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PROJECT MANAGEMENT DURING INFODEMIC OF THE COVID-19 PANDEMIC

The **subject** of this article is the transformation of project management systems, programs and project portfolios in the context of the interaction of the infodemic and pandemic in the COVID-19 environment. Infodemic, ahead of the pandemic, is filled with rumours, conjectures and speculation at the first stage, creating an atmosphere of fear and panic. At the same time, Agile methodologies, systems of knowledge and competencies of project and program managers come to the fore in project management. The basis of the changes lies in changing the decision-making paradigm in the management of projects and programs in the "infodemic - pandemic" system. The **goal** is to study the models of interaction and mutual influence of the pandemic (infodemic) information support during the development of the COVID-19 pandemic for the application of modern methodologies of flexible methodologies in managing projects and programs at all levels of the state and society. The key challenges to a successful project and program management are Agile Transformation. Today there is an intuitive transition to the use of flexible project and program management methodologies, which does not bring the expected results. The **research results** allowed the authors to build a model of interaction "infodemic - pandemic). This model can be used to analyse the mutual influence of the information envelope in each country on the distribution of the coronavirus and project management to minimize the negative consequences of the pandemic. **Conclusions:** This article explores the phenomenon of "infodemic" that occurs during the global crisis of the COVID-19 pandemic. It is proposed to apply the Agile transformation of the project management system and pandemic programs, taking into account the influence of informational "noise" in the mental space of global society. The model can significantly improve project preparation by transforming Agile management with a focus on stakeholder value systems. At the same time, it is important to use the opportunities to accelerate and increase the effectiveness of project implementation using Agile umbrella tools such as Kanban, P2M, Kaizen and others. Disinformation, which includes false claims about a "cure", conspiracy theory and misleading information about the spread of the virus will expand. The effectiveness of the response to control this "infodemic" is likely to vary from country to country and will depend on public confidence in the authorities. New developments, including the detection of outbreaks of the virus in almost all countries of the world, the publication of epidemiological data and the start of clinical trials of the vaccine, are likely to lead to new misinformation, which will hamper efforts to control the pandemic.

Keywords: infodemic; COVID-19; project management; Agile transformation; information; infection; SEIR model.

Introduction

Digital transformation and the fourth industrial revolution, the global health and economic crisis, longer human lifespans: the powerful dynamics of change and complexity which have been explored by the projecting the future status will drive profound changes like work in the years ahead. The years ahead could see even more rapid change in how work is carried out. Factors like globalisation and the rise of virtual teams (now dramatically brought to the fore by Covid-19), changing relationships between employers, flexible organisational structures, open innovation models, more diverse workforces, and changing corporate cultures will all have an impact on the skillsets expected of tomorrow's project management professionals. Work is often increasingly complex, carried out in uncertain and unpredictable environments, demanding different behaviours and skills from leaders, including project professionals.

At the announcement of the Coronavirus pandemic, the World Health Organization (WHO) introduced the new term "infodemia" in February 2020.

Infodemia arises in the information space by being defined as an excessive amount of information about a problem that complicates its solution.

Today the phenomenon of "infodemia" is formed in the Ukrainian society, which creates a specific metallic downtime for the implementation of projects and programs. This is not a unique problem. The global mental space has had to deal with the spread of misinformation before. So, in 2014, during the WHO's fight against Ebola, rumours of the disease became the engine of panic, when many people rushed to buy protective clothing kits in

online stores. The kits consisted of overalls and face masks that were unnecessary to prevent the disease.

Many medical experts consider the greatest threat to human life and health not panic as such, but the broadcast of fakes that could provoke the so-called dangerous behaviour. In the case of measles, this is "anti-vaccine" propaganda. In the case of coronavirus, this is untrue information regarding the rules of conduct during an epidemic. "Examples of risky behaviour during outbreaks of infectious diseases include not washing your hands, sharing food with sick people, not disinfecting potentially contaminated surfaces, and not being able to isolate yourself," say British medical experts. Therefore, the best response to coronavirus is antiviral hygiene along with information hygiene. And then neither epidemics nor "infodemic" will prevail against us. But this time the misinformation blast came out many times more powerful than before. The main reason is that doctors have long been unable to determine where the disease originated in China, how it is spreading, and how to deal with it. While science was searching for answers, millions of views were gaining anti-science posts, such as this one, that the emergence of coronavirus bats soup, a deadly disease spread through imported "infected" products, clothing and smartphones from China, and that Chinese authorities hide the true scale of the epidemic. It is the irresponsibility of bloggers and journalists, their unwillingness to check the facts, latent racism against the Chinese, and political support for sensational news that distracts citizens from the pressing problems that have accumulated in society.

In many countries, coronavirus misinformation resurrected old prejudices about Asians and gave rise to xenophobia and racism. In social networks, offensive

language, humiliating jokes and caricatures have spread to people with an Asian appearance. Along with the COVID-19 coronavirus pandemic, another "infodemia" is spreading around the world – informational. This phenomenon has already received its name – "infodemia". The WHO has already warned that the "information epidemic" is spreading faster than the viral one.

The theoretical background of infodemia

Let's go from pandemic dimension to the infidemia dimension.

Traditionally, three basic approaches are used to simulate complex processes and phenomena: field, analytical and simulation.

Full-scale models have the maximum adequacy and informativeness, which, however, are very costly and not always practicable. For example, for field simulation of fakes, bugs and gossip through the people, the spread of

computer viruses, a specially formed test network consisting of a large number of computers is required [1].

The SEIR/SEIRS diagram below shows how individuals move through each compartment in the model. The dashed line shows how the SEIR model becomes an SEIRS (Susceptible - Exposed - Infectious - Recovered - Susceptible) model (fig. 1), where recovered people may become susceptible again (recovery does not confer lifelong immunity). The infectious rate β controls the rate of spread which represents the probability of transmitting disease between a susceptible and an infectious individual. The incubation rate, σ is the rate of latent individuals becoming infectious (average duration of incubation is $1/\sigma$). Recovery rate $\gamma = 1/D$ is determined by the average duration, D , of infection. For the SEIRS model, ε is the rate which recovered individuals return to the susceptible status due to loss of immunity.

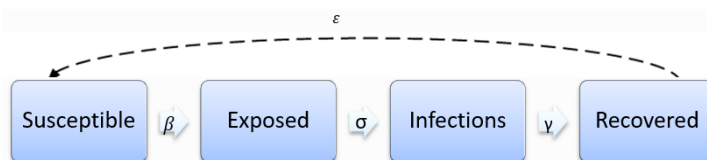


Fig. 1. The SEIRS (Susceptible - Exposed - Infectious - Recovered - Susceptible) model

The SEIRS model presented next differentiation equations [20]:

$$\begin{aligned}\frac{dS}{dt} &= -\frac{\beta SI}{N}; \\ \frac{dE}{dt} &= \frac{\beta SI}{N} - \sigma E; \\ \frac{dI}{dt} &= \sigma E - \gamma I; \\ \frac{dR}{dt} &= \gamma I,\end{aligned}$$

where $N = S + E + I + R$ is the total population.

Since the latency delays the start of the individual's infectious period, the secondary spread from an infected

individual will occur at a later time compared with a SIR model, which has no latency. Therefore, including a longer latency period will result in the slower initial growth of the outbreak. However, since the model does not include mortality, the basic reproductive number, $R_0 = \beta / \gamma$, does not change.

The complete course of an outbreak is observed. After the initial fast growth, the epidemic depletes the susceptible population. Eventually, the virus cannot find enough new susceptible people and dies out. Introducing the incubation period does not change the cumulative number of infected individuals. Results of simulation SEIR model presented in fig. 2.

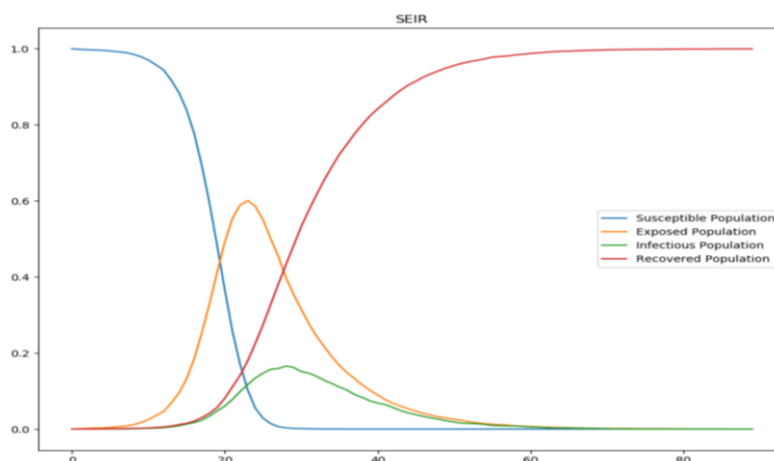


Fig. 2. Results of simulation by the SEIR model

Infodemic model infected society by truth and fakes takes place into global information space. Truth and fakes can have a positive or negative impact on the emotional status of society and projects. Infodemic processes are going faster as pandemic and interrelated between.

The influence of Infodemic model to SEIRS model presented next differentiation equations.

$$\frac{dS}{dt} = -\frac{\beta SI}{N} + \omega_{\theta}(t),$$

$$\frac{dE}{dt} = \frac{\beta SI}{N} - \sigma E + \omega_e(t)$$

$$\frac{dI}{dt} = \sigma E - \gamma I + \omega_i(t),$$

$$\frac{dR}{dt} = \gamma I + \omega_r(t),$$

where $\omega_{\theta}(t)$ – is impact of infodemic processes to susceptible population, based on the "panic"; $\omega_e(t)$ – is the impact of infodemic processes to expose of infection, based on the decreased immunity according to the emotional status of the population; $\omega_i(t)$ – is the impact of infodemic processes on infection, based on the decreased immunity according to the emotional status of the population; $\omega_r(t)$ – is the impact of infodemic processes to recovered population, based on the decreased immunity according to the emotional status.

Conceptual "infodemic vs. pandemic" model presented on the fig. 3.

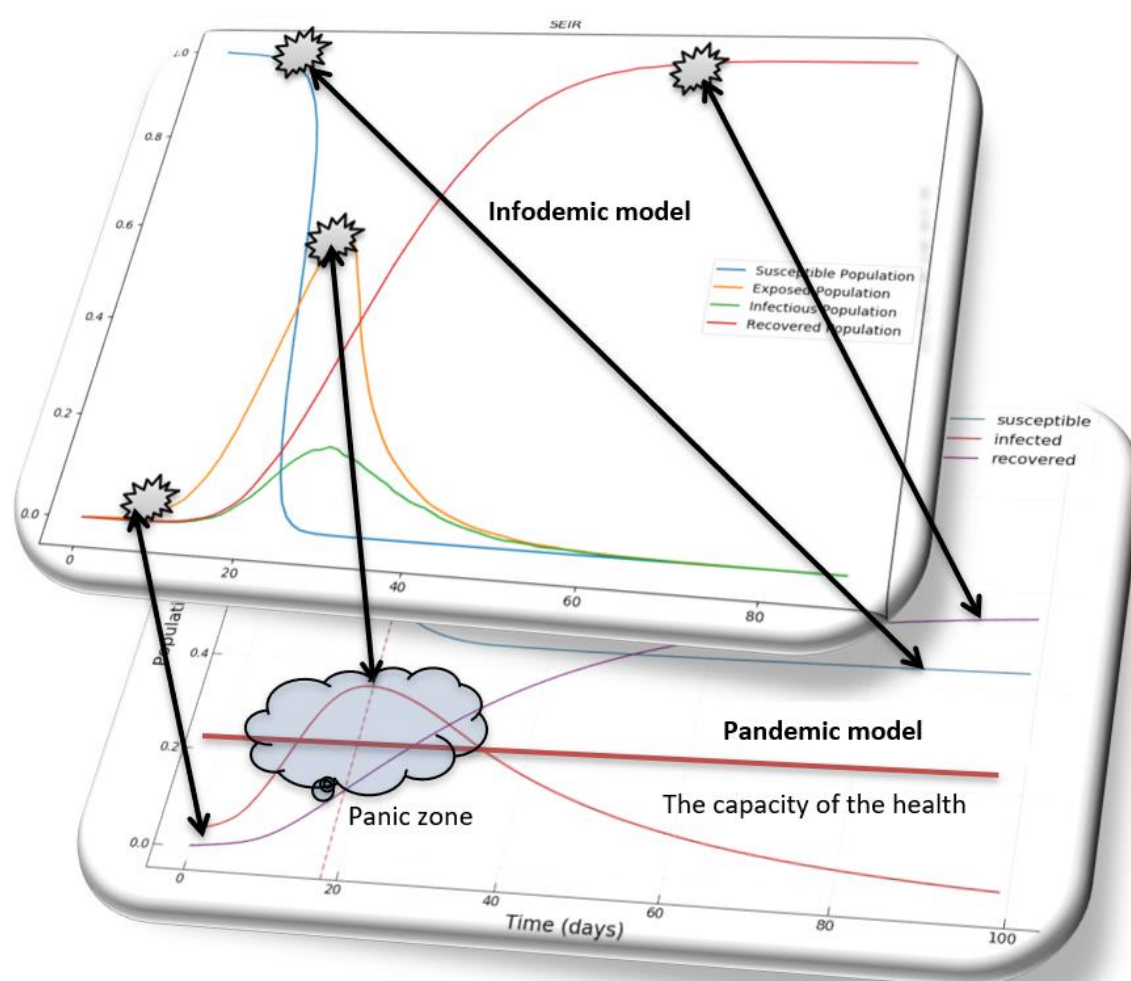



Fig. 3. Conceptual model "infodemic vs. pandemic" system. Where  points on the infodemic model are defined by the impact zone to pandemic model

In fig. 3. The links between the infodemic and pandemic model are shown. These connections have two directed effects between the critical points of the infodemic model, which tries to be proactive and anticipate areas of panic situations. Such zones are born when the capabilities of the health system in the fight against a pandemic are exhausted. This situation is shown in a pandemic model with a line of health system

capabilities and the current infection situation. For example, a panic zone was noted in the spring of 2020 in Italy when the possibilities of hospitals were exhausted. Shown in fig. 3 links, track the interaction and interdependence of infodemia and pandemics. The previously considered mathematical model determines these relationships based on the influence factors $\omega_{\theta}(t)$, $\omega_e(t)$, $\omega_i(t)$, $\omega_r(t)$. These factors depend on the

situation over time. Such a relationship will be identified in Section 5 of this article on the Kuber-Ross Life Cycle Model of a Community Pandemic Project.

In the algorithms of action of infected agents, three main aspects can be distinguished: state, search for

targets, infection algorithm. This model presented in iThink software (fig. 4) for simulating of system dynamics [18, 19].

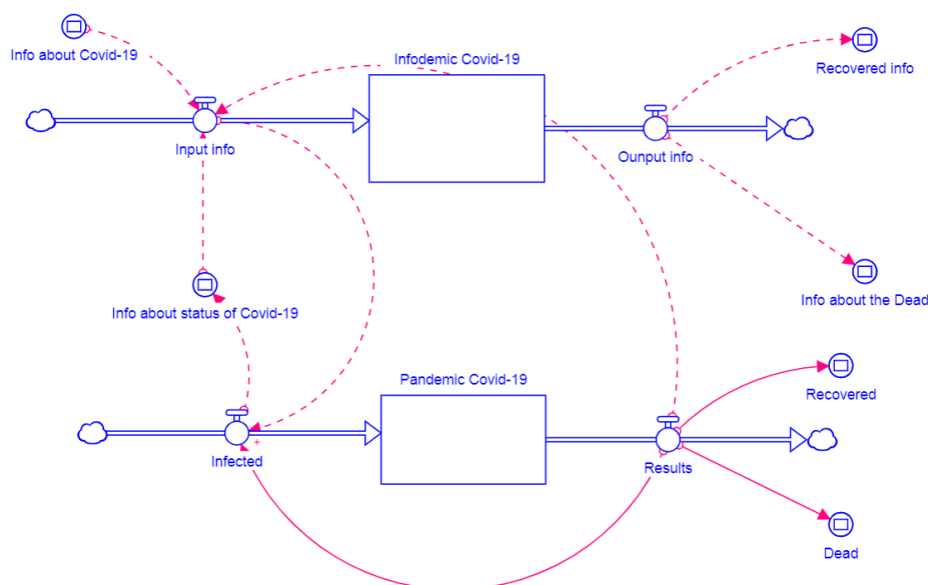


Fig. 4. System dynamic model for simulation of interaction "infodemic vs. pandemic"

Various models of the transition of an entity from state to state have been studied for many decades (see, for example, [15]), and the developed system should certainly support both these and other, more sophisticated models.

Search for goals. An important aspect of modelling the infection process is the algorithm for finding targets (i.e., agents susceptible to infection). The search is performed among available agents, that is, those that correspond to the vertices of the subgraph incident to the infect element. In [9, 16], a large number of search strategies were considered, which can be reduced to five main ones.

1. Linear search. Infectious agents sequentially enumerate all (or a selected subset) of the agents available to them, trying to infect them. This is the least effective strategy, which, however, finds application in primitive network worms.

2. Random search. Infectious agents randomly enumerate all (or a selected subset) of the agents available to them, trying to infect them. This is the most popular and well-studied strategy used by many Internet worms.

3. Search the list. Infectious agents perform sequential or random enumeration of a selected subset of the agents available to them whose susceptibility to infection is known in advance. This strategy is, for example, an element of the suboptimal strategy of the behaviour of a hypothetical Warhol worm [7].

4. Counterattack. The infectious agent only infects those agents that, in turn, attempted to infect it. Such a strategy is typical for network counter worms [9], but one can find its analogies in life, for example, when a doctor provides medical care only to patients sneezing at him.

5. Concurrent infection. A strategy that has biological and natural analogies, for example, when the spread of fire from a burning tree occurs immediately on

all closely located trees. In modelling, it can be implemented as a special case of linear search or random search with zero time spent on scanning.

It is clear that misinformation is not a deadly weapon in itself – a fake cannot directly kill a person. But receiving fake information instead of truthful information can worsen the chances of humanity as a whole and individually taken to overcome the existing threat in the form of a new dangerous disease. In this case, Agile transformation can be applied in pandemic for each country.

Consider the key principles of Agile transformation society in COVID-19 "pandemia+infodemia".

1. Ignoring immunity to change. Transformation in society occurs only when people in it change. But people don't change, even if they want to. Remember your New Year's Promises. Many do not even make plans because they remember how bitter it was to realize that they had not activated their gym subscription for the year or taken up their English. People do not change, even if they are threatened with death. It turned out that when cardiologists warn patients that they will die if they do not change their lifestyle (do not diet, exercise, quit smoking), only one in seven patients change their life. We are immune to change: we reject the new, the unknown, and cling to our usual beliefs.

2. Immunity protects against fears. Fear of becoming a useless country. Fear of losing authority and status. Fear of losing yourself. When we try to change the mindset, behaviour, culture in an organization, we are faced with this immunity, and therefore any change is difficult, painful and long. Let's do simple, don't do important. Where will cross-functional teams come from if we have 1-2 independent professionals and an army of assistants in each area? Where will self-organization come from, if we

still have strict subordination? Where will teamwork come from if motivation and reward are individual? Consider common executives mistakes when creating a team:

i. Selection of the team on the principle of "psychological compatibility". In Agile projects, it is much more important to unite a team based on a common goal and teamwork.

ii. Reformation of the formed groups on the principle of potential "psychological compatibility". "It destroys the foundations of the team – the experience of interaction and the experience of strengthening each other." In the new team, the resistance to the conscious and the unconscious will be great. Much more effective use of the interaction experience in the new environment.

iii. Underestimating the value of diversity. Groups consisting of dissimilar personalities are more effective than groups with similar perspectives. Understanding the value of diversity contributes to enhancing relationships between team members and, therefore, builds confidence in a small group.

Infodemic going in parallel with Pandemic. Infodemic has a much shorter lifecycle of action and impact. In the competition of 'infodemic vs. pandemic' leadership become the key competence of programs teams (fig. 5).

Strategic and operational trusts become the driver of program success.

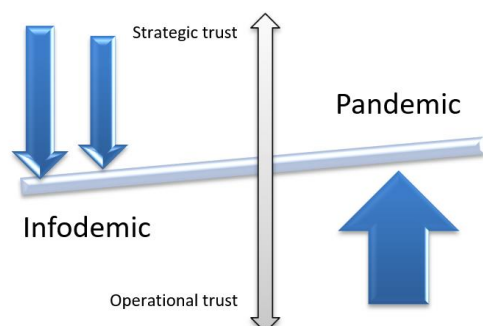


Fig. 5. Balancing of "infodemic vs. pandemic"

The cohesion of the Agile Project Management Group is a measure of the mutual attraction of group members to one another and the group. Cohesion is expressed in the desire to remain in the group, in the desire to cooperate in solving common tasks and to preserve the group. The more cohesive a group is, the tougher it is to control the views and actions of its members. The close-knit group creates an atmosphere of attentiveness and mutual support. The downside of over-cohesion is the reluctance of its members to think critically and make serious decisions as a result of the process of groupthink. This tendency arises because of a tendency to conformism. (Optional: On conformism: a person with a higher intellectual level is less conformant than a person with a low intellectual level. Also, an educated person is usually confident in the accuracy of his expression and does not feel the need for support from the group).

When the Agile Project Management team becomes too cohesive and has general expectations, the following are disadvantages in the decision-making process:

1. Group decisions have a small number of options, opportunities outside this row are rejected or not considered at all;

2. Initially, the goals set are not reviewed or contested;

3. Newly identified risks are not taken into account in order not to challenge the initially chosen course of action;

4. The courses of action rejected by the group from the outset shall not be re-examined in the light of new information;

5. The experience and knowledge of external experts are not involved;

6. When new information is discovered, the group prioritizes information that supports its original hypotheses and ignores the conflicting information;

7. The group does not think how bureaucratic inertia or resistance by organizations can impede the implementation of the elected political line.

Existing models and methods of interaction emotion infection in project and program management

Emotional and informational infection is a socio-psychological mechanism of transmitting the mental attitude to other people from one person or group of people, emotional impact in conditions of direct contact and the inclusion of the individual in certain mental states.

In the study of the emotional component of the processes of managing innovative projects recognition was created by the psychophysiology Simonov P.V. [4] formula, in a short symbolic form represents a set of factors that affect the emergence and nature of the effects of emotions.

$$E(t) = f(P(t) * (In(t) - Is(t))),$$

where $E(t)$ – emotion, its degree, quality and impact; $P(t)$ – the power and influence of the actual need; $(In(t) - Is(t))$ – assessment of the possibility of meeting the need based on innate and ontogenetic experience; $In(t)$ – information on cost, meeting the need; $Is(t)$ – information about existing assets that the manager owns.

We used this formula to obtain specific quantitative values and illustrate the formation principle of the positive (stenic) or the negative (astenic) emotions of varying strength.

The factors listed above are decisive, necessary and sufficient, but a time factor should also be considered. Emotion can be either short-lived or long-lasting. At the same time, it is necessary to take into account the peculiarities of emotions and individual-typological features of managers of projects. From the formula, it follows that the possibility of satisfying the need influences the sign of emotion. A function that reflects emotions is the same as an evaluation function.

Emotional infestation is a social and psychological mechanism of transfer of mental mood to other people from one person or group of people, emotional influence in the conditions of direct contact and inclusion of a person in certain mental states. The COVID-19 outbreak has been associated with a wide and evolving range of

misinformative content. In part, this is due to the different motivations of those who are creating and disseminating it; each form poses a distinct challenge.

Misinformation on treatments extends from high-dose Vitamin C, boiled garlic and sesame oil massages through to cocaine and the consumption of industrial-strength cleaning products. Some of these are extremely dangerous, while others pose a threat as they may lead people to rely solely on them for protection or prioritise them over evidence-based guidelines.

Conspiracies constitute a considerable portion of the misinformation relating to COVID-19. A number centre on the virus as a bioweapon, while others have claimed that the Gates Foundation played a role in the outbreak. Although they may not directly cause harm, they are adding to a climate of distrust where the public is treating official sources with growing scepticism.

A fundamental characteristic of the misinformation seen during this outbreak has been its ability to change tack at speed. Videos, pictures, interviews and articles, are all being used to substantiate false claims.

Misinformation travels faster, deeper and more broadly through social media networks compared to accurate information. It has also been shown that individuals are more likely to believe false information after repeated exposure. In the face of overwhelming amounts of information, people rely on information that they are familiar within in this context, misinformation.

Misinformative content is frequently contained within a xenophobic frame and, though it is commonly quoted that coronavirus misinformation fuels racist sentiment, the converse also appears to be true.

Social media platforms provide a rich ecosystem for COVID-19 misinformation which can often gain unchecked momentum within closed groups before reaching a wider audience. Social media firms are now working with the WHO to combat this. Strategies include using existing fact-checking structures, promoting accurate content and making inaccurate content harder to find. For example, Facebook is running ads directing users to local health authorities and Google promotes the WHO's or local authorities' websites when a search is performed using the virus's keywords. A notable feature

of the outbreak is how the misinformative content is being reported by mainstream outlets. This is giving misinformation new reach and credibility.

Recent examples include a map illustrating global air travel, which was broadcast by several popular news companies under the guise that it showed the travel patterns of Wuhan residents who had fled the city. Besides, multiple articles cited a forecast of sulphur dioxide emissions over China as evidence of mass cremation of coronavirus victims.

The fact that these organisations are unable to discern the truth serves to highlight the challenges facing society.

The stakeholder infection model is based on an understanding of the life cycle of the project manager, which is presented as a Kubler-Ross curve for personal changes of the manager of pandemic projects and programs (fig. 6).

On the initial phase of project activity within the virtual team defended the next steps – "shock, surprise, reflection" and "denial". This is a short-term phase where the wall and asthenic stains are infected. These infections usually do not extend beyond the project management virtual team.

The second phase is related to a significant drop in performance. These are "blaming yourself and others," "panic and fear," "depression and danger." At this phase, an asthenic infection is formed that goes beyond the project management team.

The third phase involves the transition from asthenic to wall infection of society. In this phase, the following factors are formed - "acceptance of ignorance", "testing and verification", "feeling of optimism, hope and restart", "opening, learning", "feeling of satisfaction" and "integration and new understanding" of the project.

Emotional contamination occurs in large open spaces, especially in unorganized communities, for example, in a crowd that can spread certain emotional states quickly. Most often, these conditions can be markedly enhanced by multiple reflections in the chain reaction scheme. However, unlike cognitive chain reactions, emotional transmission is less conscious and more automatic.

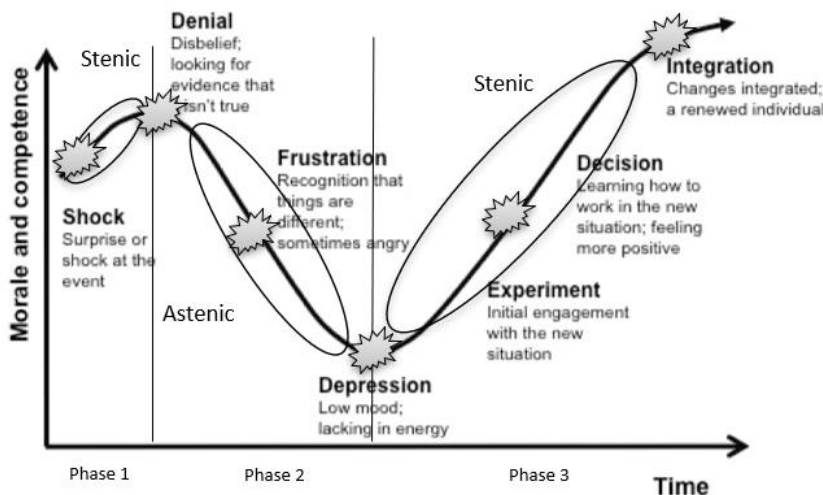



Fig. 6. The curve of personal changes of the society. Where  infodemic critical points.

Emotions are different in content, reflecting different aspects of the significance of their situations. To apply the psychophysiological formula for assessing the impact of the emotional state of the stakeholders of innovative projects, we transform these influences into a competent dream model of managing innovative projects.

At the program level, the most important thing is to set up interfaces for interaction between organizations and program team members.

To form a harmonious community, the following rules must be followed:

1) mutual trust in the realization of common tasks; observance of social ethics norms, orientation to fruitful cooperation and commitment in work;

2) defining the context and principles of the program - a clear interpretation of the mission, tasks, roles and professional terms within the program;

3) definition of program regulations – principles of program implementation, common professional or technical language, terms for communication and standards of implementation of business processes;

4) the availability of professional skills that are implemented in the work on the program;

5) space ("BA") – a common space used by stakeholders to maintain their professionalism and

engagement within the program, with a minimum set of rules of engagement.

Conclusions

This paper investigates the phenomenon of "infodemia" that occurs in crises. It is suggested to apply the Agile transformation of the project management system and pandemic programs taking into account the effects of the layer of information "noise" in the mental space. The model makes it possible to significantly improve the project preparation process through Agile management transformation with a focus on stakeholder value systems, and accelerate project implementation through the use of tools such as Kanban, P2M, Kaizen. The misinformation, which includes false 'cure' claims, conspiracy theories and misleading information on the spread of the virus, is set to expand. The efficacy of responses to control this 'infodemic' will probably vary from country to country and depend on the public's trust of the authorities. New developments, including the discovery of further cases outside China, the release of epidemiological data and the commencement of clinical trials for a vaccine, will likely trigger new misinformative content, hampering efforts to bring the outbreak under control.

References

1. Verenych, O., Bushuieva, V., Bushuiev, D. (2019), "The Blended Mental Space: Erosions as a reason for a project failure", *IEEE 14th International Scientific and Technical Conference on Computer Sciences and Information Technologies, CSIT 2019 – Proceedings*, P. 111–115.
2. Bushuyev, S., Kozyr, B., Rusan, N. (2020), "Modeling of Empathy, Emotional Intelligence and Transformational Leadership to the Project Success", *Mathematical Modelling and Simulation of Systems. Advances in Intelligent Systems and Computing Book Series*, Springer AG, Vol. 972, P. 209–222.
3. Bushuiev, D., Kozyr, B. (2020), "Hybrid infrastructure project management methodologies", *Innovative Technologies and Scientific Solutions for Industries*, No. 1 (11), P. 35–43. DOI: <https://doi.org/10.30837/2522-9818.2020.11.035>
4. Krysko, V. G. (2006), *Social Psychology: Lecture Course*, 3rd ed. Moscow, Omega-L, 352 p.
5. Todorović, M., Petrović D., Mihić M., Obradović V., Bushuyev S. (2015), "Project success analysis framework: A knowledge-based approach in project management", *International Journal of Project Management*, Vol. 33, Issue 4, P.772–783.
6. Bushuyev, S., Murzabekova, A., Murzabekova, S., Khusainova, M. (2017), "Develop breakthrough competence of project managers based on entrepreneurship energy", *Proceedings of the 12th International Scientific and Technical Conference on Computer Sciences and Information Technologies, CSIT*, P. 1–7.
7. Bushuyeva, N. S. (2007), *Models and methods of proactive management of organizational development programs*, Kyiv, Naykovy Svit, 270 p.
8. Obradović, V., Todorović, M., Bushuyev, S. (2018), "Sustainability and agility in project management: contradictory or complementary?", *Springer Nature Switzerland AG*, P. 522–535.
9. Rusan, N., Bushuyev, S., Bushuyev, D. (2017), "Emotional intelligence – the driver of the development of breakthrough competences of the project", *IEEE, International Scientific and Technical Conference on Computer Sciences and Information Technologies (CSIT), Lviv, Ukraine*, P. 183–187.
10. IPMA Reference Guide ICB4 in an Agile World (2018), IPMA, Version 2.3, 71 p.
11. Guide to managing innovative projects and programs, P2M (2009), *PMAJ*, Version 1.2, 173 p.
12. Individual Competence Baseline for Project, Programme & Portfolio Management, (2015), *International Project Management Association*, Version 4. 415 p.
13. Bushuyev, S., Verenych, O. (2018), "Organizational Maturity and Project: Program and Portfolio Success", *Developing Organizational Maturity for Effective Project Management (Chapter 6: Organizational Maturity and Project: Program and Portfolio Success)*, Under the head. ed. G. Silvius&G. Karayaz, IGI Global, P. 349 (chapter 6, P. 104–127). DOI: 10.4018/978-1-5225-3197-5
14. Bushuyev, S., Verenych, O. (2018), "The Blended Mental Space: Mobility and Flexibility as Characteristics of Project/Program Success", *IEEE 13th International Scientific and Technical Conference on Computer Sciences and Information Technologies, CSIT*, P. 148–152.
15. Bushuyev, S., Bushuiev, D., Zaprivoda, A., Babayev, J., Elmas, Ç. (2020), "Emotional infection of management infrastructure projects based on the agile transformation", *IEEE CEUR Workshop Proceedings*, P 53–58.
16. Hatfield, E., Cacioppo, J., Rapson, R.L. (1994), *Emotional contagion*, New York, Cambridge University Press, 20 p.
17. Bushuyev, S., Babayev, J., Bushuiev, D., Kozyr, B. (2020), "Emotional Infection of Management Innovation SMART Government Projects", *IEEE European technology & engineering management summit*, P. 53–58.

18. Royston, G, Dost, A, Townshend, J, Turner, H. (1999), "Using system dynamics to help develop and implement policies and programmes in health care in England", *System Dynamics Rev*, No. 15, P. 293–313.

19. Bala, Bilash Kanti, Arshad, Fatimah Mohamed, Noh, Kusairi Mohd (2017), *System Dynamics. Modelling and Simulation*, Springer, 274 p.

20. SEIR and SEIRS models. (2020), IMOND, available at : <https://www.idmod.org/docs/hiv/model-overview.html>.

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УПРАВЛІННЯ ПРОЕКТАМИ ПІД ЧАС ІНФОДЕМІЇ ТА ПАНДЕМІЇ COVID-19

Предметом статті є трансформація систем управління проектами, програмами і портфелями проектів в умовах взаємодії інфодемії і пандемії в умовах COVID-19. Інфодемія, випереджаючи пандемію, наповнюється чутками, здогадками і домислами на першому етапі, формуючи атмосферу страху і паніки. При цьому на перший план в управлінні проектами виходять гнучкі (Agile) методології, системи знань і компетенцій керівників проектів і програм. Основи змін лежать в зміні парадигми прийняття рішень в управлінні проектами та програмами в системі "інфодемія - пандемія". **Мета** – вивчити моделі взаємодії та взаємовпливу інформаційного супроводу пандемії (інфодемії) при розвитку пандемії COVID-19 для застосування сучасних методологій гнучких методологій в управлінні проектами та програмами на всіх рівнях держави і суспільства. Ключовими проблемами успішного управління проектами і програмами є Agile трансформація. Сьогодні спостерігається інтуїтивний перехід до використання гнучких методологій управління проектами і програмами, який не приносить очікуваних результатів. **Результати** досліджень дозволили авторам побудувати модель взаємодії "інфодемія - пандемія). Ця модель може бути використана для аналізу взаємовпливу інформаційного оболонки в кожній країні на поширення коронавірусу і управління проектами мінімізації негативних наслідків пандемії. **Висновки:** В даній статті досліджується феномен "інфодемії", що виникає при глобальній кризі пандемії COVID-19. Пропонується застосувати Agile-трансформацію системи управління проектами та пандемічний програм з урахуванням впливу інформаційного "шуму" в ментальному просторі глобального суспільства. Модель дозволяє значно поліпшити процес підготовки проекту за допомогою трансформації управління Agile з акцентом на системи цінностей зацікавлених сторін. При цьому важливо використовувати можливості прискорення і підвищення ефективності реалізації проектів за допомогою таких інструментів парасольки Agile, як Kanban, P2M, Kaizen і ін. Дезінформація, яка включає в себе неправдиві заяви про "лікуванні", теорії змови і вводить в оману інформацію про поширення вірусу, буде розширюватися. Ефективність заходів для контролю над цією "інфодемією", ймовірно, буде варіюватися від країни до країни і залежати від довіри громадськості до влади. Нові розробки, в тому числі виявлення спалахів вірусу практично у всіх країнах світу, публікація епідеміологічних даних і початок клінічних випробувань вакцини, ймовірно, приведуть до появи нового дезінформаційного змісту, що завадить зусиллям з контролю над пандемією.

Ключові слова: інфодемія; COVID-19; управління проектами; Agile трансформація; інформація; інфекція; SEIR модель.

УПРАВЛЕНИЕ ПРОЕКТАМИ ВО ВРЕМЯ ИНФОДЕМИИ И ПАНДЕМИИ COVID-19

Предметом статьи является трансформация систем управления проектами, программами и портфелями проектов в условиях взаимодействия инфодемии и пандемии в условиях COVID-19. Инфодемия, опережая пандемию, наполняется слухами, догадками и домислами на первом этапе, формируя атмосферу страха и паники. При этом на первый план в управлении

проектами выходят гибкие (Agile) методологии, системы знаний и компетенций руководителей проектов и программ. Основы изменений лежат в изменении парадигмы принятия решений в управления проектами и программами в системе "инфодемия – пандемия". **Цель** – изучить моделей взаимодействия и взаимовлияния информационного сопровождения пандемии (инфодемии) при развитии пандемии COVID-19 для применения современных методологий гибких методологий в управлении проектами и программами на всех уровнях государства и общества. Ключевыми проблемами успешного управления проектами и программами являются Agile трансформация. Сегодня наблюдается интуитивный переход к использованию гибких методологий управления проектами и программами, который не приносит ожидаемых результатов. **Результаты** исследований позволили авторам построить модель взаимодействия "инфодемия – пандемия). Эта модель может быть использована для анализа взаимовлияния информационной оболочки в каждой стране на распространение коронавируса и управления проектами минимизации негативных последствий пандемии. **Выводы:** В данной статье исследуется феномен "инфодемии", возникающей при глобальном кризисе пандемии COVID-19. Предлагается применить Agile-трансформацию системы управления проектами и пандемических программ с учетом влияния информационного "шума" в ментальном пространстве глобального общества. Модель позволяет значительно улучшить процесс подготовки проекта с помощью трансформации управления Agile с акцентом на системы ценностей заинтересованных сторон. При этом важно использовать возможности ускорения и повышения эффективности реализации проектов с помощью таких инструментов зонтика Agile, как Kanban, P2M, Kaizen и др. Дезинформация, которая включает в себя ложные заявления о "излечении", теории заговора и вводящую в заблуждение информацию о распространении вируса, будет расширяться. Эффективность ответных мер для контроля над этой "инфодемией", вероятно, будет варьироваться от страны к стране и зависеть от доверия общественности к властям. Новые разработки, в том числе обнаружение вспышек вируса практически во всех странах мира, публикация эпидемиологических данных и начало клинических испытаний вакцины, вероятно, приведут к появлению нового дезинформационного содержания, что помешает усилиям по контролю над пандемией.

Ключевые слова: инфодемия; COVID-19; управление проектами; Agile трансформация; информация; инфекция; SEIR модель.

Бібліографічні описи / Bibliographic descriptions

Бушуев С. Д., Бушуев Д. А., Бушуева В. Б. Управління проектами під час Інфодемії та Пандемії COVID-19. *Сучасний стан наукових досліджень та технологій в промисловості*. 2020. № 2 (12). С. 13–21. DOI: <https://doi.org/10.30837/2522-9818.2020.12.013>.

Bushuyev, S., Bushuiev, D., Bushuieva, V. (2020), "Project management during Infodemic of the COVID-19 Pandemic", *Innovative Technologies and Scientific Solutions for Industries*, No. 2 (12), P. 13–21. DOI: <https://doi.org/10.30837/2522-9818.2020.12.013>.