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## Knowledge Integration in Indonesian State Islamic Institutes and Universities: A Review

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### ABSTRACT

*Over the last two decades, Islamic state universities in Indonesia have encouraged the idea of integration between Islamic sciences and modern science. However, it can be seen factually that this idea still faces various complex problems. This study aims to describe the paradigms, concepts and science integration programs that have been developed, and what are the implications of scientific integration idea for science and technology products in Islamic universities. The research method used is a qualitative method with a phenomenological approach that combines field and library research. This study found that the idea of scientific integration which has been campaigned by Islamic state universities in Indonesia has not yet found an ideal paradigmatic form, and based on the study of this phenomenon, there are two findings that can be noted.*

**Keywords:** *Integration of science, Indonesia, Islamic university, Islamization of knowledge, scientific paradigm.*

For the past 20 years, Indonesian Islamic state institutes have been working to integrate Islamic knowledge or science with modern science, or the secular sciences, despite numerous conflicts in this endeavour. This development is consistent with the government's objective of allowing Islamic

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educational institutions to provide courses in the pure sciences, as these institutions have previously only taught Islamic subjects. The requirement that Islamic institutes be able to demonstrate a unique scientific differentiation from non-Islamic institutes (government-owned public universities) goes hand in hand with this. Since then, knowledge integration has grown into an academic endeavour that is constantly being explored using a variety of models by all state Islamic institutes and universities. However, there are a number of obstacles to this process's implementation, including theoretical, philosophical, paradigmatic, and practical issues (Fadhli 2023; Rifal 2014).

Due to this circumstance, a number of people doubt whether knowledge integration into educational programmes at Indonesia's public Islamic universities is feasible and instead see it as a purely philosophical undertaking (Bull 2013). Some even contend that despite substantial research carried out by Islamic universities, the knowledge integration movement that emerged in Indonesia has been stuck in its thinking and has not produced any ground-breaking scientific or technological discoveries (Iqbal 2020). In actuality, the goal of knowledge integration's formation is to spur technical advancement and scientific production in Islamic nations.

The effort of the knowledge integration in Indonesia substantially, is a solution to the dichotomy between Islamic sciences and pure scientific knowledge that has developed over the time (Abdullah 2006; Siregar 2014). A dichotomy can have a number of effects on Muslims' stagnation and backwardness in a variety of spheres of life (Faruqi 1989; Nasr 1989). Therefore, the efforts of Islamic tertiary institutions in Indonesia to mainstream the idea of science integration as an institutional vision and mission deserve to be studied. This aims to find an exemplary format that fosters radical transformation in the development of Islamic education, beyond mere "academic politics" involving administrative status upgrades from high school to institute or university (Iqbal 2020), or providing a chance to offer a broad scientific program that appeals to numerous students. However, it substantially has become the basis for the development of an Islamic education system, which will be the solution for progress and civilization (Azra 2005).

In this context, this study aimed to map the essential components of the created concept of knowledge integration by emphasising two primary issues. First, what is the state of the knowledge integration paradigms, concepts, and programmes that Indonesian Islamic institutions have created over the past 20 years? Secondly, what are the consequences of the knowledge integration concept and policy that have been produced thus far for science and technology products? In order to institutionalise knowledge integration as a scientific paradigm and provide a solution for the future of the Islamic educational system, it becomes imperative that efforts to address these concerns be made.

### **Research Method**

This research was part of a scientific development research in higher education, especially related to scientific paradigms, concepts, and programs that have been developed in the context of the institutionalization of integration of knowledge. Methodologically, this research was a type of qualitative research that applied a phenomenological approach (Denzin 1994). In studying this theme, the researchers also conducted intensive studies at a number of state Islamic universities, and made observations at three state Islamic universities, including Institut Agama Islam Negeri (IAIN) Ambon, Universitas Islam Negeri (UIN) Sunan Kalijaga Yogyakarta, and Universitas Islam Negeri (UIN) Syarif Hidayatullah Jakarta.

Standard qualitative data collection techniques, such as on-site observations at state Islamic universities, were employed to gather the research data. At the three aforementioned campuses, the researchers also conducted in-depth interviews with a number of informants, including students, instructors, and administrators. Additionally, documentation research was conducted by looking through workshop results documents, books on research results, and studies that had been conducted. This included conducting comparative research with incidents that were comparable to those that happened at other campuses. After that, an interactive descriptive analysis model was used

to analyse the data (Abdullah 2007). This involved reviewing and reducing the collected data, displaying the data, and examining the relationship between these data and various ongoing external contexts, and providing a final conclusion on the existing data and then presenting it systematically in writing. These steps were taken to form a complete understanding of the data.

### **Knowledge Integration as a Scientific Paradigm**

It has traditionally taken a while for scientific information to be integrated with Islamic religious understanding. According to Hofman (2002), the division between Islamic knowledge and science started in the Middle Ages because Muslims were thought to be uninterested in advances in science and technology. As a result, the academic advancement seems to be disjointed. The truth is that there was a certain gap in understanding between general and Islamic knowledge. Accordingly, Syed Muhammad Naquib al-Attas and Ismail Ragi Al-Faruqi made recommendations about the Islamization of knowledge during the first Conference on Islamic Education in the City of Mecca in 1977 (Wijaya et al. 2021).

According to Sayyed Hossein Nasr (1989), the condition of Muslims had been complicated by the secularization project of the West, which separated religion and science (knowledge). In his article *Knowledge and the Sacred*, published in 1989, Nasr offered the term 'sacred knowledge' rooted in Islamic tradition. Sacred knowledge means knowledge that can combine science with faith, reason with heart, physical realm with metaphysical realm. The bitter reality as explained by Sayyed Hossein Nasr above served as the catalyst to prompt Muslim scientists to immediately improve the situation of modern Islamic education, which adhered to a very ambiguous hierarchy of knowledge and did not support Muslims to progress and develop according to the developments and demands of the times. Ultimately, the concepts of Islamization and science integration surfaced in a number of Islamic educational establishments across the globe, enabling Muslims to become more than just Western-born consumers of knowledge; they also developed original research that aided in advancement and production (Adebayo 2015).

According to Ismail Ragi al-Faruqi (1989) and Muhammad Naquib al-Attas (1995), Islamic civilization could only rise again if the development of science and technology was returned to the framework and perspective of Islamic teachings. Therefore, al-Faruqi and al-Attas called for the need to implement the Islamization of knowledge. The idea of taking the path of purification, in which Western knowledge is reframed within an Islamic context, as described by Abudin Nata (2019) was "nothing more" than an attempt to rewrite textbooks in various scientific disciplines with an insight into Islamic teachings. Moreover, since then the movement for the Islamization of knowledge has been launched, and the study of Islam in relation to the development of science and technology has been explored and introduced.

According to Nata (2019), knowledge integration is the process of bringing together different fields of knowledge in order to create a meeting point between them rather than blending them together and losing their unique ontology, epistemology, and axiology. Besides, it is not only used for the interests of science itself, but must be in accordance with its main function, which is to provide information, explanations, convenience, and guidance for humans in answering various phenomena of life. The knowledge integration is the unification of Islamic sciences with other sciences so that these sciences are not contradictory and dichotomous. Even the Holy Quran has outlined the principles of knowledge integration and its interconnection between knowledge and sciences.

Hence, the science integration according to Ali (1969) is "Integration of knowledge means the recognition that all true knowledge is from Allah and all knowledge should be treated with equal respect whether it is scientific or revealed. In essence, the integrative integration of science or knowledge means knowledge that collects various concepts, theories, methods, both scientific and

normative, and techniques to respond to all problems faced by humans. Thus, this integrative paradigm applies a holistic approach that can unite various disciplines, which combines sociology with technology, links biology with economics, integrates branches of life science with social science, brings together religious science with general science to produce integrative knowledge and no longer mutually exclusive and contradict each other, instead strengthening and supporting each other.

Since it was introduced as a paradigmatic idea in bridging the dichotomy between Islam and science over the last few decades, there have been many experts who have tried to offer various approaches and models in the process of integrating the knowledge. The model referred to here is a pattern, size, or provision that has been standardized and programmed in integrating one science with another so that even though the names of these sciences are different, each one integrates with one another, such as the integration between the sciences of *fiqh* and health, physics, and so on (Nata 2019).

1. First Model: The Islamization of knowledge used to purify or clean up science. In this instance, Islamil Al-Faruqi and Muhammad Naquib al-Atas are frequently cited as the forerunners of the cleansing or Islamization paradigm. According to Al-Faruqi, as quoted by Nata (2019), the approach used is to reframe the Western knowledge into Islamic context which in practice is “nothing more” than an attempt to rewrite textbooks in various scientific disciplines with an insight into Islamic teachings. Al-Faruqi’s model is taken in four steps, including (i) mastery of Muslim science; (ii) mastery of contemporary science; (iii) identification of the scientific deficiencies in relation to the Islamic ideal; and (iv) reconstruction of the sciences so that they become a blend in harmony with Islamic insights and ideals. Meanwhile, al-Attas, who supports al-Faruqi, suggested that Western knowledge should first be purified of any elements that are not consistent with Islamic teachings. Then essential Islamic elements should be formulated and integrated into key concepts to create a consolidated body of knowledge. This process will result in a creation of a synthesis that encapsulates the core of knowledge.
2. Second Model: The integration of science with the Islamic modernization. The model departs from concerns about the underdevelopment of Muslims in the world today, caused by narrow-mindedness, stupidity, and closedness in understanding their religion’s teachings. As a result, the Islamic education system and science have lagged behind the progress achieved by the West (Majid 1999). Thus, change can only be achieved by developing Islamic messages within the context of social change and science and technology development, while also adopting adaptable views that are in line with the current times. It is important to maintain a critical attitude towards the negative elements of the modernization process, displaying more flexibility and openness to face a pluralistic and ever-changing world. Hence, the Islamization of science offered by the Islamic modernization model aims to foster modern, advanced, and progressive attitudes among Muslims. This encourages continuous self-improvement and community development to prevent falling behind in science and technology (Nata 2019).
3. Third Model: The integration of science with neo-modernism model which departs from the foundation of the methodology is as follows. (i) It is important to seek clarification of contemporary issues from the tradition, from the *ijtihad* of previous scholars to the *sunnah*, which is the result of the interpretation of the Quran; (ii) if the tradition is unable to provide clarification, then the historical context of the verses of Quran, the target of the scholars’ *ijtihad*, should be examined; (iii) The true moral message of the Quran, which is the basis of social ethics, is revealed through a hierarchical analysis., (iv) from the social ethics of Quran

are then applied in the context of today's *ummah* with the help of a careful study of the knowledge of the problems faced by *ummah*, and; (v) The Quran serves an evaluative and legitimate function, offering a moral view of the problems to be resolved (Nata 2019).

4. Fourth Model: The integration of science according to the Fazlur Rahman's (2000) model which focuses on the axiological aspect or the use of knowledge, excluding its ontological and epistemological aspects, or the inner, spiritual, transcendental, and moral aspects, and emphasizing individuals use it.
5. Fifth Model: The interconnectivity-functional model offered by Amin Abdullah (1996). This model advocates for the study of Quran and al-Sunnah using linguistics, methodology, and basic science. The goal is to produce Islamic religious science cluster, such as *ulum al-din*, *al-fikr Islamiyyah*, and *dirasah Islamiyah* (Islamic Studies). Further, it encourages research and development in the natural sciences combined with techniques to create useful technology that supports the implementation of religious teachings.

Those models are further developed by Indonesian Muslim intellectuals who are also the leaders in the government-owned Islamic campuses. Rector of Universitas Islam Negeri Malang, Imam Suprayogo (2009) introduces the tree of science model, where the roots are firmly thrust into the earth. This illustrates the science of tools that should be mastered by every student, including Arabic and English, logic, introduction to natural sciences, and social sciences. The tree trunks are Quran, al-Hadis, Islamic thought, *sirah nabawiyah*, and Islamic history. The branches are a number of sciences with various branches such as natural sciences, social sciences, and humanities. Fertile soil is a must for cultivating an Islamic culture of life and spiritual activities. The fruit yielded characterises the outcomes of Islamic education, such as good faith and good ethics.

Conversely, Nasir (2009), the Rector of Universitas Islam Negeri Sunan Gunung Djati Bandung, created a wheel metaphor model that describes something fundamental from a meaning. The wheel symbolizes the dynamics of the world of science, capable of rotating on its axis and traversing the depths of the earth's surface. Meanwhile, Universitas Islam Negeri Jakarta developed a holistic knowledge integration model, integrating *Tauhid* in the three areas including ontology, epistemology, and axiology. This model was introduced by Kartanegara (2005) using *Tauhid* as understood in philosophy, not theology as the basis for the integration of knowledge. In addition to the fields of objects, sources, and methods, the concept of *tauhid falsafi* in the form of *wahdat al-wujud* also becomes the basis of the classic philosophical (rational) sciences. Amin Abdullah, Rector of Universitas Islam Negeri Yogyakarta developed an integrative-interconnective model resembling a spider's web, where Quran and *Sunnah* are the central points that produce interrelated scientific networks, both Islamic sciences or knowledges and modern science (Yulanda 2019).

If various ideas on integrating knowledge are interconnected, Nata (2019) summarized a number of notes that can be taken into consideration. (i) The enthusiasm to integrate knowledge among Muslim intellectuals is quite high, showing the amount of concern and moral responsibility they have. (ii) There is an element of similarity in the offered concepts, including the needs for a moral foundation, spiritual ethics, and noble values built based on faith in Allah, and based on His teachings contained in Quran and *sunnah* of Rasulullah. (iii) Various ideas of thought occur because of differences in viewing science. Some consider science to be the body of knowledge derived from natural laws, which underpins the natural sciences. In this natural science, Islamization is carried out on its axiological aspect, as initiated by Fazlur Rahman (2000). As for other sciences such as social sciences, *tasawuf*, philosophy, and even religion, the content of Islamization can be included in the



ontological, epistemological, and axiological aspects. (iv) The idea of integrating science is very sophisticated, but the realization or concrete results from applying the ideas and steps for integrating and Islamizing science have yet to surface. (v) Concrete steps are needed for integration, such as incorporating it into the curriculum design. This should be based on the integration of science, with objectives, content, teaching and learning processes, and evaluation all in alignment. A diverse teaching team or balanced inclusion of religious and general subjects can further support integration.

### **Development of Knowledge Integration in Indonesian Islamic Institutes and Universities**

State Islamic tertiary institutions in Indonesia are government-owned tertiary institutions under the Ministry of Religion while state universities are under Ministry of National Education. The state Islamic universities were in the form of Institut Agama Islam Negeri (IAIN), which only taught Islamic subjects such as Quranic and hadis studies, shariah, dakwah and Islamic education. But since 2002, the Ministry of Religion has pushed for IAIN to become Universitas Islam Negeri (UIN), changing its legal and academic status. Additionally, this modification enables state Islamic tertiary institutions to arrange general study courses that previously are not possible at IAIN (Arifin 2002). All state Islamic institutions in Indonesia, both the ones that have become UIN and the ones that are still IAIN, have been propagating narratives that seek to integrate knowledge ever since they were granted university status. As demonstrated by the three state Islamic colleges that served as the study's subjects, every institution develops its own model, idea, definition, and implementation.

The IAIN Ambon is presently having difficulty becoming a university (UIN). The campus located in the Eastern Region of Indonesia, marked by its religious and cultural diversity, aligns knowledge with a multicultural vision, which calls for knowledge to accommodate the differences and variety found within the community. Finding a solution to this epistemological conundrum is still challenging. The current goal of knowledge integration at IAIN Ambon is to support maritime studies that will address the geographical requirements of the Maluku province's islands, which are made up of several island clusters and huge territorial seas.

The development of a science study programme that supports maritime studies, including physics, biology, marine studies, and mathematics, came next in the idea of integrating knowledge. Even the establishment of a maritime faculty has been planned for when IAIN Ambon eventually changed its status to Universitas Islam Negeri (UIN). IAIN Ambon was trying to develop a curriculum with a vision of integration of knowledge by requiring students in the science departments to study compulsory Islamic subjects such as Quran and hadith. Every department continues to occasionally work on creating an integrative curriculum that integrates Islamic sciences with mainstream (secular) studies (Interview with Abidin Wakano).

Meanwhile, at UIN Sunan Kalijaga Yogyakarta, integration of knowledge with the concept of integration-interconnection is being developed. Amin Abdullah (2006) the Rector of UIN Yogyakarta, developed this idea using a spider web paradigm, in which the Quran and Sunnah are positioned as the centre of knowledge that connects all of the university's scientific disciplines.

Figure. 1  
Integration-Interconnection Concept of UIN Yogyakarta



It is discovered that there are similarities between the connectivity forms of the knowledge integration processes at IAIN Ambon and UIN Yogyakarta. There is more work to be done in getting integration implemented. Numerous pure science study programmes, such as those in physics, chemistry, mathematics, biology, and industrial engineering, are regulated by the Faculty of Science and Technology.

UIN Yogyakarta also developed a number of courses that examine various themes in an interdisciplinary manner, especially from the point of view of Islamic teachings and modern science, such as Islamic Integrated Physics Study course taught in the second semester of Department of Physics. Likewise, The study of the Quran and Hadith is a prerequisite of general science majors. UIN Yogyakarta is now working to put construct teaching teams, consisting of faculty members with a variety of areas of competence, for several courses. According to a lecturer at the Department of Quranic Studies, he frequently collaborated with the science lecturers as a member of the teaching team. They are having difficulty using the Quran to explain scientific issues (Interview with Saefudin Zuhri).

The same thing is noticeable at UIN Jakarta where it emphasizes the importance of reintegration of science. The concept of knowledge reintegration was proposed by Azra (2006), the rector of UIN Jakarta from 1998 to 2006. In this case, the integration of science is a combination of internal religious science and internal general science, and integration between religious science and general science. This combination includes three aspects or levels, including ontological integration, scientific classification integration, and methodological integration. The theory is that Islam does not recognize scientific dichotomies because the source of all sciences is Allah. Consequently, the developed scientific paradigm is to reconcile science with the truth of revelation. The concept of reintegration of knowledge is based on a dialogical, open, and critical integration paradigm, namely an open perspective on knowledge and respect for the existence of existing types of knowledge proportionally without leaving a critical nature. The Faculty of Medicine at UIN Jakarta has also opened, offering scholarships to aspiring students who memorized al-Quran. Additionally, science students are required to take a course on the Quran and Sunnah.

This phenomenon demonstrates how challenging it is still to adapt the concept of knowledge integration into real-world applications. Creating and refining the idea of science integration is undoubtedly difficult. Thooyar (2021) argues that this happens as a result of the irregular appearance of different concepts and ideas regarding the integration of knowledge within the framework of time, location, and the reasons that support them. It is related to a number of factors, including: (i) historical relationship between science and religion; (ii) strong pressure from scientific

groups who reject the “value-free” scientific doctrine; (iii) crisis caused by science and technology; and, (iv) underdevelopment of Muslims in science and technology. It is anticipated that different viewpoints on how to create the integration model will continue to influence how Indonesian Islamic educational institutions operate today.

### **Criticism of Knowledge Integration in Indonesian Islamic Institutes and Universities**

If we look closely, we can see that Islamization and integration-interconnection are the two main approaches used in Indonesia to carry out the knowledge integration project. Al-Faruqi and al-Atas' theories are followed in the Islamization or purification of knowledge. In order to complete this process, secular aspects that reject Divine elements or other metaphysical concepts must be removed from the Western sciences. This can be achieved by becoming an expert in Islamic knowledge and science, becoming a specialist in modern science, recognising the gaps in science with respect to the Islamic ideal, and reconstructing the sciences to be consistent with and harmonious with Islamic principles and insights (Nata 2019).

The effort for Islamization of knowledge should be understood as eliminating its negative impact, not solving the dichotomic paradigmatic problems that have occurred between Islam and science so far. The data gathered for this study suggests that a noteworthy trend was the integration and interaction between Islamic and modern sciences. Even though these scientific disciplines employ various methodologies and strategies, they are all acknowledged to have sprung from the same source, Allah the Almighty. As a result, UIN Yogyakarta developed the integration-interconnection idea, which attempts to integrate as well as unite many scientific disciplines around shared ethical principles. The idea of knowledge reintegration at UIN Jakarta, which is regarded as a comprehensive approach, is likewise indicative of this. God becomes the basis of integration for various types of human experience, such as sensory, intellectual, mystical, and spiritual experiences (Kartanegara 2005). Similarly, IAIN Ambon was still working to translate the idea of integrating knowledge to respond to local circumstances.

Islamic higher education in Indonesia views knowledge integration as a paradigm necessity for scientific advancement, particularly in addressing the conflict between Islam and science, which has hindered Islamic education's ability to address the ummah's underdevelopment. Integration of knowledge is also perceived as a way to encourage Islamic tertiary institutions to develop general fields of study (science and technology), which have so far been managed under the authority of Indonesian Ministry of National Education. It is crucial to assess the integration of knowledge critically because it appears to be primarily intended to support the conversion of Islamic tertiary institutions owned by the government into universities and to broaden their curriculum to include general scientific fields, such as science and technology, medicine, and maritime. Rifal et al. (2014), for instance, brought up this problem when claiming that state Islamic institutions have trouble "grounding" the integration rhetoric in more functional and operational domains.

There are several grievances at UIN Yogyakarta regarding the integration program's shortcomings, including the curriculum, syllabus, and instructional methodology. Even while UIN Yogyakarta and IAIN Ambon have attempted in the past to create a unique integrated curriculum through a variety of workshops and academic rules, they have also engaged in team teaching, which integrates teaching materials from other disciplines for a single subject. It still has a number of issues, though, most of which are technical and include issues with teaching integration, course structures, curricular models, and other issues.

Theoretically, the combination of science and religion that has emerged in Indonesia appears straightforward, according to Iqbal (2020). In actuality, though, this attempt has encountered difficulties because it has taken almost 20 years for "Islamic science and technology" items to appear as anticipated. In Indonesia, IAIN and UIN are still occupied with "classical" religious discourse and study. Bull (2013) states:



One major way in which Lukens the “where is the Islam?” question is addressed is through defining and redefining different approaches to the relationship between science and religion. As we saw, there have been a number of different approaches. A very popular one takes a proof-texting approach and tries to find Quranic verses and Hadith that support the findings and theory of science. This does not seem promising to me, such proof texting of science leads to a crippled science because all findings must be verified in the holy text; science, by definition, must be open to discovery, verification, and falsification. It also leads to bad hermeneutics because it approaches the text with an intended outcome instead of reading the text and seeing where it leads.

As a result, Iqbal (2020) argued that it is difficult to make the Quran the primary source of many newly emerging discourses, particularly when it comes to scientific research, since most scientific studies are derived from in-depth analyses and struggles in the relevant field. The Holy Book should be placed as the highest moral source, as the ideal of a civilized community.

With the complexities mentioned above, it is possible that science and technology do not have a harmonious relationship as integration-interconnection supporters’ desire. Instead, there may be silent disputes that lead to a potential separation between science and religion (Iqbal 2020). The current state of affairs is that formal exchanges between the two scientific poles are the extent of the integration of science discourse, which coincides with the increasingly extensive conversion of IAIN (institutes) into UIN (universities). Even at state Islamic universities, the religious “side” occasionally engages in unilateral “piracy” of general scientific publications, general courses, or study programmes. Criticism such as this warrants serious consideration to ensure that the integration of knowledge in Islamic tertiary institutions in Indonesia is approached with care and not merely as a philosophical debate. Or conversely, as Bulls and Iqbal’s criticisms, it is concerning that the pattern of integration may be limited to the narrow ‘*matchology*’ model, which weakens the scientific context. Scientific findings should be considered true based on empirical evidence, rather than verification in the Quran or other holy books only, which may introduce subjective evaluations.

Efforts to overcome these obstacles become the concern of intellectuals at state Islamic universities in Indonesia, so the project of integration of science does not only stop at the philosophical level. Therefore, it is important for Islamic higher institutions to provide training, workshops, seminars, technical guidance, and ongoing education to enhance the abilities of their instructors to create and design learning materials that incorporate content in a comprehensive manner. This should include avoiding the practice of merely inserting Qur'an verses when explaining scientific phenomena, or vice versa, as well as using course titles that combine aspects of science and religion without fully embodying the values of integration. Thus, scientific integration idea, which has been in practice for the past two decades in Indonesian Islamic universities, requires further research, particularly in relation to its implementation, which still encounters technical difficulties. The comparison process needs to be carried out with Islamic educational institutions in other Islamic countries, such as Malaysia, Egypt, and Turkey, which have an increasingly advanced education system (Indra 2015).

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