

**IMPROVING THE PROVINCIAL INNOVATION INDEX (PII) OF THAI NGUYEN PROVINCE****Dr. Nguyen Thi Hong Yen**Thai Nguyen University of Economics and Business Administration

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**ABSTRACT**

In the current context of international integration and digital transformation, promoting innovation at the local level plays an extremely important role in achieving sustainable development. Thai Nguyen province has made many efforts and is among the Top 10 provinces and cities in the Provincial Innovation Index (PII) in 2023. The article analyzes the current situation and proposes some solutions to improve the PII of Thai Nguyen province in the coming time.

**Keywords:**Provincial Innovation Index (PII), Thai Nguyen province, economy, digital transformation.

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**1. OVERVIEW OF THE PROVINCIAL INNOVATION INDEX (PII)**

The Provincial Innovation Index (PII) is an important evaluation tool designed to reflect the level of innovation and creativity in different localities across the country. The PII is built on 7 main pillars, including institutions, human capital, research and development, infrastructure, market sophistication, business sophistication, and knowledge, technology outputs and creativity. The PII provides an overall picture of the socio-economic development status based on science, technology and innovation of each province/city, thereby helping to identify strengths, weaknesses, potential factors and necessary conditions to promote socio-economic development based on science, technology and innovation. This index not only helps localities clearly recognize their position in the field of innovation, but also serves as a basis for developing policies and formulating development strategies. The application of PII has been officially implemented nationwide since 2023, marking an important step in assessing and improving national innovation capabilities. Localities can use PII as a "health diagnosis" tool for the economy, thereby proposing specific solutions for improvement and development. This is particularly important in the context of Vietnam's strong transformation to become a developed, modern country.

The importance of PII is further emphasized as Vietnam continuously improves its position in the Global Innovation Index (GII), ranking 46th in 2023, up 2 places from 2022. This shows the country's relentless efforts in promoting innovation and developing a science and technology-based economy. PII is not only an evaluation index, but also a driving force for each locality to make greater efforts in creating a favorable environment for innovation, thereby contributing to the overall development of the country. This is an important step, marking Vietnam's transformation on the path of integration and development.

**2. RANKING OF THE PROVINCIAL INNOVATION INDEX (PII) OF THAI NGUYEN PROVINCE**

The Provincial Innovation Index (PII) for 2023 developed by the Ministry of Science and Technology has provided an overall picture of the socio-economic development status based on science, technology and innovation of localities across the country. According to statistics, the 10 leading provinces and cities in terms of scores are all localities with developed industries, accounting for a high proportion in the economic structure. Hanoi is the leading locality and Thai Nguyen ranks 10th nationwide (Table 1).

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**Table 1: PII 2023 scores, Inputs, Outputs and 7 pillars of the 10 leading localities**

Localities	PII score	Input	Output	1. Institutional framework	2. Human capital and R&D	3. Infrastructure	4. Market maturity	5. Enterprise maturity	6. Knowledge, creativity and innovation products	7. Impact
Hanoi	62,86	62,55	63,17	53,59	63,06	68,23	77,81	50,04	63,16	62,55
Ho Chi Minh City	55,85	58,34	53,36	44,20	57,29	74,14	73,19	42,87	52,18	58,34
Hai Phong	52,32	56,45	48,20	76,19	53,83	55,66	54,61	43,96	34,62	56,45
Da Nang	50,70	56,96	44,45	57,68	54,45	81,71	54,04	36,90	37,00	56,96
Can Tho	49,66	42,79	56,53	50,02	45,07	55,45	42,34	21,08	52,52	42,79
Bac Ninh	49,20	53,02	45,38	43,41	50,76	67,97	49,6	53,36	26,79	53,02
Ba Ria - Vung Tau	49,18	48,25	50,11	54,65	28,98	63,11	70,22	24,31	40,06	48,25
Binh Duong	48,64	49,52	47,77	32,49	30,59	76,37	56,53	51,61	32,52	49,52
Quang Ninh	48,03	55,56	40,51	77,16	31,63	82,47	53,66	32,90	25,75	55,56
Thai Nguyen	47,75	49,19	46,31	51,90	41,84	58,76	46,82	46,64	27,65	49,19

(Source: Report on the Provincial Innovation Index 2023 by the Ministry of Science and Technology)

In 2023, Thai Nguyen achieved remarkable achievements, ranking first in the Northern Midlands and Mountains region in the PII Index. Thai Nguyen province scored 47.75, ranking 10th nationwide. This is not only the result of investing in research and development, but also evidence of improvements in the business environment, infrastructure, and quality of human resources. Thai Nguyen has shown a balance between economic development and innovation, especially in potential areas such as information technology, high-tech agriculture, and education. Thai Nguyen's high score in the PII ranking is a positive sign, showing that the province has made solid progress in building a strong innovation ecosystem.

Thai Nguyen Province, as the center of the Northern Midlands and Mountains region of Vietnam, has been witnessing solid progress in improving the Provincial Innovation Index (PII). The PII is not only a measure of the level of innovation but also reflects the determination, consensus and effectiveness in leadership and management as well as the efforts and political will of all levels, sectors and people of Thai Nguyen province.

However, besides the achieved results, Thai Nguyen province still faces some limitations that need to be addressed to enhance competitiveness and sustainable development. One of Thai Nguyen's major limitations is the lack of a comprehensive and up-to-date statistical system, which makes it difficult to accurately and comprehensively assess innovation-related indicators. This also reflects a common challenge that many other provinces and cities in Vietnam are facing, which is the lack of necessary resources and skills to collect and analyze data. Moreover, although Thai Nguyen is among the top 10 localities with the highest PII scores, it still needs to improve further, especially in

applying science and technology to production and management. This requires stronger investment in infrastructure, research and development, as well as creating favorable conditions for cooperation between universities, research institutes and businesses.

### **3. SOLUTIONS TO IMPROVE THE PROVINCIAL INNOVATION INDEX (PII) OF THAI NGUYEN PROVINCE**

Thai Nguyen province, one of Vietnam's important industrial and educational centers, is facing many opportunities to improve its Provincial Innovation Index (PII). To achieve this, the province needs to implement a series of strategic solutions, from increasing investment in education and research to promoting cooperation between businesses, research institutes and local authorities. To continue improving the PII, Thai Nguyen province can focus on the following strategic directions:

#### **First Solution: Crafting a Comprehensive Innovation Strategy**

At the heart of Thai Nguyen's quest for innovation excellence lies the imperative of formulating a robust innovation strategy. This strategy should be multifaceted, addressing key pillars such as human capital development, business environment enhancement, and international collaboration facilitation. Emphasizing the optimization of existing resources, including universities and research institutes, stands as a pivotal tactic in nurturing local innovation. Augmenting educational curricula to instill a culture of innovation and creativity at all levels of education is paramount. Concurrently, forging synergies among educational institutions, enterprises, and government bodies to tailor training programs to meet the evolving demands of the labor market and technological landscape is indispensable.

#### **Second Solution: Facilitating Access to Technology and Market Insights**

Facilitating seamless access to cutting-edge technologies and market intelligence is paramount for fostering innovation among enterprises and research organizations. Establishing innovation centers and incubators where industry players collaborate with researchers to develop and commercialize new products and services can serve as catalysts for innovation. Thai Nguyen must also focus on streamlining the business environment by dismantling regulatory barriers and simplifying administrative processes, particularly for nascent high-tech startups.

#### **Third Solution: Cultivating Collaboration Networks**

The cultivation of robust collaboration networks among businesses, academic institutions, research centers, and local communities is pivotal for fostering a culture of knowledge exchange and co-creation. Hosting regular events, seminars, and exchange programs can facilitate the cross-pollination of ideas and best practices. Strengthening international collaboration initiatives is equally essential for bolstering the province's innovation credentials. Thai Nguyen should actively seek partnerships with foreign counterparts to leverage global insights and resources, thereby fostering an inclusive and globally connected innovation ecosystem.

#### **Fourth Solution: Fostering a Culture of Innovation**

Instituting policies and programs aimed at nurturing a culture of innovation and creativity is fundamental for long-term success. Providing incentives and recognition for innovative endeavors, as well as creating platforms for idea incubation and experimentation, can stimulate creativity across various sectors. Developing financial support mechanisms, such as grants and venture capital funds, alongside offering shared workspace facilities and mentorship programs, can empower aspiring entrepreneurs and innovators to bring their ideas to fruition. Encouraging collaborative endeavors between businesses and research institutions to drive the development of groundbreaking products and services should also be prioritized.

#### **Fifth Solution: Strengthening Research and Development (R&D) Infrastructure**

Investing in robust research and development (R&D) infrastructure is paramount for fostering innovation and technological advancement in Thai Nguyen province. This solution entails establishing state-of-the-art laboratories, innovation hubs, and technology parks equipped with cutting-edge facilities and equipment. By providing researchers, entrepreneurs, and students with access to advanced R&D infrastructure, the province can stimulate experimentation, collaboration, and the translation of research findings into practical applications. Additionally, incentivizing private sector participation in R&D activities through tax breaks, grants, and partnerships can further catalyze innovation across industries.

#### **Sixth Solution: Promoting Digital Transformation**

Embracing digital transformation is essential for Thai Nguyen province to enhance its innovation capacity and competitiveness. This solution involves leveraging digital technologies and data-driven approaches to streamline

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processes, improve efficiency, and unlock new opportunities across sectors. Thai Nguyen can invest in digital infrastructure, including broadband connectivity and digital platforms, to enable seamless communication and collaboration among stakeholders. Moreover, promoting digital literacy and skills development initiatives can empower individuals and businesses to harness the full potential of digital technologies. Embracing emerging technologies such as artificial intelligence, blockchain, and the Internet of Things (IoT) can also drive innovation and spur the development of new products, services, and business models. By embracing digital transformation, Thai Nguyen province can position itself at the forefront of the digital economy and drive sustainable growth in the long run.

### Seventh Solution: Supporting Entrepreneurship and Startups

Fostering a vibrant entrepreneurial ecosystem is crucial for nurturing innovation and driving economic growth in Thai Nguyen province. This solution involves creating a supportive environment for aspiring entrepreneurs and startups to thrive. Thai Nguyen can establish entrepreneurship centers and incubators to provide aspiring entrepreneurs with mentorship, training, and access to funding opportunities. Additionally, implementing policies that reduce regulatory burdens, streamline business registration processes, and provide tax incentives for startups can stimulate entrepreneurship and innovation. Furthermore, fostering collaboration between startups, established businesses, and research institutions can facilitate knowledge exchange and the co-creation of innovative solutions. By supporting entrepreneurship and startups, Thai Nguyen province can unleash the creative potential of its workforce and catalyze the development of new industries and economic opportunities.

By continuing to invest and develop along these directions, Thai Nguyen will not only improve its position in the PII ranking, but also contribute to the overall development of the country, while successfully implementing the Socio-Economic Development Strategy until 2030. This is a challenging but promising journey that requires unity and continuous efforts from all levels, sectors and people of Thai Nguyen.

## CONCLUSION

Thai Nguyen has the potential to become an innovation center in Vietnam, continuously improving and innovating not only in traditional industries but also in emerging fields. This will contribute to improving the quality of life for the people and creating a promising business environment for domestic and foreign investors. Thai Nguyen is on the path to forming an innovative and creative future, and achieving a high position in the PII ranking is an important step on that journey. It is important that Thai Nguyen province continues to maintain and build on the achievements it has made. This requires close cooperation between local authorities, businesses, and the scientific community to create an enabling environment for innovation and creativity. Investing in education and training, as well as attracting and retaining talent, will be the key for Thai Nguyen not only to maintain its position in the PII ranking, but also to go further on the path of sustainable development.

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