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From the Editor's Desk

At the outset, I take this opportunity to express my sincere gratitude to all the Editorial Board Members, Editors, Peer Review Members, contributors, and readers for making *Cyber Times International Journal of Technology & Management* an outstanding success. Their unwavering support, dedication, and commitment to academic excellence have significantly contributed to the growth and reputation of the journal.

We are pleased to present **Volume 19 – Issue 2** of *Cyber Times International Journal of Technology & Management*. This issue features a collection of high-quality research papers and scholarly articles that reflect contemporary developments, innovative ideas, and critical insights across emerging areas of Technology, Management, Law, Education, and other multidisciplinary domains. The diversity of topics covered in this issue highlights the increasing importance of interdisciplinary research in addressing global challenges and opportunities.

The overwhelming response received from researchers, authors, academicians, law-enforcement agencies, and industry professionals for submitting their research papers and articles is deeply appreciated and duly acknowledged across the globe. Their valuable contributions have enriched the journal's content and strengthened its role as a platform for disseminating knowledge, fostering innovation, and encouraging scholarly dialogue among academia, industry, and society.

On behalf of the Editorial Team, I extend my heartfelt thanks to all authors for their valuable research contributions and to our reviewers for their constructive evaluations that help maintain the highest standards of publication quality. We hope that the research published in this issue will inspire further inquiry, collaboration, and advancement in various fields of study, while continuing to serve as a meaningful resource for our readers worldwide.

We look forward to receive your valuable and future contributions to make this journal a joint endeavor.

With Warm Regards,



Dr. ANUP GIRDHAR

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Innovation Ecosystems in Higher Education: Developing Self-Sustaining Academic Centres

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ABSTRACT

Innovation ecosystems in higher education have become essential for transforming universities into centres of research, entrepreneurship, and societal development. This study examines how higher education institutions can develop self-sustaining academic centres integrating research, industry collaboration, funding, and entrepreneurial culture. A mixed-method approach was adopted, including surveys of 120 faculty members and secondary analysis of innovation-driven institutions. Quantitative analysis identified key determinants of sustainable innovation ecosystems. Findings show that industry partnerships, interdisciplinary collaboration, research commercialization, and continuous funding significantly support sustainability. Institutional leadership, supportive policies, and technology transfer infrastructure also strongly influence the success of innovation centres. The study contributes to literature on higher education innovation systems and provides strategic recommendations for universities seeking sustainable innovation hubs. It emphasizes the importance of collaborative governance, strong research culture, and policy support for ensuring the long-term sustainability of academic innovation ecosystems.

KEYWORDS: *Innovation Ecosystems, Higher Education Institutions, Academic Innovation Centre's, University–Industry Collaboration, Research Commercialization*

Introduction

Higher education institutions are increasingly becoming drivers of innovation, knowledge creation, and socio-economic development. Universities are evolving beyond traditional teaching and research roles into entrepreneurial institutions that support innovation through industry partnerships, start-up incubation, and technology commercialization. Innovation ecosystems refer to collaborative networks involving universities, industries, governments, and entrepreneurs working together for economic and societal advancement. Many universities have established innovation hubs, incubation centres, and research parks to promote

interdisciplinary research and knowledge transfer. However, sustaining these initiatives remains a challenge due to limited funding, weak industry collaboration, bureaucratic barriers, and lack of entrepreneurial culture. Therefore, it is important to understand how universities can develop self-sustaining academic centres that continuously generate innovation and attract funding. This study examines the development of innovation ecosystems in higher education institutions and identifies key factors necessary for sustainable academic innovation centres. By analysing faculty perspectives and institutional practices, the research provides insights into strategies for strengthening long-term

innovation capacity and research impact in universities.

Objectives of the Study

- To examine innovation ecosystems in higher education institutions.
- To identify factors contributing to self-sustaining academic innovation centres.
- To analyse the role of faculty engagement and interdisciplinary collaboration in promoting innovation.
- To evaluate the impact of industry partnerships and research commercialization on innovation ecosystem sustainability.

Methodology

Research Design

The study adopted a descriptive and analytical research design to examine innovation ecosystems in higher education institutions. It combined quantitative survey analysis and conceptual framework evaluation to identify key determinants of sustainable academic innovation centres.

Based on the research objectives and literature review, the following hypotheses were formulated:

H1: Innovation ecosystem structures significantly influence the development of self-sustaining academic centres in higher education institutions.

H2: Faculty engagement and interdisciplinary collaboration significantly influence innovation growth in universities.

H3: Industry partnerships positively impact the sustainability of academic innovation ecosystems.

H4: Research commercialization significantly contributes to the financial sustainability of academic innovation centres.

Hypothesis 1

H0 (Null Hypothesis):No significant relationship between innovation ecosystem structures and the development of self-sustaining academic centres.

H1 (Alternative Hypothesis):There is a significant relationship between innovation ecosystem structures and the development of self-sustaining academic centres.

Test Result

Table 1: Hypothesis 1

Statistic	Value
Chi-Square Value	11.62
Degrees of Freedom	2
P-value	0.003

Interpretation

Since the p-value (0.003) is below 0.05, the null hypothesis is rejected, indicating that innovation ecosystem structures significantly influence the development of self-sustaining academic centres in universities.

Hypothesis 2

H0: Faculty engagement and interdisciplinary collaboration do not significantly influence innovation activities in universities.

H1: Faculty engagement and interdisciplinary collaboration significantly influence innovation activities in universities.

Test Result

Table 2: Hypothesis 2

Statistic	Value
Chi-Square Value	13.47
Degrees of Freedom	2
P-value	0.001

Interpretation

The p-value (0.001) is below 0.05, so the null hypothesis is rejected, confirming that faculty engagement and interdisciplinary

collaboration significantly promote innovation in higher education institutions.

Hypothesis 3

H0: Industry partnerships do not significantly influence the sustainability of innovation ecosystems.

H1: Industry partnerships significantly influence the sustainability of innovation ecosystems.

Test Result

Table 3: Hypothesis 3

Statistic	Value
Chi-Square Value	10.28
Degrees of Freedom	2
P-value	0.006

Interpretation

Because the p-value (0.006) is below 0.05, the null hypothesis is rejected, indicating that industry partnerships significantly sustain university innovation ecosystems.

Hypothesis 4

H0: Research commercialization does not significantly contribute to the financial sustainability of academic innovation centres.

H1: Research commercialization significantly contributes to the financial sustainability of academic innovation centres.

Test Result

Table 4: Hypothesis 4

Statistic	Value
Chi-Square Value	12.94
Degrees of Freedom	2
P-value	0.002

Interpretation

Since the p-value (0.002) is below 0.05, the null hypothesis is rejected, indicating that research commercialization significantly supports the financial sustainability of academic innovation centres.

Participants

The study involved 120 faculty members engaged in research and innovation activities from various universities.

Table 5: Participants Category

Participant Category	Number
Professors	35
Associate Professors	40
Assistant Professors	45
Total	120

Data Collection Methods

Two primary sources:

1. Primary Data - Collected through structured questionnaires distributed among faculty members.

2. Secondary Data

Collected from:

- Research journals
- Policy reports on university innovation
- Institutional innovation frameworks
- Government innovation policies

Research Procedure

1. Development of research questionnaire
2. Data collection
3. Data classification and coding
4. Statistical analysis
5. Graphical interpretation

Results

The analysis of faculty responses revealed several factors influencing the development of innovation ecosystems.

Table 6: Faculty Perception on Key Innovation Drivers

Innovation Driver	Agree (%)	Neutral (%)	Disagree (%)
Industry Collaboration	78	12	10
Interdisciplinary Research	72	15	13
Innovation Funding	81	9	10

Institutional Leadership	69	18	13
Research Commercialization	75	14	11

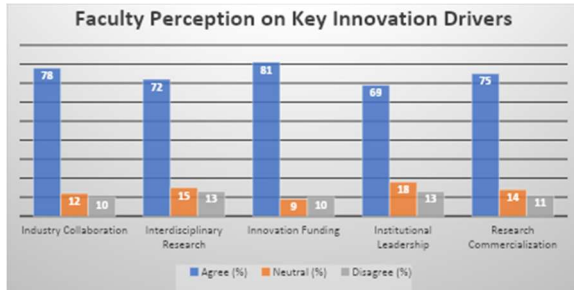


Figure 1: Faculty Perception on Key Innovation Drivers

Interpretation

The results (Table 6) show that innovation funding is the most significant factor supporting sustainable innovation ecosystems, with 81% of respondents recognizing its importance. Industry collaboration (78%) and research commercialization (75%) were also identified as key contributors. Institutional leadership and interdisciplinary research further support and strengthen innovation ecosystems.

Table 7: Institutional Support for Innovation Activities

Support Mechanism	Yes (%)	No (%)
Innovation Labs	65	35
Incubation Centre's	58	42
Research Grants	70	30
Industry Collaboration Programs	62	38

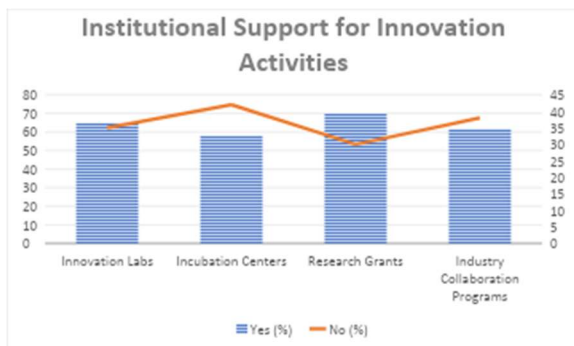


Figure 2: Institutional Support for Innovation Activities

Interpretation

The data indicates (Table 7) that many universities are developing innovation infrastructure. However, incubation centres and structured industry collaboration programs remain limited in several institutions, highlighting the need for stronger institutional support.

Table 8: Sources of Funding for Academic Innovation centres

Source of Funding	Number of Respondents	Percentage (%)
Government Research Grants	46	38%
Industry Sponsored Projects	32	27%
University Internal Funding	25	21%
International Research Grants	10	8%
Private Investors / Venture Capital	7	6%
Total	120	100%

Interpretation

Table 8 shows the major funding sources supporting innovation activities in higher education institutions. Government research grants are the primary source (38%), followed by industry-sponsored projects (27%), highlighting university-industry collaboration. Internal university funding contributes 21%, reflecting institutional commitment to innovation. However, international grants (8%) and venture capital funding (6%) remain limited, indicating the need for stronger global collaborations and private investment to sustain academic innovation centres.

Table 9: Perceived Benefits of Innovation Ecosystems in Universities

Benefit of Innovation Ecosystem	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)
Enhances research productivity	44	32	15	9
Encourages interdisciplinary	41	34	17	8

ary collaboration				
Promotes start-up and entrepreneurship opportunities	38	36	16	10
Strengthens university–industry partnerships	42	33	14	11
Improves institutional reputation	39	35	16	10

Interpretation

Table 9 presents faculty perceptions on the benefits of innovation ecosystems in universities. Most respondents agreed that innovation ecosystems enhance research productivity (76%) and encourage interdisciplinary collaboration (75%). Respondents also recognized their role in promoting entrepreneurship, strengthening university–industry partnerships, and improving institutional reputation. These findings show that innovation ecosystems support both academic and economic development.

Discussion

The findings highlight the growing importance of innovation ecosystems in higher education institutions. Universities are increasingly adopting entrepreneurial models to strengthen research impact and collaboration with industry and government organizations. The study identifies innovation funding and industry partnerships as key factors for sustaining academic innovation centres through knowledge exchange, research commercialization, and innovation opportunities. Interdisciplinary collaboration also helps universities address complex societal challenges. However, many universities still face challenges such as inadequate infrastructure, limited administrative flexibility, and insufficient policy support for sustaining innovation ecosystems.

Limitations

The study has certain limitations:

- The sample size was limited to **120 faculty members**
- The research focused primarily on faculty perceptions
- Institutional differences across countries were not extensively analysed

Future Research Directions

Future research could:

- Conduct cross-country comparisons of university innovation ecosystems
- Analyse start-up incubation success rates in universities
- Study student entrepreneurship within innovation ecosystems

Conclusion

Innovation ecosystems are becoming essential in higher education institutions. By integrating research, industry collaboration, and entrepreneurial activities, universities can become centres of innovation and knowledge transfer.

The study shows that sustainable academic innovation centres require strong leadership, continuous funding, interdisciplinary collaboration, and effective industry partnerships. Universities integrating these elements are more likely to develop self-sustaining innovation ecosystems supporting economic and societal development.

As higher education evolves, universities must promote innovation, collaboration, and research commercialization to remain key drivers of the global knowledge economy.

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