environmental sector	Optimization of local wisdom studies in environmental problems	Understanding Wisdom 3. local in the environmental field	Research on local wisdom studies *(Indigenous Study)*	v	v		Architecture

Research Topics (1)	Research Sub Topics (2)	Issues Strategic (3)	Concept of Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
	4. Green building and green design	The global impact of sustainable resources the impact of global warming building construction	Energy saving, water and the use of in buildings, to reduce	4. Research on *green building* and *green design*	v	v	v	Architecture
	5. Behavioral architecture	Devotion to behavioral aspects architecture can plan threaten security and safety users.	Assessment and behavioral architecture according to character users	5. Research on behavioral architecture	v	v		Architecture
	6. Construction management	Innovation in construction projects	Sustainable construction	6. Research on construction management	v	v	v	Civil Engineering
Environment								

Research Topics (1)	Research Sub Topics (2)	Issues Strategic (3)	Concept of Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
	1. Conservation of resources natural resources and the environment	1. Water, land and air pollution	minimization waste, 7R *(Recycle, Reuse, Reduce, Replace, Repair), green design, green product, green kitchen, green campus*	1. Research on *Replant, Refill,* resource conservation natural resources and the environment	v	v	v	
	2. Engineering of natural resources and the environment		Handling 2. Research on 2. Global warming global warming resource and climate engineering	nature and environment	v	v	v	Natural Sciences, Engineering, Architecture, Social Sciences, Multidisciplinary, Fisheries, Civil Engineering
	3. Planning and area planning	Reducing the quality of waste regional environment	Handling 3. and B3 waste 3. Research on (Hazardous Materials and Toxic Area Design)		v	v	v	
	4. Pollution environment	Garbage and waste and Toxic waste	Handling 4. and B3 waste (Hazardous materials) dangerous and poisonous	4. Research about environmental pollution	v	v	v	

Research Topics -1	Research Sub Topics -2	Issues Strategic -3	Draft Thinking -4	Solution to problem -5	Research Type (6)			Competence/Expertise /Science that Needed -7
					Base (6.1)	Applied (6.2)	Development (6.3)	
Biology Environment	1. Abiotic factors and abiotic factors biotic	and biotic	Balance and Health ecosystem including plants, animals and microorganisms	1. Research on Abiotic and biotic factors	v	v	v	General biology, plant physiology, botany, microbiology, ecology, entrepreneurship
	2. Conservation of water pollution, Minimization of natural resources and land, air environment		waste, 7R *(Recycle, Reuse, Reduce, Replace, Replant, Refill, Repair), green design, green product, green kitchen, green campus)*	2. Research on conservation of natural resources and the environment	v	v	v	
	3. Environmental pollution	Trash and B3 waste (Material Dangerous and (Poisonous)	Management of hazardous waste and hazardous waste	3. Research on environmental pollution	v	v	v	
	4. Ecoenzyme	Role ecoenzyme in reduction waste and its implementation	Optimization of ecoenzymes in horticultural cultivation	4. Research on ecoenzymes	v	v	v	

Research Topics -1	Research Sub Topics -2	Issues Strategic -3	Draft Thinking -4	Solution to problem -5	Research Type (6)			Competence/Expertise /Science that Needed -7
					Base (6.1)	Applied (6.2)	Development (6.3)	
	5. Ethnobotany	Plant food and medicine	Optimization of food crops and Drug	5. Research on Ethnobotany	v	v	v	
	6. Local Wisdom Study *(Indigenous Study)*	Local wisdom in the field Environmental biology	Optimization of study *6.* Research on local wisdom studies *(Indigenous Study)* in problem Environmental biology	Research on local wisdom, local wisdom *(Indigenous Study)* in the field of environmental biology	v	v	v	

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Concept of Thinking (4)	Solution Problem (5)	Research Type (6)			Competence/Expertise /Required Knowledge (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
Botany and applied studies in the field of botany	1. Planting Media	Horticultural studies related to food security	Problems that arise in the horticultural sector are related to management and cultivation of horticultural plants.	1. Research about planting media	v	v	v	General biology, plant physiology, botany, ecology, entrepreneurship
	2. Urban farming			2. Research about urban farming	v	v	v	
	3. Plant tissue culture	Tissue culture studies related to horticulture	Problems that arise in the field of horticulture related to innovation in seed propagation through tissue culture plant	*3.* Research about plant tissue culture	v	v	v	
Zoology and studies applied in the field of zoology	1. Innovation in feed	Management and Analysis Livestock Business	Problems that arise in the livestock sector are related to management and livestock cultivation.	1. Research about animal feed innovation	v	v	v	General biology, animal physiology, animal anatomy, zoology, behavior, ecology, entrepreneurship
	2. Maintenance management			2. Research about maintenance management	v	v	v	
	3. Utilization of livestock waste			*3.* Research on waste utilization farm	v	v	v	
	4. Water quality studies on fisheries	Management and Analysis Fishery Business	Problems that arise in the fisheries sector are related to management, and fish farming	4. Research about water quality studies towards fisheries	v	v	v	General biology, animal physiology, animal anatomy, zoology, behavior, ecology, entrepreneurship

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Concept of Thinking (4)	Solution Problem (5)	Research Type (6)			Competence/Expertise /Required Knowledge (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
	5. Utilization fishery waste			5. Research regarding the utilization of fishery waste	v	v	v	
Physics	Applied physics	• ·Development sensor • Development of physical quantity measurement methods	Problems that arise in the development of sensors and methods for measuring physical quantities	Study about sensor development and measurement of physical quantities	v	v	v	
	Theoretical and computational physics	• Physical system modeling	Problems in modeling physical systems	Study about physical system modeling	v	v	v	

Table 4.1. c. Formulation of Research Topics in the Field of Food Security

Research Topics (1)	Research Sub Topics (2)	Issues Strategic (3)	Draft Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
	provision of Food Analysis	Development of technology to engineer food ingredients to support Problem 1. Chemistry and better food	which appears in 1. Research on Chemistry in the field of Chemistry and Food Analysis Food Analysis		v	v	v	food and nutrition technology, biotechnology, chemical engineering, biology, biochemistry
Food and Nutrition Technology	2. Process Engineering Processing Food		Problems that emerged in the field of Engineering Process Processing Food	2. Research on Food Processing Engineering 3. Animal and vegetable food processing technology 4. Waste processing	v	v	v	food and nutrition technology, biotechnology, chemical engineering, biology
	Microbiology and emerging fields	Use 5. microbes in Food processing Microbiology and food	Problems processing and safety waste management	3. Research on Microbiology and Food Safety	v	v	v	food and nutrition technology, biotechnology, chemical engineering, biology, fisheries

Research Topics (1)	Research Sub Topics (2)	Issues Strategic (3)	Draft Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
		Security food to support national food security	Security Food					
	Biochemical, Nutritional and Health	Food development that is 4. supports health man	Problems which emerged in the field of Biochemistry, Nutrition and Health	4. Research on Biochemistry, Nutrition and Health	v	v	v	food and nutrition technology, biotechnology, chemical engineering, biochemistry
	5. Applied Food	Development of post-harvest technology to support the provision of food	Problems that emerged in the Food sector Applied	5. Research on Applied Food	v	v	v	food and nutrition technology, biotechnology, chemical engineering, biochemistry

Table 4.1. d. Formulation of Research Topics in the Fields of Economics, Management, and Business

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Draft Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Basics (6.1)	Applied (6.2)	Development (6.3)	
Management In the Sector Economy Creative	1. Models of human resource development management in the human resources sector creative economy		*1. Human resources planning*	1. Model for determining sources and appropriate use of human resources	V	V	V	Economic management; Digital Business; Accounting; Social Sciences
			2. Human resources development	2. Human resource development model	V	V	V	Economic management; Digital Business; Accounting; Social Sciences
			3. Human resources maintenance	3. Safety and health maintenance system work, as well as the remuneration system and award	V	V	V	Economic management; Digital Business; Accounting; Social Sciences
	2. Models 1. Product development Management Marketing in economic sector creative	power competitiveness	2. Business actors in Scale MSMEs need to understand how to calculate and set competitive prices	1. Knowledge of cost-based and competitive pricing methods	V	V	V	Economic management; Digital Business; Accounting; Social Sciences

Topic Research (1)	Sub Topic Research (2)	Strategic Issues (3)	Concept of Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
		2. Product price competition	2. Selection of method product distribution channels MSMEs are impressed still traditional and inefficiency in its implementation	3. Knowledge of alternative channels distribution and the impact on each distribution method	V	V	V	Economic management; Digital Business; Accounting; Social Sciences
		3. Effectiveness	3. MSMEs lack product distribution have the attraction and breakthrough in promote.	3. It is necessary to identify appropriate channels/media options to promote regional MSME product commodities and local potential for investment.	V	V	V	Economic management; Digital Business; Accounting; Social Sciences
		4. Product promotion	4. Consumers still lack of appreciation for MSME products	4. It is necessary to identify consumer behavior patterns in responding to and behaving towards MSME products.	V	V	V	Economic management; Digital Business; Accounting; Social Sciences

Topic Research (1)	Research Sub Topics (2)	Issues Strategic (3)	Concept of Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
		5. Behavior consumer	5. MSME actors have not yet understand the concept of service regarding services that can provide satisfaction and loyalty for MSME consumer	5. Identify dimensions - dimensions and factors - e a strong level of service products.	V	V	V	Economic management; Digital Business; Accounting; Social Sciences
		6. Digital Marketing	6. Many MSME actors still apply conventional marketing competencies and have internet technology marketing based processes.	6. Identifying awareness And e not adopted MSMEs in sed on technology and business factors that can create an effective web marketing process for MSME products	V	V	V	Economic management; Digital Business; Accounting; Social Sciences
	3. Models 1. Failure 1. development Competition management Finance in the sector and market	Failure of MSMEs MSMEs are caused by lack of planning feasibility studies resulting in the inability to close and develop a business business	and business development	1. Investment planning model, investment feasibility study and conducting	V	V	V	Economic management; Digital Business; Accounting; Social Sciences

Topic Research	Sub Topic Research	Strategic Issues (3)	Concept of Thinking (4)	Solution to problem (5)	Research Type (6)	

(1)	(2)				Basics (6.1)	Applied (6.2)	Development (6.3)	Competence/Expertise /Science that Needed (7)
		2.Technical limitations 2.Technical limitations budgeting as a tool planning, organizing, and monitoring in developing profit achievement MSMEs	budgeting as a tool for planning, organizing and monitoring MSMEs is caused by which is unstable and relatively low, minimal MSME business partners	2. Through techniques good planning, organizing, and supervision, connecting MSMEs with related parties in running a business	V	V	V	Economic management; Digital Business; Accounting; Social Sciences
		3. Low productivity resulting in a wide gap between business actors	3. Low productivity due to lack of funding for equipment and business actors, inadequate technology development and lack of innovation	3. Expansion of sources business, and development or market improvement for MSME products	V	V	V	Economic management; Digital Business; Accounting; Social Sciences

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Draft Thinking (4)	Solution Problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Base (6.1)	Applied (6.2)	Development (6.3)	
1. *Digital Creative Entrepreneur*	1. model - model developer an business based digital	1. business model analysis digital	*1. digital startups*	1. insight and knowledge on business models and monetization	V	V	V	Economic management; Digital Business; Accounting; Social Sciences
		2. Utilization cutting-edge technology to support business operations	*2. digital transformation*	2. reading opportunities and carry out entrepreneurial activities which applies the latest technological developments to support business operations	V	V	V	Economic management; Digital Business; Accounting; Social Sciences
	2. models development products as a problems that the market and software development	1. the suitability of digital solution to the skills needs to create prototypes.	1. programming	1. designing product prototypes	V	V	V	Economic management; Digital Business; Accounting; Social Sciences

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Draft Thinking	Solution Problem	Research Type (6)	

			(4)	(5)	Basics (6.1)	Applied (6.2)	Development	Competence/Expertise /Science that Needed (6.3) (7)
2. *Digital Business Analyst*	1. models development of business analysis skills	1. strategic analysis in business	1. *Business Analyst*	1. model *Big* development *Data*	V	V	V	Economics; Management; Digital Business; Accounting; Social Sciences
	2. *data analysis* development models	2. use of data for business decision making and policies	2. *Big Data*	2. *Big Data* development model	V	V	V	Economics; Management; Digital Business; Accounting; Social Sciences
	3. *Machine Learning Development: supervised; unsupervised; semi-unsupervised,reinforcement*	3. application 3. *programming; learning*	3. implementation *data analytics*	and models for business design model for organization/business	V	V	V	Economics; Management; Digital Business; Accounting; Social Sciences

Table 4.1. e. Formulation of Research Topics in the Social Humanities Field

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Draft Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise n /Science that Needed (7)
					Basic (6.1)	Applied (6.2)	Development (6.3)	
Social Humanities	Transdisciplinarity IPS in solve social problems in Indonesia	Transdisciplinarity Social Studies Education	Problems social studies in Indonesia which is very complex requires understanding across various social science disciplines	Understanding and a uses various social science disciplines to complete social problems in Indonesia	V	V	V	Social Studies Education
		Formation Public Civilized in Indonesia	Indonesia as a Muslim majority country with a multicultural culture faced with various social problems, for example radicalism	It is necessary to understand the concept of Islam properly and correctly, which prioritizes a humanist and just approach.	V	V	V	Religious education Islam

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Draft Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise n /Science that Needed (7)
					Basic (6.1)	Applied (6.2)	Development (6.3)	
Public law and Law Private	1. Crimes against persons	Murder, abuse, mutilation, corruption	Crime, Rights and Obligations, Public Policy	1. Research on Crimes against Persons	V	V	V	Law, Education, Sociology, Philosophy, Political
	2. Crimes against property	Theft, vandalism, arson	Crime, Rights and Obligations, Public Policy	2. Research on Crimes against Property	V	V	V	Law, Education, Sociology, Philosophy, Political
	3. World crimes: Hoaxes, crime, hate speech law	slander, cyber	Crime, Rights and Obligations, Public Policy	3. Research on Cyber Crime / Cyber Law Crime	V	V	V	Law, Education, Sociology, Philosophy, Politics, Language and Literature
	4. Regulations legislation	Disharmony and Regulations	Crime, Rights and Obligations, Public Policy	4. Research on Legislation Invitation	V	V	V	Law, Education, Sociology, Philosophy, Politics, Language and Literature
	5. Human Rights Crime Human Rights	and Criminality, Rights	5. Research on Human Rights and Obligations, Human Rights	Violations Public Policy (HAM)	V	V	V	Law, Education, Sociology, Philosophy, Politics, Language and Literature
	6. Legacy	Crime Problems, Rights inheritance	6. Research on the public policy	division and obligations, Inheritance	V	V	V	Law, Education, Sociology, Philosophy, Politics, Language and Literature
	7. Protection of Intellectual Property Rights	Piracy, plagiarism, forgery	Crime, rights 7. Research Protection of Intellectual public policy	on and obligations, Property Rights	V	V	V	Law, Education, Sociology, Philosophy, Politics, Language and Literature

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Draft Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise n /Science that Needed (7)
					Basic (6.1)	Applied (6.2)	Development (6.3)	
Implementation Law	Legal Awareness Public or Private	Abuse, Embezzlement	Village awareness	1. Research on legal legal awareness	V	V	V	Law, Education, Sociology, Philosophy, Political
	Legal Awareness Public or Private	Violation Tax, Traffic Violations Cross		2. Research on legal order	V	V	V	Law, Education, Sociology, Philosophy, Political
Protection Child protection Woman	Violence Child protection violence	1. Research on children and women Child		Women and women About Protection from children of violence	V	V	V	Education, Economy, Law, Psychology, Philosophy, sociology, Language and Literature
	2. Health and nutrition			2. Research on Health and Nutrition	V	V	V	Education, Economy, Law, Psychology, Philosophy, sociology, Language and Literature
	3. School and child-friendly environment			3. Research on Schools and Children's Environment friendly	V	V	V	Education , Economics, Law, Psychology, Philosophy, Sociology, Language and Literature
	4. Childcare in the era cyber			4. Research on Childcare in the Cyber Era	V	V	V	Education , Economics, Law, Psychology, Philosophy, Sociology, Language and Literature

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Draft Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise /Science that Needed (7)
					Basic (6.1)	Applied (6.2)	Development (6.3)	
	5. Local Wisdom Study (Indigenous Study)			5. Research on Indigenous Studies	V	V	V	Education , Economics, Law, Psychology, Philosophy, Sociology, Language and Literature
Empowerment 1. The Women	Role of Woman	Gender and Empowerment Woman	Empowerment Woman	1. Research on the role of women	V	V	V	Education , Economics, Law, Psychology, Philosophy, Sociology, Language and Literature
	2. Gender studies			2. Research on Gender Studies	V	V	V	Education , Economics, Law, Psychology, Philosophy, Sociology, Language and Literature
	3. Local Wisdom Study (Indigenous Study)			3. Research on Local Wisdom Studies (Indigenous Study)	V	V	V	Education , Economics, Law, Psychology, Philosophy,
Population1. Demographic	bonus	Population Population	1. Research About	demographic bonus	V	V	V	Education , Economics, Law, Psychology, Philosophy, Sociology, Language and Literature
	2. Family development			2. Research on Family Development	V	V	V	Education , Economics, Law, Psychology, Philosophy,

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Draft Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise n /Science that Needed (7)
					Basic (6.1)	Applied (6.2)	Development (6.3)	
								sociology, language and Literature
	3. Health reproduction			3. Research on Reproductive Health	V	V	V	Education , Economics, Law, Psychology, Philosophy, Sociology, Language and Literature
	4. Local Wisdom Study (Indigenous Study)			4. Research on Reproductive Health	V	V	V	Education , Economics, Law, Psychology, Philosophy, Sociology, Language and Literature
Conceptual Literature	Literature	Literature; Harmonization and National Integration	Literature as a means to grow and strengthen the spirit of nationalism and nationality.	The need to study literary texts that contain information, values, norms and social ethics social.	V	V	V	Language and Literature, Education
	Translation Concept Translation, language and literature	Quality business involves aspects of translation, linguistics, culture, technology and technology, and ethical innovation translation		Study translation that takes into account equivalence, purpose, creativity, cultural context, technology	V	V	V	Language and Literature, Education

Research Topics (1)	Research Sub Topics (2)	Strategic Issues (3)	Draft Thinking (4)	Solution to problem (5)	Research Type (6)			Competence/Expertise n /Science that Needed (7)
					Basic (6.1)	Applied (6.2)	Development (6.3)	
				ethics, learning and development				
	Linguistic Concept and applied linguistics in language education	Linguistics	Language as a medium of internal control minimize negative impacts of power	Research on language as a medium of control in minimize negative impacts of power	V	V	V	Language and Literature, Education
Culture and Art	Culture and Arts	Cultural Studies Indonesia such as the revitalization of dance, ketoprak, wayang, and so on	Study wisdom art and culture	Study about wisdom study revitalization of arts and culture	V	V	V	Language and Literature, Education

D. Key Performance Indicators (KPI)

The strategy for achieving Key Performance Indicators (KPIs) is clearly formulated and legally binding. Research performance is based on the Key Research Performance Indicators (IKUP) established by the Ministry of Research, Technology, and Higher Education. The IKUP of PGRI Semarang University is presented in Table 4.2.

Table 4.2

Key Research Performance Indicators

No.	Output Type		Achievement Indicators					
			Base line	2024	2025	2026	2027	2028
1	Scientific publications (Indexed journal/ proceedings)	Scopus	39	48	60	74	90	108
		WoS	5	8	13	20	28	37
		Garuda	616	636	658	683	710	740
		Google Scholar	1787	1860	1940	2030	2130	2230
2	Rights to Riches Intellectual Property (IPR)	Patent	0	0	1	1	1	1
		Simple Patent	5	5	5	5	5	6
		Copyright	333	345	358	372	387	403
		Trademark	2	2	3	3	4	4
		Industrial Product Design	0	0	1	1	2	2
3	Models/Prototypes/Designs/Works Art/Social Engineering				9	12	15	20
4	Books with ISBN (Textbooks, Monographs, Books Reference)		37	55	75	95	115	135
5	Number of Foreign Collaborative Research		13	15	20	25	30	35
		External Grants (DRTPM, BRIN, Province 27 Central Java, Regency/City)		30	33	35	37	40
		Internal	86	100	110	120	125	130
		Domestic Cooperation 1		3	5	5	6	7
6	Amount in Rupiah Research (Million Rupiah)	Foreign Cooperation 325 375 500 625					750	875
		External Grants (DRTPM, BRIN, Province Central Java, Regency/City)	3,289 ,73	3,700	4,100	4,500	4,800	5,300
		Internal	1,132. 73	1,200	1,200	1,200	1,200	1,200
		Domestic Cooperation 10		30	50	50	60	70
7	Lecturer Participation Rate (%)*		74	85	95	98	99	99

*
The number of lecturers involved in research divided by the total number of permanent lecturers at the university

** TS = Current Year

CHAPTER V

IMPLEMENTATION OF RESEARCH STRATEGIC PLAN

A. IMPLEMENTATION OF RESEARCH STRATEGIC PLAN

The Research Strategic Plan serves as the basis or reference for all research activities conducted by the Research Institute for Research and Community Service (LPPM) of PGRI Semarang University between 2024 and 2028. All proposed research topics and themes align with those covered in the established Strategic Plan. Therefore, research activities conducted by LPPM are directed, programmed, and measurable.

The implementation of the Research Strategic Plan is highly dependent on institutional funding sources (PGRI Semarang University) which can be obtained, among others, from research grants from the private sector, government, and foreign cooperation. The financing strategy developed in the framework of the implementation of the Research Strategic Plan is through regular research proposals and competitive grants. The financing strategy from outside of PGRI Semarang University includes: research funds from the Directorate of Research and Community Empowerment (DRPM) of the Ministry of Research, Technology and Higher Education, private sector, domestic and foreign cooperation and other funding sources. The independent funding strategy of PGRI Semarang University consists of PNBP funds, which are allocated at least ten percent (10%) per year of the total budget of PGRI Semarang University.

Research funding from the APBU (Regional Budget) from Universitas PGRI Semarang in 2023 amounted to Rp907,238,500. Meanwhile, research funding from the Ministry of Education, Culture, Research, and Technology (DRTPM) through national competitive grants in 2023 received a research funding allocation of Rp3,298,734,000, from various research schemes. The funded research is grouped according to the research subheadings in the roadmap for each of Universitas PGRI Semarang's leading fields.

B. RESEARCH IMPLEMENTATION

The implementation of the research refers to the Research Implementation Guidebook and Community Service in Higher Education in 2023, Directorate of Research and Community Service, Directorate General of Research and Development Strengthening Ministry of Research, Technology and Higher Education, namely:

1. Research Planning

a. Universitas PGRI Semarang has developed a multi-year (5-year) Research Strategic Plan (Renstra) based on a roadmap , research umbrella, human resource availability, and research facilities and infrastructure. The Research Strategic Plan refers to the research excellence at Universitas PGRI Semarang. Universitas PGRI Semarang has gradually formulated several types of relevant research that support the Research Strategic Plan as a guideline for research implementation.

b. The research mechanism implemented by PGRI Semarang University refers to the research and community service management system (simpelmas) version 2.0.

2. Research Proposal Selection System

Semarang PGRI University has prepared guidelines for selecting research proposals. decentralization which contains the following principles:

a. Semarang PGRI University openly announces decentralized and national competitive research activities that are participated in by lecturers and/or research units with a competition system.
b. Semarang PGRI University appoints a team of internal reviewers based on competency assessed from integrity, research *track record ,* suitability of the required field of science, through a reviewer certification system.
c. As an independent university, research proposals from PGRI Semarang University are independently selected by internal and external teams.

3. Implementation of Research Contracts

Semarang PGRI University carries out research contracts with the provisions as follows:

a. Semarang PGRI University/LPPM has a research work contract with the head researcher who has been declared to have passed the selection.
b. Research is carried out according to the schedule that has been determined for each fiscal year.

4. Monitoring and Evaluation

a. PGRI Semarang University monitors and evaluates the implementation of research in the field.
b. Monitoring and evaluation are carried out by the PGRI University internal *review* team. Semarang with the monitoring and evaluation standards of the Ministry of Education and Culture's DRTPM
c. The results of monitoring and evaluation are used as a basis for consideration. for continued research funding in the following year.
d. Universitas PGRI Semarang has established an internal complaint system *to* assist researchers in resolving issues encountered during their research. This internal complaint system is functionally integrated with the internal complaint system at the Ministry of Education and Culture's DRTPM level.

5. Management of Research Results

a. The chief researcher is required to report the research results annually and the final report. research result.
b. The head researcher is required to submit research outputs in accordance with the established requirements (IPR, patents, scientific publications, papers presented at seminars, appropriate technology, social engineering, textbooks, etc.).
c. The head researcher is required to accompany the research results report with a poster. study.

6. Follow-up of Research Results

6.1. Internal Funds

a. LPPM reports activities in the form of a compilation of lecturers' research results.
every year in accordance with the Research Strategic Plan to the Chancellor.

b. LPPM reports the use of research funds to the Chancellor.

c. LPPM delivers research outputs in accordance with the agreement.
to the Chancellor.

6.2 External Funds

a. The university reports activities in the form of a compilation of lecturers' research results every year
in accordance with the Research Strategic Plan to the DRTPM Kemdikbud.

b. Universities report the use of research funds to DRTPM
Ministry of Education and Culture.

c. The university delivers research outputs in accordance with the agreement.
to the DRTPM Kemdikbud.

d. The university requires researchers whose research results are selected to participate in a
presentation of results or presentation of excellence at the national level organized by the DRTPM
Kemdikbud.

The stages of research activities carried out follow the following procedures:

1. Proposal Submission

Research proposals are submitted to LPPM through Simpelmas.

2. Administrative Selection

Prior to the substantive assessment, an administrative selection is conducted, which includes: the proposal's compliance with the Research *Roadmap* , guidelines, completeness, systematics, and legality. Proposals that do not meet the administrative requirements will be declared unsuccessful and will not be included in the next selection process.

3. Substance Selection

Selection is based on aspects stipulated in the proposal assessment guidelines. Proposals that do not meet the minimum score will be revised or declared unsuccessful.

4. Cost Determination

This stage is to determine the feasibility of costs so that the research to be carried out can run optimally.

5. Monitoring and Evaluation

Monitoring and evaluation are carried out by a team formed by LPPM.

6. Submission of Final Report and Research Output

The research team is required to submit a final research report, a report on the use of the research budget, scientific articles and/or other outputs as promised.

7. Dissemination of Research Results

The final stage of research activities is the dissemination of research results, which is conducted in conjunction with other programs. Researchers are required to present their research results at seminars and journal publications, along with a poster.

C. ESTIMATION OF RESEARCH FUNDING

Research funding at Universitas PGRI Semarang comes from independent funding (APBU funds from Universitas PGRI Semarang), the Directorate of Research, Technology, Research and Community Service (DRTPM) of the Ministry of Research and Technology of Higher Education, the Central Java Provincial Government, the BKKBN of Central Java Province, the Semarang City Government, and other sources in the form of grants or proposals.

The estimated acquisition of research funds from DRTPM includes 4 schemes, namely Research Basic, Applied Research, Development Research, and Postgraduate Research.

The research budget allocation from the APBU (Regional Budget) of Universitas PGRI Semarang is allocated for proposals that align with the research *roadmap* proportionally, in accordance with the research priorities of Universitas PGRI Semarang based on the results of research performance mapping. The independent research funding strategy is carried out with the aim of achieving several objectives:

1. Creating a conducive atmosphere for research activities at PGRI University Semarang.
2. Encourage all lecturers at PGRI Semarang University to participate in research activities.
3. Improving the quality and quantity of research and its well-disseminated output, in the form of scientific publications, patents and IPR, as well as providing real contributions to society, nation and state.
4. Implementing a research roadmap, with the goal of achieving accelerated research results and international recognition, as well as providing solutions to real problems faced by society, the nation and the state.

Table 5.1a

Research Funding Estimation and Acquisition

The estimated funding and acquisition for 2024 are as follows:

No	Research Scheme	2024		2025		2026		2027		Year 2028	
		Amount	Total cost (Million Rupiah)	Amount	Total cost (Million Rupiah)	Amount	Total cost (Million Rupiah)	Amount	Total cost (Million Rupiah)	Amount	Total cost (Million Rupiah)
1	Foreign Cooperation Country	15	375	20	500	25	625	30	750	35	875
2	External Grants (DRTPM, BRIN, Java Province Middle, Regency/City)	30	3,700	33	4,100	35	4,500	37	4,800	40	5,300
3	Internal	100	1,200	110	1,200	120	1,200	125	1,200	130	1,200
4	Cooperation in Country	3	30	5	50	5	50	6	60	7	70
Amount		148	5,305	168	5,850	185	6,375	198	6,810	212	7,445