

## **WAR STUDIES UNIVERSITY ATTEMPT TO DESIGN THINKING**

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### **Abstract**

This article describes the process of recognising and acquiring new capabilities in the frame of operational planning process. It refers to the changes in the operational environment which can be observed nowadays. Educating senior officers is a process which requires proper tools, techniques, methods and approach. War Studies University tries to respond to these appearing needs in the field of operational planning process, especially in understanding the operational environment. The article looks at the elements of this process. Implementing the design thinking may possibly be an offer that has to be tested. A general overview of the testing model is the aim of the second part of this article. A description of the experimental model includes control and experimental group, dependent and independent variables. Additionally, selected tools are presented. The conduct of the pilot research to verify methods and the way of conducting the experiment is also predicted. The article also refers to the problems of cultural adaptation of the scenario. First of all, the scenario has to be of complex context. This is the consequence of used typology of the operational environment. In the Cynefin framework, environment is divided into four types: simple, complicated, complex and chaotic. The article underlines the meaning of the research concerning the design thinking, as a divergent approach, in the process of implementing this into operational planning.

**Key words:** design thinking, experiment, divergent approach, War Studies University, education.

## Changes in operational environment and trials for implementing the conclusions

The new academic year 2016-2017 appeared as quite a new challenge for War Studies University in Warsaw. It happened several times in the history of the University, due to different factors, that we had to modify the University itself and/or didactic syllabi. Provisions coming from the NATO Warsaw Summit 2016 were an additional impulse in the process of changing the perception of Poland's National Security. The situation in Georgia, Southern Ossetia (2008), Eastern Ukraine (2014) and the latest situation in Syria, pushed us to redefine the geostrategic situation and threats. Although in official statements, Poland stressed that it had not identified any direct threats to its independence and territorial integrity, we have to bear in mind that this situation may change.

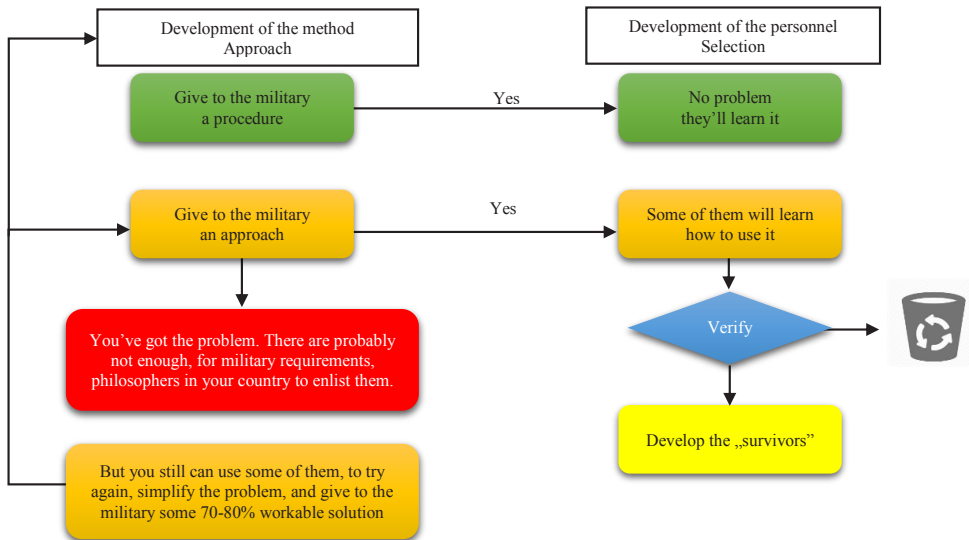
Poland, with dedicated Armed Forces, in the perception of analysts, is currently NATO's main actor on the Eastern Flank. Aggression, regardless of the direction it comes from, is a key factor which encourages us to find new ways to access and plan an eventual response to the threat. Years of living in a problematic neighborhood led to an understanding of a full scale conflict and its possible consequences for both parties. The latest development forced us to focus on possible new scenarios of the so-called *hybrid threat*. It is a brand-new way of conducting long term, low intensity and low-cost conflict on multiple platforms.

The idea of gradual destabilisation of neighbouring countries by coordinated social, economic, political and limited military, cyber (and other) influences gained new significance in understanding and defining regional reality. All these combined threats and perspectives are the impulse for taking necessary countermeasures in terms of approach and tools to anticipate, analyse, build a model and predict the most likely development of the situation.

The main dilemma of War Studies University is connected with its mission. On the one hand, WSU is a scientific unit responsible for security science development, on the other, its responsibility is didactic – basically transferring outcomes of scientific efforts to the military personnel. This situation requires a balance between conducting research on the scope of application of the new concept and the expectations of students in obtaining the most effective product in the form of a certain algorithm of conduct.

At this very moment, it is necessary to provide the reader with an explanation of the term of *military knowledge*. In general, science builds knowledge, but not all of it is useful for military purposes. For this reason, the term military knowledge was developed. Military knowledge is that part of the knowledge which is useful and applicable for military purposes.

One of the military university's challenges is to adopt the required part of science for military purposes and transfer it to the personnel in the frame of didactic process (Figure 1).



Source: own monograph.

**Figure 1. Scientific and educational dilemmas**

In the field of research on military art, it was realised that there are numerous changes in everyday life being witnessed by us. Some of them concern the tempo of life and quick changes in the common patterns of human behaviour. These and similar issues can also be drivers and multipliers for future battles in hybrid conflicts.

The main identified problems amongst these issues concerned:

1. long lasting procedures causing a long time of reaction;
2. proper identification of all important factors;
3. proper identification of all important relations;
4. proper identification of all important interactions and their consequences;
5. efficient modelling of the analysed system with predicting possible changes.

Trying to respond to the growing expectations of the Polish Military Forces and find possible solutions to the existing capabilities, War Studies University faced the following problem: which way and how can we provide forces with useful tools for analysing and modelling a multi-aspect and highly complicated (complex) environment, and how do we make it:

1. reliable;
2. fast working;
3. applicable for soldiers?

The necessity of dealing with a highly complicated not to say complex environment seems to be indisputable and obvious almost to everybody. In this case, assessing the operational environment and appropriate problem is essential. The following two factors play an important role:

1. Costs of possible mistakes made by military forces in crisis or wartime can be dramatically high;

2. Military organisations cultivate the Newtonian mechanistic paradigm which always creates the risk of heading into dead paths (Figure 2).



Obvious truth is that:

**if you will not take into consideration all important factors**  
 (by mistake, lack of information, laziness or other reasons)  
**you can be right only by the chance**  
 And being precise and consequent can only make catastrophe greater

**Russ Ackoff** - *The righter we do the wrong thing the wronger we become*

Source: own monograph.

**Figure 2. Scientific research**

There were different approaches. In the first attempt, the most significant developments in the field of technology and science were diagnosed. The visiting professors' lecture programme (Figure 3) was launched in order to give a proper overview of current trends. In the second step, the initiative was concentrated on a new approach to planning, called design thinking. Cooperation with the US Joint Special Operations University was extended far beyond the Operation Planning Process training programme. Thanks to Ben Zweibelson's team, WSU successfully introduced a short design thinking programme for OF 4 in the frame of an operational-strategic course. The design thinking programme actually went further because it was possible to introduce this approach into the operational planning process programme with the unique opportunity of educating the same group of students over a long time period. Incorporating design thinking into operational planning provided the personnel with a lot of interesting observations about the process itself, its usefulness, and necessary adaptations. This will lead to step 3 – initial verification of military utility of design thinking approach and step 4 (if step 3 gives positive answer) – adaptation of the process to military purposes.

Because all these issues require a longer perspective of time and far more effort than WSU has taken so far, it has been decided to devote special effort to creating a dedicated scientific-didactic team in the nearest future for this task.

Taking into consideration our regional commitments, the outcomes of efforts over the design thinking project could possibly be offered to our partners from other military universities. These actions will significantly improve the quality in terms of assessment of the operational environment and planning of operations. Regional cooperation creates an opportunity to provide partners with a multinational environment and additional opportunities (multinational exercises) to examine the effects of the results.



Source: own monograph.

**Figure 3. Studies, exercises, courses and conferences for armed forces needs**

The four steps described lead to a fifth which is about disseminating conclusions to institutions and partners. A way of implementing design thinking methodology and approach is as follows:

**Step 1.** Diagnosis of the most important global developments.

**Step 2.** Introduction of a Design Thinking programme for OF4 postgraduate studies and incorporating DT into Operational Planning.

**Step 3.** Initial military utility of DT process Verification (assessment).

**Step 4.** (if step 3 gives a positive answer) – applicable military adaptation of the process.

**Step 5.** Popularise and disseminate (if workable).

Except for one exercise, all of them were conducted mostly on the tactical level including hybrid elements, but based mostly on a Ukraine-like scenario with “green people” in the background. The analysis did not refer to a non-linear scenario and relations. This approach seems to bring partial solutions and limited situational awareness in a given environment. Analysing history, one can encounter constant threats to Poland’s independence. Poland’s Armed Forces may take part in coalitions and multinational operations in a much more complex environment. The operational environment in the vicinity of the Polish border is getting more complex. Moreover, different types of dangers to independence (political, economic, and ideological) are appearing. This is one of the reasons which encourage the development of a design thinking approach and methodology, in order to receive better understanding and appreciation of the environment.

## The way to test the approach

The experiment which is going to be conducted is aimed at assessing the effectiveness of the methods, effects and legitimacy of the design thinking approach. It is planned to perform the research in the frame of Comprehensive Preparation of the Operational Environment (CPOE) along with the Operational Planning Process (OPP), including assessment of the desired future<sup>1</sup>. Additionally, observing differences, which could be obtained by using linear versus non-linear methods in the process of analysing the environment, may potentially give new conclusions.

The effects of analysis of a given situation are knowledge and understanding. There is an assumption, taken into consideration, that:

- each system consists of elements which influence each other,
- there are physical and non-physical actors,
- the removal of a given element creates a vacuum, which will be fulfilled intentionally or unintentionally,
- there are frictions in different areas of activity.

The experiment is not oriented on assessing Students' abilities to use design thinking methods in practice, although this factor is significant in order to mitigate the influence of disrupting variables. Of course, it is essential to teach them how to use the method, but assessing how it is being done is not the main purpose of the experiment. Its main purpose is to verify the effects resulting from employing linear and non-linear methods. The linear approach or methodology should be considered as a convergent and non-linear as a divergent.

The experiment will be conducted in a classical frame with participants divided into control and experimental groups. Students of the Higher Strategic – Operational Course and officers forming the Command of Special Forces will be examined. It will be cross-sectional study concentrated on the assessing applicability of the divergent approach.

The first step in 2018 was to conduct a pilot study in order to verify methodological assumptions and, if necessary, to improve lecturers' skills. The experiment was to be mostly aimed at comparing the effects of assessing the operational environment. Two approaches of performing this task are taken into consideration: convergent (linear) and divergent (non-linear). Because of the novel approach, it was planned to conduct the right examination at the end of 2018 or beginning of 2019.

With the main purpose of the experiment in mind, two groups of students, namely Higher Strategic-Operational Course participants and the officers from Special Forces Command were to take part in it. Random selection was to be conducted in both groups, which is one of the most important factors in creating a classical experiment outline.

<sup>1</sup> The concept of desired future is attached to the design thinking approach in contrast to the term end state which comes from the regular approach presented in Comprehensive Operations Planning Directive (COPD).

Additionally, the first group was to be selected on the basis of the Creative Thinking Test results<sup>2</sup>. It was expected to establish a group of officers with the highest scores, with reference to standard deviation<sup>3</sup>. This was to be one of the independent variables expected to facilitate the process of acquiring a design thinking approach among officers with the highest scores. As far as statistical significance is concerned, the results of the experiment were to be expanded only on the approach<sup>4</sup> not on the group of students. The experiment aims at creating the best possible conditions to test the approach.

The control group was to include officers subjected to courses concerning the operational planning process. This group would not use design thinking in analysing and assessing the operational environment, but a regular (linear) approach to the task.

The space of independent variables consists of:

- skills of the group members in design thinking;
- method(s) applied in the process and;
- a scenario referring to the complex environment.

The dependent variable is the effect of using tools and techniques of analysed approaches. It may be expressed in a description of paradigms, artifacts, quantity of actors and relations, as well as the genesis of the conflict<sup>5</sup>. In fact, this variable is still being considered in terms of assessment and measurement. Operationalisation of the results may take different dimensions including nouns, drives, motives based on the list and possibly on Maslow's concept of hierarchy of needs<sup>6</sup>, frictions and considerations.

Factor analysis, which will create a set of dependent variables, may be established with the use of RAFTS method<sup>7</sup> in the CPOE process. Those factors may have been selected during the pilot study by the qualified judges method. Gathering data (factors) was going to be done by observation and recording.

2 TCT-DP- Rysunkowy test Twórczego Myślenia, K.K. Urban, H.G. Jellen, adaptacja: A. Matczak, A. Jaworowska, J. Stańczak 2000. This test can be used in scientific research as far as the nature of creativity is concerned, including cross-cultural aspects.

3 E. Hornowska, Testy psychologiczne. Teoria i praktyka, Wydawnictwo Naukowe Scholar, Warszawa 2003, s. 134–137.

4 Approach refers to the methodology which is to be used. In regular, linear, convergent approach, operational environment is analysed using PMESII (Political, Military, Economic, Social, Infrastructure, Information) mostly. A systems of systems is also created, but it does not take into account non-material elements of the system. Convergent approach is based on reductionism. Divergent, non-linear approach uses systemic thinking. It explores heuristic technics.

5 Convergent, regular, linear approach provides the analysts with information on “what” is functioning in the environment. Divergent approach provides the analysts with information “why” a given system functions as it functions, and “what” is in a system.

6 R.E. Franken, Psychologia motywacji, Gdańskie Wydawnictwo Psychologiczne, Gdańsk 2006, p. 32.

7 Relations – Actors – Function – Tensions – Self (RAFTS), Introduction to Design Thinking, SOC 3440, p. 9.

So far, cultural adaptation of the concepts used in the scenario may be one of the most serious challenges, as the exercises will probably be conducted in English. A psychometric strategy will probably be implemented instead of a pragmatic strategy<sup>8</sup>.

There were some concerns about the scenario, as it was going to be a very important independent variable. The first option included implementing culturally neutral scenario. The purpose of it was mitigating, to a maximum level, the interference of existing knowledge about a given region or problem. It also relates to the type of civilisation<sup>9</sup>. The essence was to gain maximum amplitude between the state of students' experience and knowledge and the analysed environment. The second option encompasses analysis of the native environment, using linear<sup>10</sup> and nonlinear approach<sup>11</sup>. This may potentially have lead to the observation of differences.

It was planned to use the following tools and methods:

- Creative Thinking Test in the process of initial selection,
- PMESII – as an approach to linear analysis of the operational environment,
- RAFTS – as an approach to nonlinear analysis of the operational environment;

it was planned to use the triple loop learning approach, which seems to be appropriate in the process of analysing a complex environment,

- semiotic square,
- iceberg method,
- triple loop learning (represented on figure 4 depicting the analytical cycle of a given problem).

One has to note an important factor concerning evaluating the results of the experiment. Qualified judges may be accustomed to their way of perceiving a given environment. This effect is often met by experts. This attitude is connected with availability and functioning of cognitive schemes. Mitigating this attitude may be done by taking into account the opinions and suggestions of those regarded as non-experts.

As far as a scenario is concerned, this factor may create two effects. The first is connected with its novelty, which seems to be the most desirable. In this case, students are forced to deal with potentially new stimulus. The second effect, which may interfere with the aim of the experiment, is familiarity with the environment. This may lead to using known archetypes or cognitive schemes of a given actor. The example of such effect is analysing the present situation in Ukraine. A student may be unintentionally encouraged to use existing schemes about this country and situation. That is the so called anchor effect.

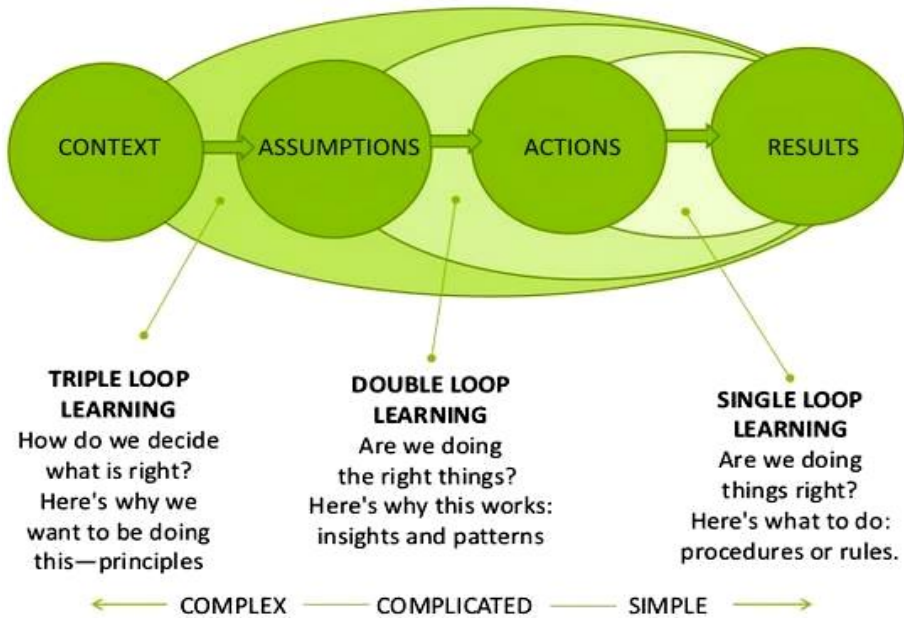
<sup>8</sup> E. Hornowska, *Testy psychologiczne...*, op. cit., p. 30.

<sup>9</sup> See: S. Huntington, *Zderzenie cywilizacji*, Warszawskie Wydawnictwo Literackie Muza SA, Warszawa 2004.

<sup>10</sup> PMESII for example.

<sup>11</sup> RAFTS for example.





Source: <https://markholmngren.com/2014/05/16/becoming-a-learning-organization-part-one/>.

**Figure 4. Single – Double – Triple Loop learning diagram**

Assessment of the effects of the analysis and CPOE products can or could be done by observing:

- effects of analysis of historical and religious patterns, which established the archetypal way of acting of a given actor;
- effects of analysis of symbols;
- effects of analysis of relations, frictions and functions.

The factors mentioned above are, or can be, essential for selecting and describing Centre of Gravity, Decisive Conditions (CoGs, DCs), and other products important in operational projects. The comparison of the quality and quantity of those effects could be the measurement of the effectiveness of the methods and approach based on design thinking vs linear methods.

Jung’s conception of the archetype<sup>12,13</sup>, as well as the theory of complexity, systems theory and complex adaptive system, are the milestones standing behind the approach to the experiment and research.

The archetype’s conception could be very interesting in terms of deep analysis of the Comprehensive Preparation of the Operational Environment (CPOE)<sup>14</sup>, which is

12 M. Hyde, M. McGuinness, Jung. A graphic guide, Gutenberg Press, Malta, 2009, p.59-63.

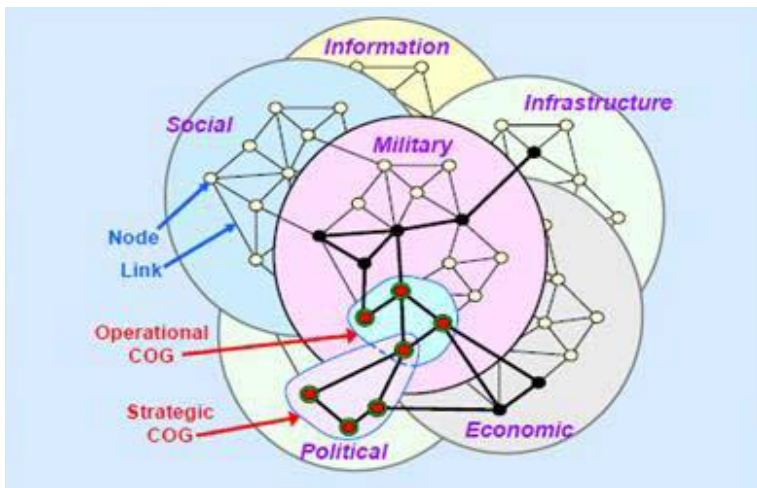
13 C.G. Jung, Memories, dreams, reflections, Fontana Press, London 1995, p. 185, p. 197, p. 248.

14 Allied Command Operations. Comprehensive Operations Planning Directive. Interim V2.0. 04 October 2013, p.4-5.

currently based on PMESII analysis. This kind of analysis seems to be linear<sup>15</sup>. Linear methodology may not be sufficient in terms of understanding the non-linear operational environment. Today's conflicts require discovering patterns of the analysed attitudes. This leads to discovering motives and drives which play a role in the system.

The author of the research, which was to be conducted in the frame of the experiment, believes that this approach will verify the usefulness of non-linear methodology<sup>16</sup> and its effect for military purposes.

Figure 5 shows the general idea of PMESII and its contribution to creating a system of systems in terms of knowledge development of a given operational environment. PMESII seems to be very useful where states are considered as actors in a conflict. It creates complicated relations. Those relations can be observed and managed by experts and procedures, to some extent, as David Snowden and Mary Boone noticed: "Complicated contexts, unlike simple ones, may contain multiple right answers, and though there is a clear relationship between cause and effect, not everyone can see it. This is the realm of "known unknowns." While leaders in a simple context must sense, categorise, and respond to a situation, those in a complicated context must sense, ANALYSE, and respond"<sup>17</sup>.



Source: PMESII and the Non-State Actor: Questioning the Relevance. A Monograph by Major Kris A. Arnold. School of Advanced Military Studies United States Army Command and General Staff College Fort Leavenworth, Kansas, 2006, p. 6.

**Figure 5. General relations in PMESII approach**

<sup>15</sup> P. Paździorek, *Wojskowa myśl operacyjna w konfliktach zbrojnych przełomu XX i XXI wieku*, Wydawnictwo Adam Marszałek, Toruń 2016, p. 283-287.

<sup>16</sup> Analysing the environment, preparing the operational project, using the approach defined in design thinking.

<sup>17</sup> D. Snowden, M.E. Boone, *A leader's framework for decision making*, Harvard Business Review, November 2007, p.6.



The effort to assess the applicability of a new approach is also connected with the development of ontology, epistemology and methodology. For military purposes, strict methods and visible effects have to be achieved. It is connected with first and second generation design models. As Ben Zweibelson shows: “first generation design models not only had to introduce extremely complex concepts as well as produce an entirely new language for the military profession, they also had to challenge the many institutional barriers that continue to resist design opportunities when set within complex adaptive security contexts. ... Second generation design models might possess significant improvements upon these first generation strengths, although theorising about emergent concepts is inherently risky. Nonetheless, if a major drawback of first generation design models is the adherence to an established methodology that cycles designers to reframe through the same methodology, there is an epistemological failure that may only plague first generation designers. Failure here implies only that if design attempts to provide divergent thinking and the conditions for innovation in a military organisation, first generation design models potentially prevent quite a bit of innovation from occurring before designers start. This requires further explanation on design epistemological choices”<sup>19</sup>.

Attempts that are going to be made at War Studies University are aimed at working on the application the design thinking. This new approach based on convergence may be complementary to existing ways of planning on an operational level.

## Conclusions

War Studies University recognises the need to develop alternative methods for analysing the operating environment and designing operations using armed forces in the conditions of the increasing complexity of that environment. This is a great challenge due to the attachment of representatives of the armed forces to the binding ones, based on the functionalist paradigm, principles and methods of planning operations using the armed forces.

It seems that the experimental verification of the possibilities of using design thinking in the design process of the abovementioned military operations is an optimal research approach.

Due to the limited number of students, the results of the research process will only apply to the tools and methods used. It is planned to conduct research in both transverse and longitudinal study plans.

Bearing in mind the pioneers<sup>20</sup> experience in testing and implementing alternative methods for designing operations, it should be taken into account that the

**19** B. Zweibelson, *An Application of Theory: Second Generation Military Design on the Horizon*, *Small Wars Journal*, Feb 19 2017, p. 12.

**20** Shimon Naveh is the author of *Systemic Operational Design (SOD)* first implemented in Israeli Defense Forces.

situation and the need of the armed forces for structured tools will require describing and defining the design process based on design thinking within specific normative documents. This is related to the scientific and didactic dilemma faced by War Studies University.

However, in the conditions of the growing complexity of the operating environment, the appearance of a significant and diverse number of actors on the geopolitical scene, a new approach to the design of operations using armed forces based on design thinking is an interesting offer that requires determining the scope of its application. This seems to be an interesting and important scientific challenge.

In the field of researching alternative methods of designing operations with the use of the armed forces, War Studies University is one of the leading scientific centres in Europe.

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