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TRANSFORMATION OF VALUES OF THE HIGH TECHNOLOGY PROJECTS FROM A VUCA TO A BANI ENVIRONMENT MODEL

The article is dedicated to the study of impact of a BANI-world conditions to implementation of the high technology industrial projects and in particular of the nuclear industry projects. **The purpose** of the article is to analyze tendencies of changes of different factors related to the high technology nuclear project implementation against the changing conditions of the environment. **The object** is the project management methodologies in the BANI environment. **The subject is** theoretical analysis of the values differentiation in between the VUCA and BANI worlds, key aspects of BANI impacting implementation of the nuclear projects. **Tasks to be solved:** to analyze the transformation from the VUCA model to the BANI model, to present values and their differentiation as the basis for survival in the new world order, to develop a method for assessing project risks in the BANI environment. **Methods:** practical empirical analysis of nuclear project risks in comparison with BANI-model forecasts, applied research, project risk management methodology, probability theory. **The following results were obtained:** the differences between the values of s VUCA and BANI are determined, an understanding of the general changes that have arisen due to the functionality of the environment is provided, the project management methodology applicable in the BANI environment is analyzed, a qualitative and quantitative risk analysis based on BANI projections is implemented on the example of a nuclear project in Ukraine, and the grounds for determining the most influential BANI forecast are proposed. The main results of the research are identification and analysis of values and their differentiation in the process of transformation from the VUCA to the BANI world, proposals for the project management approach which could cover the needs of the nuclear project and the consequences of this transformation. To estimate risks, it was proposed to use qualitative and quantitative methods of risk assessment. The case study of one of the nuclear projects in Ukraine, and a mixed classic-Agile methodology for the management of the nuclear project was performed. **Conclusions:** risk management of the nuclear projects has to be carried out based on the impact of the BANI-projections to identified risks.

Keywords: VUCA-world; BANI-world; high technology project; nuclear project; values; risk management.

Introduction

Nowadays high technology industries hold a leading position amongst the factors forming the future of the world. Over the demanding period of COVID-19 high technologies were those pillars which prevented the world economics from a complete crash. And they keep poising this trend now at the time of one of the most serious global challenges underway caused by the military invasion of Russia into Ukraine.

In accordance with the analytics of the consulting organization McKinsey&Company [1] clean energy and net-zero technologies were amongst first 14 high technology trends in 2022. And given the energy resources crisis resulted from the Russian-Ukraine war nuclear energy got a second wind as one of the technologies being able to rescue the world with its growing energy demand.

Deployment of innovative nuclear technologies and their implementation within the European Energy sector by 2050 is one of the main objectives of the European Green Deal.

However, nuclear energy has also been undergoing the processes related to today's uncertain, anxious, and unpredictable world. A number of projects under implementation within the Horizon Europe Euratom Research and Training Programme faced project management difficulties related to implementation of the projects in a new reality. They feel a need to create a sound project management instrument which could become a fundamental basis for stable and smooth project realization in these circumstances.

Back in 2020, an American futurist Jamais Cascio in his article "Facing the Age of Chaos" [2] advocated an entirely new age the humanity entered in with COVID-19. The volatile, uncertain, complex and ambiguous model of world structure called VUCA was replaced by the brittle, anxious, non-linear and incomprehensible model BANI. This inference obtained even more evidence on 24th February 2022 when the world found itself with the giant bleeding wound on its body due to Russian military aggression against Ukraine.

This makes special sense in the nuclear field where nuclear safety is considered by most of the international documents as a priority, and the fundamental safety objective is to protect people and the environment from harmful effects of ionizing radiation [3].

Nuclear safety is one of the important policies related to the peaceful use of nuclear energy. It builds a synergy with two other important policies aiming

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to prevent the spread of nuclear weapons, facilitating disarmament and physical protection of nuclear facilities: nuclear security and safeguards.

These policies are ensured by the state nuclear regulatory authorities and other policy making state organisations, but their implementation is the responsibility of all the stakeholders of the nuclear energy field. This turns to the point that each nuclear related project shall follow the requirements of the state in the nuclear field to guarantee:

- Protection of people and the environment from harmful effects of ionizing radiation [3]
- Prevention of unauthorized use of nuclear materials [4]
- Non-proliferation of nuclear weapons and disarmament [4].

After the Chornobyl Accident in 1986, Fukushima Accident in 2011 a number of nuclear safety basics and principles were revised, enforced and established in the different international documents, conventions and agreements undersigned by most of the countries in the world having any relation to the peaceful use of nuclear energy. By those, the serious gaps in the legislation and regulations, which made the accidents possible, had been addressed.

The transformation from the VUCA model to the BANI framework involves shifting the focus from volatility, uncertainty, complexity, and ambiguity (VUCA) to a new set of factors: Bounded, Ambiguous, Non-Linear, and Incomprehensible (BANI). The BANI framework provides a different perspective on the challenges and dynamics of the business environment. Below is a description of the BANI framework and its components:

Brittle (B) in BANI refers to boundedness, indicating that there are limitations and constraints within the business environment. These boundaries can be physical, regulatory, or resource-related. Recognizing and understanding these limitations is essential for decision-making and resource allocation.

Anxious (A) in BANI stands for ambiguity, highlighting the presence of multiple interpretations, perspectives, and uncertainties within the business landscape. Ambiguity implies that there may be different and conflicting information or signals, making it challenging to determine the right course of action.

Non-linear (N) in BANI represents non-linearity, indicating that cause-and-effect relationships are not always straightforward or predictable. Non-linear dynamics suggest that small changes or disruptions can have disproportionate and unpredictable impacts on the business ecosystem.

Incomprehensible (I) in BANI denotes incomprehensibility, emphasizing the difficulty in fully understanding and making sense of the complex and rapidly changing business environment. The incomprehensible nature of the landscape makes it challenging to develop comprehensive models or strategies that accurately capture the dynamics at play.

The BANI framework provides an alternative perspective to the VUCA model by shifting the focus to boundedness, ambiguity, non-linearity, and incomprehensibility. This framework helps organizations recognize and navigate the constraints, uncertainties, and complexities of the contemporary business landscape.

Therefore, an entire change of the framework, inside which today's world has to function, is strongly required. Although the need for immediate changes is considerably high it still will take time.

Moreover, the realities of BANI-environment also put the world nuclear community into a situation where protection of people and environment from ionizing radiation, non-proliferation of nuclear weapons and physical protection of nuclear facilities are still the highest priorities of their day-to-day work. And it requires both from the responsible state authorities and other nuclear field players invent of new approaches to overcome the brittleness, anxiety, non-linearity and incomprehensibility of BANI-environment. Whilst the international nuclear community and state authorities reach all necessary conclusions on the documentation owed to be changed and introduce these changes, the new approaches to the management in the nuclear field should be worked out by the project managers in the nuclear field.

Hence, the analysis of the prerequisites for creation of these approaches has a proven topicality on the way of getting an understanding of the appropriate managerial model successful in the BANI-world we just entered into [5]. Each of the words the BANI acronym consists of could be a starting point of this analysis.

1. VUCA and BANI models

The VUCA model formed a picture of the world in 2000s. Coming back to this time in the memory we realize that the following nouns distinctly describe the situation with the key skills workable that time:

Сучасний стан наукових досліджень та технологій в промисловості. 2023. № 2 (24)
ISSN 2522-9818 (print)
ISSN 2524-2296 (online)

Volatility: speed of life increased considerably, which enforced businesses, markets, governments, workers to respond and change time of reaction, maintain high level of concentration to follow all the possible immediate changes and address them (concentration and immediate reaction).

Uncertainty: it became impossible to predict when and to which point things could change, what kind of changes it would be, what instruments would be needed to overcome these changes. Long-term strategies have become irrelevant (readiness and ability to solve big issues with short-term discrete strategies).

Complexity: globalization, disappearing cultural differences in the developed countries and extension of IT-technologies utilization in all areas of life made the world interconnected, multi-angled, multi-tooled and complicated which makes it almost impossible to understand in full scope (ability to build clear structures).

Ambiguity: cause and effect don't have a usual sequence and logic anymore, everything which seemed to be well-known and clear started to be not logical, irrational (analytical skills, ability to make non-standard decisions).

In regard to BANI acronym, it appeared to become worlds reality at the time of COVID-19 Pandemics in 2020 and shockingly continued its manifestation in 2022 with the Russian-Ukrainian war. It has the following characteristics and useful skills to override:

Brittle: systems, stable yesterday, today stop working and crash, they are not stable anymore, principles and standards don't work, regulations don't regulate, all the past basics seem to have collapsed. The world suddenly changes, but it's unclear what are the rules to follow now and which direction to take. It becomes much wider than volatility (stress resistance, creativity, sense of correct direction/solution).

Anxious: changes could be horrifying, sometimes crash is such a big and unbelievable that consciousness needs time to accept this being a reality. Although recognized as reality, a new world is so unclear and chaotic that continuously keeps anxiety awake. Unlimited access to various resources of information enforces anxiety as well (informational selectivity, analytical skills, gut feeling).

Non-linear: there is the same situation with the cause-and-effect rule as in VUCA – it still doesn't work. Nevertheless, in VUCA model it was not workable due to 2D complexity of interconnections in all the areas, whilst in BANI model it is not workable due to 3D chaos everywhere (open mind, flexibility).

Incomprehensible: it is impossible to understand what is going on and no way to get immediate solution to everything, because there is no way to collect all the pieces of puzzle and no way to capture everything by the human mind (open-heart, trust) [6].

Chaos could be defined through the thermo- and fluid dynamics terms where chaos is called entropy or, if we speak about the flow, they use the term "turbulency". The turbulency is a flow stable from the beginning but losing its stability with increasing velocity. The flow undergoes changes in different directions and the initially stable flow layers start to mix up.

Research studies of the turbulency have been widely utilizing the equations of English physicist O. Reynolds, which however, don't provide a universal description of the turbulent flow and its behavior.

Moreover, Reynolds' equations could be applied only based on hypotheses and different speculations to be followed by the experimental data since the turbulent flow holds numerous uncertainties and could not be simply described neither by one nor by the system of equations. The turbulent flow is uncertain and unpredictable, but even so it is still possible for human beings to invent high technologies based on the data they obtained during the experiments and case studies.

On the contrary to the existence of uncertainties in turbulent flows humanity has succeeded with the invention of the airplanes, spacecrafts, engines, energy technologies which are working in turbulent conditions. Entering the airplane, we recognize and accept that uncertain and unpredictable environment becomes the basis of our being for the next several hours. And we can easily live with this. Every time before taking off we are instructed by the crew on how to mitigate turbulency consequences which might happen in the course of the flight, and it helps a lot to build a tangible structure in this uncertain environment. And it is a good example of how the VUCA model works.

Today, we are in the same airplane, but we don't know which direction to fly. It is because today we entered the BANI-world.

The VUCA model provides a solution on how to survive in a volatile, uncertain, complex and ambiguous world. The VUCA model has become a respond to entire digitalization and globalization of all the processes in the world which cut a ground underneath humanity's foot. The business world required a sound instrument, industries required a sound instrument, technologies required a sound instrument as well as governments and households to adapt

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themselves to a new racing reality where nobody knew the rules of the game anymore.

The transformation scheme from VUCA to BANI presented of fig.1.

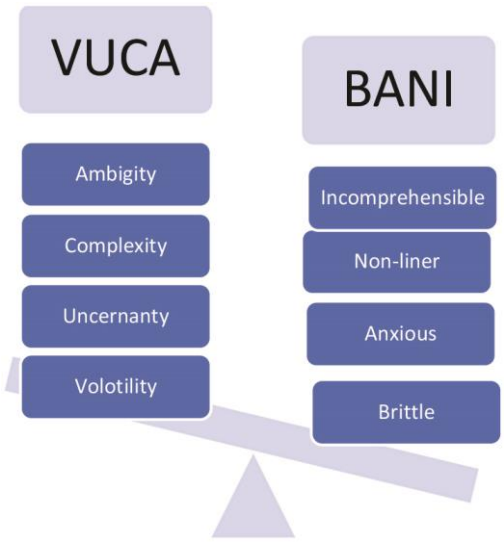

Fig. 1. Transformation from VUCA to BANI

Whilst challenges of BANI are brittleness, anxiety, non-linearity and incomprehensibility. Which means that everything we have might be destroyed in one second by something which we are not able to predict or prevent. Long-term strategies and planning are not valid anymore, we have to learn how to live in a discrete reality and how to build a discrete schedule for our day-to-day life and business processes.

2. Values as a basis for survival in a new world structure

Values are important factors for people's lives and are formed out of people's principles and personal beliefs. This is what helps to make decisions, establish priorities, estimate risks and align actions within members of the project teams. In project management, values often form the basis of a culture and an atmosphere inside the project and can influence an overall strategic direction of project implementation. Values can create a positive impact in various aspects of life as well as facilitate building strong relationships, productive collaboration and leadership inside the project. Values are an instrument of flexibility and easy adaptation in complex and deadlock situations.

Identifying and maintaining the values improves decision-making and goal-setting processes and causes personal growth of each member of the team.

All these make evident that value-oriented project management gives a serious chance to survive in all unpredictability of today's world.

Although both VUCE and BANI models seem to have similar values and the same instruments and approaches to be dealt with, as stated above, they belong to two different worlds with a variety of values, which might have the same name with completely different content dictated by the specifics of environment.

For instance, the VUCA values include but are not limited by the following: speed of decision making, adaptability, awareness, owning and managing the information, clear procedures, maintaining communication and visibility, team building.

These values look like the components of the classic approach to project management, which aims to build a clear project structure, with a strong team and reliable spread of roles and responsibilities. This model envisages risk analysis of the project and development of solutions on their mitigation on a regular basis.

Success of the project implementation in the VUCA world relays considerably on the awareness of the various project stakeholders about the project activities with its interim and final results. Making stakeholders of high technology projects aware of the progress and status of the project implementation is an action of ultimate importance since they are the ears of the project and its connection with the external environment. The way the stakeholders react to one or another piece of information, innovative approach or alternative solution helps the project to be continuously in touch with the changing world and quickly adapt to it.

In order to keep orientation in the airplane which goes in unknown and unpredictable direction all senses of the body, consciousness and unconsciousness have to be ready to communicate with the surrounding environment. Short-term planning, small teams, flexible deadlines as well as other attributes of discrete project management are needed in this case, which could be completely covered by utilization of an Agile project management approach [7, 8]. This approach has been widely used by the IT industry for a long time and justified its effectiveness and efficiency. Hence, could be successfully implemented in the other high technology areas.

Taking into account the situations Ukraine and world faced during COVID-19 Pandemic high technologies are core fundamentals which can stabilize the world whilst the Russian-Ukrainian war made humanity to learn a lesson that at the same time high-technology industries are the most sensitive parts

Сучасний стан наукових досліджень та технологій в промисловості. 2023. № 2 (24)
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of the world: power stations and high-voltage lines could be destroyed by heavy shelling, nuclear power plant could be captured by militaries, data banks could be hacked, damaged and stolen, data management servers could be malfunctioned. And when these stop the whole cities stop. The words "safety", "safety culture", "qualified engineering personnel", "leadership" and "trust" have become those values the BANI world is not able to survive without.

The analysis of values and their differentiation (Table 1) shows that the new BANI world is mostly based on feelings and requires a person not only to be a project manager, but also empathy, flexibility [9] and case orientation through constant analysis and risk mitigation of the BANI environment.

Table 1. *Values of VUCA and BANI models*

VUCA model values	**BANI model values**	
	COVID-19	**Russian–Ukrainian war**
speed of decision making	health	Nuclear safety
adaptability	day-to-day safety culture	Nuclear safety culture
awareness	qualified medical personnel: hospital-based and research	Nuclear security
owning and managing the information	empathy	qualified engineering personnel
clear procedures	feelings	Flexible leadership
maintaining communication and visibility	intuition	trust
team building		weapons

Simultaneously, nuclear safety basic principles alongside the need to build a trustworthy project team made of highly qualified engineers have become real values for the nuclear projects in BANI-environment.

3. Risk management in BANI-environment

Risk management [10] in the high-technology nuclear project requires continuous attention and regular analysis by the project manager [11, 12]. Risk management was one of the main pillars of the project management in nuclear in the period of 2000–2022 years covering a VUCA-time.

Starting from 2022 risk management has become one of key instruments which allows project manager of the nuclear project ensure nuclear and radiation safety, radiation protection, prevention of unauthorized use of sources of ionizing radiation in the BANI-world [13, 14].

BANI-model projections are considered against the risks in one of the nuclear projects in Ukraine. This project is being implemented under the EU funded INSC (Instrument for nuclear Safety Cooperation) Programme, which has been providing support to uranium processing plant in Ukraine since 2014.

Apparently, it is clear that the risks of successful implementation of any project in the conditions of on-going war in Ukraine could be considered as high. However, the priority of nuclear safety is still one of the fundamentals in nuclear field, hence the European Commission keeps supporting nuclear safety actions in Ukraine and in particular PChP site despite the existing risks. It emphasizes one more time that risk management is considered as one of the primary instruments to ensure successful implementation of the nuclear projects.

Risk assessment in nuclear projects can be performed using qualitative and quantitative methods [15].

Table 2 and Fig. 2 consider risks of the works oriented nuclear project, main site of which is located close to the territory of intensive military actions in Ukraine.

A qualitative analysis will help to prioritize risks. This considers the estimates of the significance of risk factors calculated based on the probability of the factor and the degree of impact on the project. One way to qualitatively risk assess is to use a probability and impact matrix (Table 3). Based on this table, we will obtain qualitative assessments of risk factors. The integral score for each of the BANI projections can be obtained as the maximum of each factor, using the pessimistic principle (Table 4).

Thus, we have two subsets with the elements equivalent to:

F1 = {Brittleness, Anxiety},

F2 = {Non-linearity, Incomprehensibility},

and ordered by decreasing risk level:

$$R(F2) > R(F1).$$

To quantify the risk, we apply a probabilistic approach, considering risk factors as random independent compatible events. Then the probability of occurrence of at least one factor is calculated using the formula for adding a set of independent events (for two factors and for three):

$$P(A+B) = P(A) + P(B) - P(AB).$$

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$$P(A+B+C) = P(A)+P(B)+P(C) \; - \; P(AB)-P(AC)-P(BC)+P(ABC),$$

where A, B, C – the first, second or third factor.

Table 2. *Risk assessment of the nuclear safety project through the projections of BANI environment**

	Risks	BANI-projections	Probability, %	Impact, %
1	**Threat to project implementation to the war: no further sense for the EC to support physical works at the site under shelling.**	**Brittleness**		
		Project could be stopped by the EC;	50	100
		Site could be heavily shelled	30	100
		Results delivered by the project could be destroyed	20	100
2	**Threat of destroying the site, equipment, constructed objects.**	**Anxiety**		
		EU technologies could be captured	10	80
		Shelling could cause a release of radioactive contamination of the environment	40	80
		Workers are not protected.	30	100
3	**Ukrainian side is not able to contribute into a partnership with EU: project recipient has not been financed.**	**Non-linearity**		
		Changing the course of the state budgeting due to the martial law	90	100
		UA experts could join military actions with high probability not to come back	60	100
4	**Adoption of legislation and regulations required for project implementation is delayed or suspended.**	**Incomprehensibility**		
		Changing priorities of the state authorities	90	70
		Project team has no reliable legal instruments to support their site work under the project	90	80

* *EU Project on Support of the clean-up of the former uranium processing plant in Ukraine*

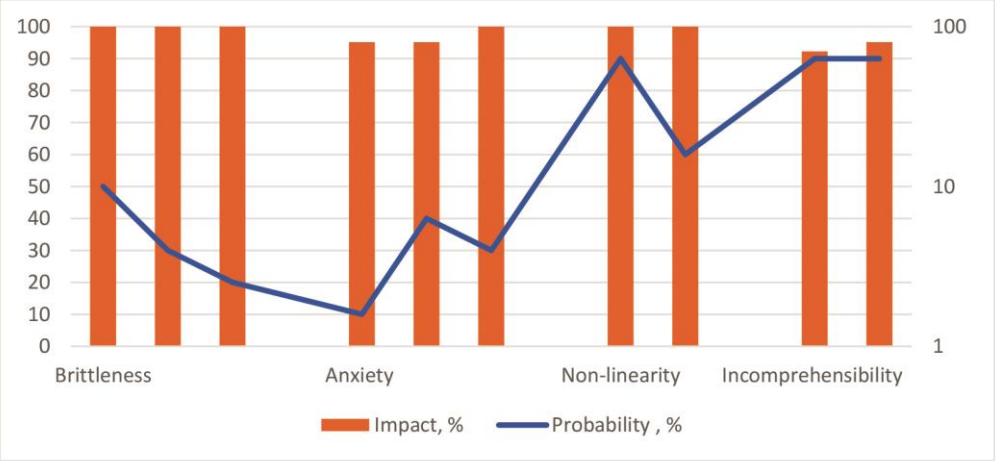

Fig. 2. Impact of the BANI-model projections to implementation of the EU project in Ukraine*

Table 3. *Probability and impact matrix*

Probability of risk factor appearance	Impact of the risk factor (percentage of project losses)				
	Very low <20%	**Low [20–40) %**	**Average [40–60) %**	**High [60–80] %**	**Very high >80%**
[0–0,2]	vl	vl	vl	**a**	**a**
(0,2–0,4]	vl	vl	l	**a**	**h**
(0,4–0,6]	vl	l	l	h	**h**
(0,6–0,8]	vl	l	a	h	ah
(0,8–1]	vl	a	a	**ah**	**ah**

Сучасний стан наукових досліджень та технологій в промисловості. 2023. № 2 (24)
ISSN 2522-9818 (print)
ISSN 2524-2296 (online)

Table 4. *Qualitative assessments of factors and BANI projections*

BANI projections and factors	Risk level
Brittleness	**high**
The project could be stopped by the EU;	high
The site could be shelled	high
Project results could be destroyed	average
Anxiety	**high**
EU technologies could be captured	average
Shelling could lead to the release of radioactive contamination into the environment	average
Workers are not protected.	high
Non-linearity	**very high**
Changes in the state budget course due to martial law	very high
UA experts could join the fighting with a high probability of not returning	very high
Incomprehensibility	**very high**
Changing priorities of the state authorities	very high
The project team does not have reliable legal tools to support the work of the website within the project	very high

Given that the degree of risk according to two indicators is calculated as their product

$$R = P \times S,$$

where P – is the probability of the factor,

S is the impact of the factor (possible losses),

then the integral risk assessment according to the corresponding BANI projections can be obtained by the following formulas:

$$R(A,\ B) = S_A P(A) + S_B P(B) - \max(S_A, S_B) P(AB);$$

$$R(A,B,C) = S_A P(A) + S_B P(B) + S_C P(C) - \\ - \max(S_A, S_B) P(AB)) - \max(S_A, S_C) P(AC)) - \\ - \max(S_B, S_C) P(BC) + \max(S_A, S_B, S_C) P(ABC)).$$

As a result, we obtained the following quantitative risk estimates for the studied projections:

R(Brittleness) = 69

R(Anxiety) = 54

R(Non-linearity) = 99

R(Incomprehensibility) = 98

It can be stressed that even in such a conditions BANI's brittleness and anxiety have no extensive impact on it being, however, factors which may directly intervene into the processes of the project. Whilst the non-linear and incomprehensive processes on-going in the political system of Ukraine and priorities made by the state authorities still are important and can hamper the project implementation.

This is a good sign of stability inside the system which is able to keep it inside the BANI environment. It demonstrates that there are some pillars in the high-technology projects which could not be broken even by direct intervention of physical accidents related to the war. Nuclear safety, security of the nuclear facilities are stable in the BANI-world and projects aimed to enhance them will have been supported despite the danger resulted from the war.

Conclusion

Entering BANI-environment has a considerable impact on the implementation and methodology of high technology nuclear projects.

Characteristics of values of the BANI model have been functionally changed compared with the VUCA model.

BANI-projections influence risk analysis and management of nuclear projects, and it is reasonable to study them in connection to a particular case.

The transformation of values of high technology projects from a VUCA to a BANI environment model reflects the evolving nature of the business landscape, particularly in the context of high technology projects. The VUCA model, which emphasizes volatility, uncertainty, complexity, and ambiguity, has been widely used to describe the challenges and dynamics of the business environment. However, as technology continues to advance rapidly and disrupt traditional business models, a shift towards the BANI framework offers a more relevant and comprehensive perspective.

In the BANI framework, the focus shifts towards boundedness, ambiguity, non-linearity, and incomprehensibility. High technology projects often operate within certain boundaries and constraints, whether they are regulatory, resource-related, or technological limitations. Recognizing these boundaries is crucial for effective decision-making and resource allocation.

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Ambiguity plays a significant role in high technology projects, as they often involve multiple interpretations, competing perspectives, and uncertainties. The ability to navigate through ambiguous situations and make informed decisions becomes paramount in this environment.

Non-linearity highlights the complex and interconnected nature of high technology projects. Small changes or disruptions in technology or market conditions can have significant and unpredictable impacts on the project outcomes. Understanding non-linear dynamics helps project managers anticipate and respond to unexpected challenges and opportunities.

Lastly, high technology projects often operate in an incomprehensible environment, where the rapid pace of technological advancements and the complexity of interactions make it challenging to fully understand and predict outcomes. This incomprehensibility necessitates agile and adaptive approaches, continuous learning, and an openness to experimentation and innovation.

In conclusion, the transformation from a VUCA to a BANI environment model acknowledges the unique characteristics of high technology projects and provides a more nuanced understanding of the challenges and opportunities they present. By embracing the bounded, ambiguous, non-linear, and incomprehensible nature of the high technology landscape, project managers can better navigate and succeed in this rapidly evolving domain.

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ТРАНСФОРМАЦІЯ ЦІННОСТЕЙ ВИСОКОТЕХНОЛОГІЧНИХ ПРОЄКТІВ З МОДЕЛІ СЕРЕДОВИЩА *VUCA* ДО *BANI*

Стаття присвячена дослідженню впливу умов *BANI*-світу на реалізацію високотехнологічних індустріальних проєктів, зокрема атомної промисловості. **Мета статті** – аналіз тенденції зміни різних факторів, пов'язаних із реалізацією високотехнологічного ядерного проєкту, на тлі мінливих умов довкілля. **Об'єкт дослідження** – методології управління проєктами в середовищі *BANI*. **Предметом вивчення** є теоретичний аналіз диференціації цінностей між середовищами *VUCA* та *BANI*, ключовими аспектами *BANI*, що впливають на реалізацію ядерних проєктів. **Завдання роботи:** проаналізувати трансформацію з моделі *VUCA* на *BANI*, подати цінності та їх диференціацію як основу виживання в новій світобудові, розробити метод оцінювання ризиків проєкту у *BANI*-середовищі. **Методи дослідження:** практичний емпіричний аналіз ризиків ядерного проєкту, порівняння з прогнозами *BANI*-моделі, прикладне дослідження, методологія управління проєктними ризиками, теорія ймовірності. **Здобуті результати**. Подано різницю між поняттями *VUCA* та *BANI*, визначено загальні зміни, що виникли завдяки функціональним можливостям середовища, проаналізовано методологію управління проєктом, що застосовується в середовищі *BANI*. Здійснено якісний і кількісний аналіз ризиків на основі прогнозів *BANI* на прикладі ядерного проєкту в Україні, запропоновано підстави для визначення найбільш впливового прогнозу *BANI*. Основними результатами дослідження є ідентифікація та аналіз цінностей та їх диференціація в процесі трансформації від середовища *VUCA* до середовища *BANI*, надання пропозицій щодо управління, яке могло б задовольнити потреби ядерного проєкту та наслідки зазначеної трансформації. Для оцінювання ризиків запропоновано використовувати якісні та кількісні методи визначення ступеня ризику. На прикладі одного з ядерних проєктів в Україні було розглянуто змішану класично-гнучку методологію управління проєктом. **Висновки:** управління ризиками ядерних проєктів має здійснюватися на основі впливу *BANI*-прогнозів на виявлені ризики.

Ключові слова: *VUCA*-світ; *BANI*-світ; високотехнологічний проєкт; ядерний проєкт; цінності; управління ризиками.

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