

**Ann**  
PUBLISHER

# Journal of Community Services (Abdisci)

e-ISSN 3047-2431  
p-ISSN 3047-3489



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# UNIVERSITIES IN THE ERA OF INDUSTRY 4.0 AND SOCIETY 5.0: CHALLENGES, STRATEGIES, AND IMPLEMENTATION IN INDONESIA

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## Abstract:

**Background.** The Introduction to Campus Life for New Students (PKKMB) is an essential program designed to facilitate the transition of freshmen into university life, equipping them with the skills and values required to succeed in higher education.

**Aims.** This article discusses the implementation of PKKMB at the University of Papua, held on August 20–22, 2025, with 1,999 participants across three campuses: Manokwari, Sorong, and Waisai Raja Ampat. In the era of the Industrial Revolution 4.0 and Society 5.0, PKKMB plays a strategic role in preparing students to adapt to rapid technological changes while upholding national values.

**Methods.** The program emphasizes academic readiness, character development, disaster preparedness, and the cultivation of 21st-century skills, including critical thinking, problem-solving, collaboration, communication, and lifelong learning. The opening ceremony was symbolically marked by the Rector of the University of Papua with the pinning of participant badges.

**Conclusion.** The outcomes highlight the importance of strengthening student resilience, national identity, and global competencies to face the challenges of future education and societal demands.

**Keywords:** PKKMB, higher education, Industrial Revolution 4.0, Society 5.0, student preparedness, University of Papua

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## INTRODUCTION

The era of Industry 4.0, characterized by integrating digital technology, artificial intelligence, big data, and the Internet of Things (IoT), has brought fundamental changes across various sectors, including higher education (Schwab, 2016). Meanwhile, the concept of Society 5.0, first introduced in Japan, emphasizes using technology to enhance human well-being, not merely improve industrial efficiency (Fukuyama, 2018). As centers of knowledge and technology development, universities must respond swiftly to these dynamics to produce graduates relevant to society and industry's needs.

In Indonesia, the transformation of higher education toward the digital era has already begun to take shape. Yet, it still faces several structural challenges, ranging from limitations in digital infrastructure to the relevance of curricula to labor market demands (Suharyanto, 2020).



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Therefore, discussing how universities can develop strategies to remain competitive and adaptive in the face of these two eras is crucial. One of the most appropriate moments for disseminating information about this transformation is during the *Pengenalan Kehidupan Kampus bagi Mahasiswa Baru* (PKKMB), or Introduction to Campus Life for New Students. The main objective of this program is to prepare new students to transition into becoming mature and independent learners, to accelerate their adaptation to the new environment, and to provide the foundation for their success in higher education. PKKMB also serves as a starting point for strengthening students' character and national identity, expecting them to grow into excellent Indonesian human resources—academically capable, possessing integrity and resilience, while upholding the nation's core values.

PKKMB also raises awareness about the importance of Pancasila as the nation's foundation, the significance of understanding globalization, and the challenges of Industry 4.0 and Society 5.0. These demands that students become individuals with strong literacy in data, technology, and humanity, and be prepared to master the competencies needed in the 21st century. These competencies include creative and critical reasoning, problem-solving, communication, collaboration, career development, understanding professional fields, and lifelong learning.

Moreover, PKKMB equips new students with the knowledge and awareness to mitigate and prepare actions needed to anticipate and respond to natural disasters, including local content material. This is particularly relevant given Indonesia's geographical conditions, which make natural disasters an unavoidable reality. Consequently, new students are expected to take an active role in disaster risk reduction and develop resilience in such situations.

## **METHOD**

The *Pengenalan Kehidupan Kampus bagi Mahasiswa Baru* (PKKMB) program was conducted from August 20–22, 2025, at the Main Hall of the University of Papua (Unipa). The event was attended by 1,999 new students distributed across three campuses: the main campus in Manokwari, the Sorong campus, and the Waisai Raja Ampat campus. The opening of PKKMB was marked by the pinning of participant badges by the Rector of the University of Papua.



Figure 1. Banner of PKKMB



Figure 2. The opening of PKKMB

The implementation method of PKKMB combined plenary sessions, group discussions, and interactive workshops. Plenary sessions were designed to deliver essential materials, including Pancasila's values, Unipa's vision and mission, and the role of higher education in the era of Industry 4.0 and Society 5.0.

## RESULTS AND DISCUSSION



Figure 3. Leaders of UNIPA and PKKMB students

In addition to the aforementioned topics, in general, the 2025 PKKMB program materials, in accordance with the 2025 PKKMB Guidelines, consist of the following:

1. National Life, Statehood, National Identity, and Fostering Awareness of National Defense
  - a. Understanding Pancasila as the state foundation or national ideology, the 1945 Constitution, the Unitary State of the Republic of Indonesia, and Bhinneka Tunggal Ika (Unity in Diversity);
  - b. Realizing the profile of Pancasila students: faithful and devoted to God Almighty and of noble character, globally diverse, collaborative, independent, critical-thinking, and creative;
  - c. Prevention and mitigation of intolerance, radicalism, terrorism, and the dissemination of ideologies that contradict national ideology;

- d. Understanding rights and obligations in the context of national defense based on patriotism and awareness as citizens;
  - e. Introduction to student managerial and leadership skills.
2. The Higher Education System in Indonesia;
    - a. Introduction to the higher education system in Indonesia;
    - b. Study program curriculum and the implementation of “Kampus Berdampak” (Impactful Campus);
    - c. Introduction to student growth mindset, character formation that values humanity, and building student mental health;
    - d. Introduction to student organizations and student activities, including reasoning, interests, and talents;
    - e. Introduction to the Prevention and Handling of Violence in Higher Education (PPKPT);
    - f. Strengthening financial literacy and student welfare.
  3. Higher Education in the Digital Era and Industrial Revolution
    - a. Higher education in the era of the Industrial Revolution 4.0 and Society 5.0;
    - b. Ethics in the use of information technology within higher education institutions.
  4. Student Character Development
    - a. Introduction to cultural values and campus life ethics;
    - b. Etiquette and norms of campus life;
    - c. Anti-plagiarism, anti-bullying, anti-drugs, anti-corruption, and anti-sexual violence;
    - d. Skills and wisdom in communicating through social media.
  5. Local Content of Higher Education Institutions
    - a. Introduction to Occupational Safety, Health, and Environment (OSHE);
    - b. Student entrepreneurship;
    - c. Other materials deemed necessary according to the needs of students and higher education institutions.

Group discussions facilitated peer-to-peer interaction and reflection on the materials, while workshops emphasized practical skills such as digital literacy, disaster preparedness, and soft skills development.

To ensure inclusivity and equal access to information, the program applied a blended learning approach by integrating face-to-face sessions with digital platforms. The online component provided recorded lectures, reading materials, and discussion forums, enabling students from different campuses to engage actively and consistently.

The resource persons consisted of university leaders, faculty members, professional practitioners, and local government representatives, reflecting the program's multidisciplinary and collaborative spirit. In addition, student organizations were involved in the facilitation process, ensuring that the program was not only top-down but also participatory.

Evaluation of the program's implementation was conducted through pre- and post-activity surveys, daily reflection notes, and observations of student engagement during the sessions. The data collected were analyzed to assess the effectiveness of the methods used, student satisfaction, and areas requiring improvement for future PKKMB activities.

## Discussion

According to the schedule provided by the committee, on the first day of the PKKMB program, students received material on Higher Education in the Era of Industry 4.0 and Society 5.0. The material was delivered for approximately 30 minutes using a PowerPoint presentation, followed by a discussion session. The discussion was moderated for about 25 minutes. The new students appeared enthusiastic about this topic, as shown by the many questions raised.



Figure 4, 5. Material delivered to students

The implementation of PKKMB at the University of Papua illustrates how higher education institutions can strategically respond to the challenges and opportunities presented by the Industrial Revolution 4.0 and Society 5.0. Integrating these global paradigms into student orientation programs highlights the university's commitment to academic excellence and preparing students as agents of social transformation.

First, Industry 4.0 has shifted the labor market's demands toward digital literacy, critical thinking, problem-solving, and interdisciplinary collaboration (Schwab, 2016). Through PKKMB, new students were introduced to these competencies by engaging in digital skills, communication, and teamwork workshops. This early exposure provides a strong foundation for their academic journey and prepares them for the evolving workforce landscape.

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DOI: <https://doi.org/10.62885/abdisci.v3i3.884>

Second, Society 5.0 emphasizes a human-centered approach, where technology serves as a tool to enhance human well-being (Fukuyama, 2018). PKKMB addressed this by embedding discussions on ethics, sustainability, cultural identity, and disaster preparedness. For instance, local content sessions focused on disaster risk reduction reflect Indonesia's geographic realities and the societal responsibility of future graduates to contribute to community resilience.

Furthermore, the program reinforced national values such as Pancasila and character education. This aligns with the Indonesian government's vision of developing graduates who are competitive globally, rooted in national identity, and capable of maintaining integrity (Suharyanto, 2020). By combining global competencies with local wisdom, PKKMB bridges modernization and cultural preservation.

Another key point is the collaborative delivery model. The involvement of university leaders, faculty, practitioners, local government, and student organizations created a holistic learning ecosystem. Such collaboration mirrors the multi-stakeholder partnerships needed in the real world to address complex societal issues in the 21st century.

In summary, PKKMB demonstrates how orientation programs can evolve beyond mere introductions to campus life. They have become a strategic platform for shaping students into adaptive, resilient, and value-driven individuals who are prepared to navigate technological advancements and social challenges.

## CONCLUSION

The implementation of PKKMB at the University of Papua demonstrates that student orientation programs can serve as strategic platforms for preparing students to face the dual challenges of the Industrial Revolution 4.0 and Society 5.0. By combining the cultivation of digital literacy, critical thinking, and problem-solving with the reinforcement of national values, ethics, and cultural identity, PKKMB provides a balanced foundation for student development.

Integrating disaster preparedness and local wisdom further emphasizes higher education's relevance in addressing global and local challenges. Moreover, the collaborative involvement of multiple stakeholders—university leaders, faculty, practitioners, and student organizations—shows the importance of a holistic and participatory approach in shaping adaptive and resilient graduates.

Ultimately, PKKMB highlights that higher education institutions in Indonesia must continue to innovate in their strategies and programs to remain competitive and relevant.

Preparing students to become academically excellent, socially responsible, and technologically adaptive individuals is an institutional responsibility and a national priority in realizing Indonesia's vision for superior human resources in the 21st century.

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