

NORTHERN BORDER UNIVERSITY

Summary of:

**Research and Innovation Strategic Plan
(2020-2024)**

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1. The Plan

First standalone research strategy: The Research and Innovation Strategy 2020-2024 is the first standalone strategic plan for research and innovation at the Northern Border University. It represents an integrated guide that will direct the University efforts on research and innovation.

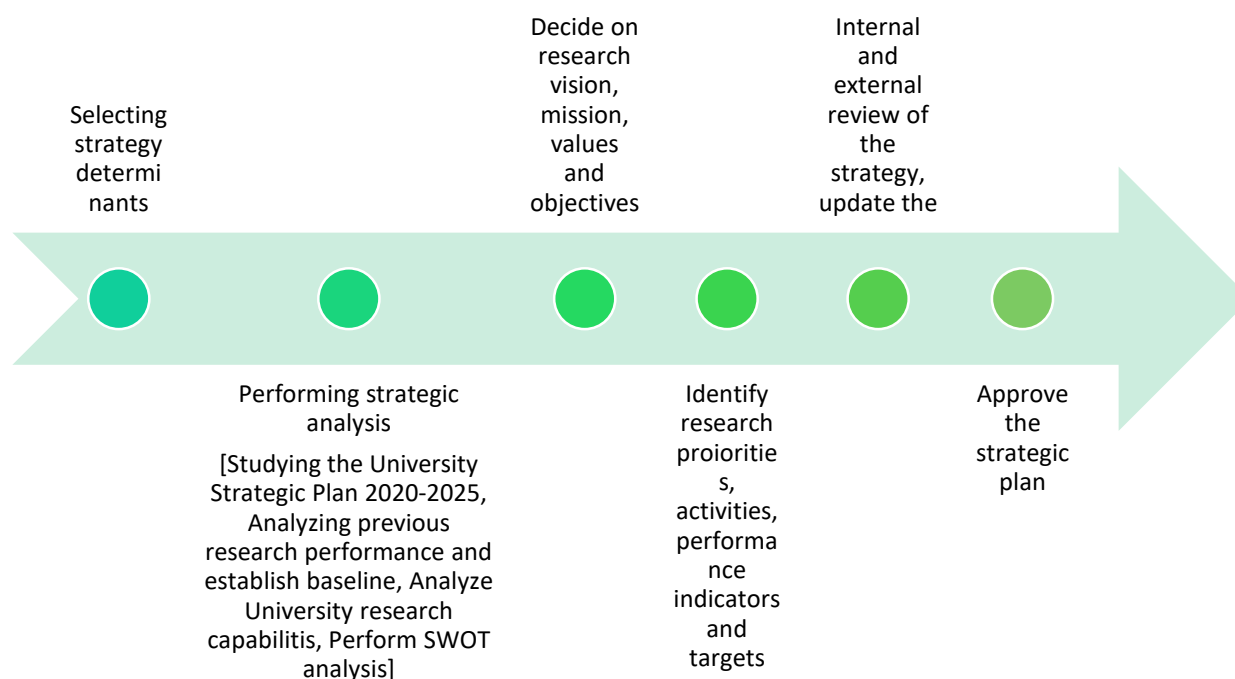
Determinants of the plan: The plan is based on selected determinants, namely:

- 1) University Strategic Plan 2020-2025, University mission and major goals. The research and innovation strategy is completely aligned with University Strategic Plan 2020-2025. The University Strategic Plan 2020-2025 has dedicated strategic theme and major goal for research and innovation; namely, **Theme 2** and **Major Goal 2**.
 - **Theme 2:** Advance research and innovative activities, both across the university and in targeted disciplines, to contribute to critical societal priorities and national challenges.
 - **Major Goal 2:** Promote research and innovation environment that enables realization of the university research priorities.
- 2) University capabilities
- 3) Disciplinary strengths
- 4) Vision 2030, regional and national needs and challenges

Methodology: The preparation started by a workshop conducted by the Ministry of Education in Riyadh in November 2019. Later in the same month, the President of the University formed a committee to build the Research and Innovation Strategic Plan. The plan is primarily built using a methodology proposed by the Ministry of Education and used by all governmental universities. The Ministry of Education

supervised the strategy formulation and review process. The methodology enables universities to select fewer research priorities that reflects the university current capabilities, future interest and expected growth, regional and national challenges as well as to highlight the universities research identity.

The plan started by establishing a baseline of the University research activities, understand the internal capabilities and broader advantages of the University across the Kingdom research and development ecosystem, and develop key findings regarding potential research directions and required enhancement in the internal capabilities. Data from past research outputs and outcomes, human and non-human capabilities and SWOT (Strengths-Weakness-Opportunity and Threats) analysis were carefully analyzed. Selected research priorities were subject to rigorous internal and external review.



Summary of the strategic plan formulation methodology

2. Vision, Mission, Objectives and Core Values

2.1 Vision

To be distinctive university in research that focus on regional priorities and attending national challenges.

2.2 Mission

Provide a supportive environment for scientific research and innovation in a way that contributes to achieving the university's research priorities.

2.3 Objectives

Objective 1: Enhance research and innovation capabilities and systems.

Objective 2: Establish mining research center.

Objective 3: Conduct scientific research on undergraduate students' core competencies and high impact educational practices.

Objective 4: Conduct scientific research in the fields of renewable energy, environment and selected health issues of importance to the Northern Border Region.

2.4 Core Values

Integrity. Originality. Transparency. Perseverance. Teamwork. Responsibility. Objectivity

3. Research Priorities

To attend regional and national challenges, attend societal needs and improve research environment, the University has adopted six priorities.

- Priority 1: Research Capacity and System Development
- Priority 2: Establishing Mining Research Center and Conducting Mining Research
- Priority 3: Student Core Competencies and High Impact Educational Practices (HIPs)
- Priority 4: Medical and Allied Health Sciences
- Priority 5: Environment and Sustainable Development
- Priority 6: Renewable Energies

4. Objectives- Priorities- Activities Matrix

Objectives	Priorities	Activities
Objective 1: Enhance research and innovation capabilities and systems.	Priority 1: Research Capacity and System Development.	1.1: Research Capacity Building Program. 1.2: Establishing Research Service Support Office. 1.3: Partnership Program. 1.4: Students' Research Support Program. 1.5: Research Groups Program.
Objective 2: Establish mining research center.	Priority 2: Establishing Mining Research Center and Conducting Mining Research.	2.1: Procurement of adequate equipment. 2.2: Developing strategic partnerships in mining research. 2.3: Launching the Mineral Exploration in the region. 2.4: Mineral Evaluation.
Objective 3: Conduct scientific research on undergraduate students' core competencies and high impact educational practices.	Priority 3: Students Core Competencies and High Impact Educational Practices (HIPs).	3.1: Building, Planning, Using, Evaluating and Developing Core-Competencies and Including them in Educational Curricula. 3.2: Capabilities, Competencies and Qualification of the Teacher for the Application of Competency-based Learning. 3.3: Researches of Promoting High Impact Educational Practices. 3.4: Research in Planning and Developing Programs and Projects for Talent, Creativity and Innovation.
Objective 4: Conduct scientific	Priority 4: Medical and	4.1: Common Chronic Diseases in the Northern Border Region.

research in the fields of renewable energy, environment and selected health issues of importance to the Northern Border Region.	Allied Health Sciences.	<p>4.2: Epidemiological Studies.</p> <p>4.3: eHealth Development Studies.</p> <p>4.4: Environmental Health Studies.</p> <p>4.5: Drug Development and Safety Studies.</p> <p>4.6: Collaboration in the Saudi Genome Project.</p>
	Priority 5: Environment and Sustainable Development.	<p>5.1: Biodiversity of Saudi Arabia: Conservation and Sustainability.</p> <p>5.2: Prospective Application of Environmental Biotechnology.</p> <p>5.3: Natural products: A Renewable Resource for Multiple Purposes.</p> <p>5.4: Human Impact on Environment: Circular Economy and Sustainability.</p>
	Priority 6: Renewable Energies.	<p>6.1: Control Strategies of Hybrid Energy Systems Based on Wind and Solar Sources</p> <p>6.2: Energy Efficiency Study and Control Optimization of Power Solar Systems</p> <p>6.3: Green Chemistry Nanoparticles and Biomass Applications in Renewable Energy and Groundwater Purification.</p>

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