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IMPROVISATIONAL MANAGEMENT MODELS IN CREATIVE INDUSTRIES

Improvisational management is not popular among scholars who study organisations, and the topic of improvisation has not been studied extensively outside of the field of management, even though the term improvisational management was formulated and published back in the 90s of the 20th century. This article analyses the peculiarities of improvisational management and the most important models of improvisational management, looks at how improvisation in management is related to competencies of its participants, what degrees it may have on different levels, and how strategic improvisation emerges. In order to improve the understanding of improvisational management in creative industries, the article analyses existing models of improvisational management that encompass learning, real-time decision-making, improvisational communication, collective improvisation, the improvisational process and the matrix of improvisation; moreover, the article discusses the levels of improvisational management, i.e., individual, interpersonal and organisational, as well as their interaction at different degrees of improvisation. According to these models and levels, a new model of improvisational management relations is developed.

Keywords: organisational improvisation, improvisational management models, improvisational management levels.

ІМПРОВІЗАЦІЙНІ МОДЕЛІ УПРАВЛІННЯ В КРЕАТИВНИХ ІНДУСТРІЯХ

Юренієне Віргінія, Масайтите Дайва

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Імпровізаційний менеджмент не є популярним серед науковців, які вивчають організації, і тема імпровізації не досліджувалася широко за межами сфери менеджменту, хоча термін імпровізаційний менеджмент був сформульований і опублікований ще в 90-х роках 20 століття. У статті аналізуються особливості імпровізаційного менеджменту та найважливіші моделі імпровізаційного менеджменту, розглядається, як імпровізація в менеджменті пов'язана з компетенціями його учасників, який ступінь вона може мати на різних рівнях, як виникає стратегічна імпровізація. Проаналізовано існуючі моделі імпровізаційного менеджменту та їх взаємодія на різних ступенях імпровізації, запропоновано нову модель імпровізаційних управлінських відносин; ця модель розкриває зв'язки імпровізаційного менеджменту з учасниками імпровізації різного ступеня застосування та підкреслює важливість стратегічної імпровізації. З метою покращення розуміння імпровізаційного менеджменту в креативних індустріях у статті аналізуються існуючі моделі імпровізаційного менеджменту, які охоплюють навчання, прийняття рішень у реальному часі, імпровізаційне спілкування, колективну імпровізацію, процес імпровізації та матрицю імпровізації. Крім того, у статті розглядаються рівні імпровізаційного менеджменту, тобто індивідуальний, міжособистісний та організаційний, а також їх взаємодія на різних ступенях імпровізації. Стратегічна імпровізація може відбуватися на трьох рівнях (індивідуальному, міжособистісному та організаційному) і виникає, коли виконуються всі необхідні умови та оцінюються негативні аспекти управління імпровізацією. Відповідно до цих моделей і рівнів розробляється нова модель імпровізаційних управлінських відносин. Для того, щоб дізнатися про досліджуване явище та зібрати якомога більше інформації, ця стаття включає порівняльний аналіз літератури та метод синтезу.

Ключові слова: організаційна імпровізація, імпровізаційні моделі управління, імпровізаційні рівні управління.

Statement of the problem. It has been noted that art organisations are more open about improvisation than business organisations [11]. However, scholars provide few improvisational management models

because improvisation in management has not been studied extensively; Fisher and Barrett note that scholars should explain the relations among people, group and organisations' behaviour better. Improvisation is a process of change. Consciously nurturing the improvisational thought and practices in organisations, people can create optimal conditions for individual and organisational transformation [3] Improvisation promotes innovation, provides security, creates personal survival or continuation of activities [21]; it helps to creatively, spontaneously and intuitively adapt specific theories in order to achieve goals [16]. Improvisation requires adaptation and application of learnt elements. People feel different every day, and this obliges them to apply different methods to solve similar problems [17].

Creativity that is inseparable from improvisation has a strong impact on innovation and initiation; it encourages quick reaction of the actors and makes their activities easier in a dynamically changing environment [10]. Creativity can be described as the ability to generate various original and useful problem solving ways [23]. Art organisations can use creativity in strategic planning of activities [13].

Improvisation in management emerges under certain conditions. Improvisation is encourages by organisational culture, teamwork [5]; however, improvised work has to be related to not only encouraging improvisational activities, but also control [18].

Tolerance for error has a close connection with the improvisational management theory. It is important to note that error is an effective way to solve problems and reveal creative thinking [17]. Error must be treated as another opportunity, search for a new model, and promotion of continuous learning [2].

Improvisational management is suitable for businessmen beginners who often do not have a detailed plan in the beginning but who respond quickly to unexpected circumstances [1].

However, it is essential to assess negative aspects of improvisation as well. Improvisation is not a new organisational panacea that would help to solve any problem. On the contrary, the risk is evident, and certain errors can have impact on the entirety and the final result [9]. Constant improvising can be very intense and dangerous. Improvisation can exhaust people especially when they improvise when forced by circumstances rather than on their own accord [5].

Analysis of last researchers and publications. Jambeka A.B. and Pelc K.I. developed an improvisational process model in the production environment that is a result of a team communication scheme of an improvised decision-making process [15].

Fisher and Amabile propose a model of improvisational creativity in organisations that includes two features, i.e., preparation before the improvisation process and stages of improvisation [6]. According to the authors, in the case of composite creativity, preparation can encompass learning of respective skills and collection of information required to carry out a certain task. Improvisational management occurs without advance preparation; thus, people have to follow existing knowledge and apply routine to various situations.

Hains-Wesson, Pollard and Campbell three-step model of teamwork improvisation is intended to work with ideas. The authors propose three stages of working with ideas, i.e., submitting ideas, work with the main idea, and creation and presentation of an idea. Each stage develops certain abilities employing improvisation as the main element of creativity [12].

Zenk, Hynek, Schreder and Bottaro [26] propose a systematic model of improvisation based on acting real-time as well as learning and teaching. The model reveals the necessity to learn and prepare for improvisational activities, as well as the necessity to have improvisational skills.

Setting the task. The aim of the article is to develop and introduce a model of improvisational management relations.

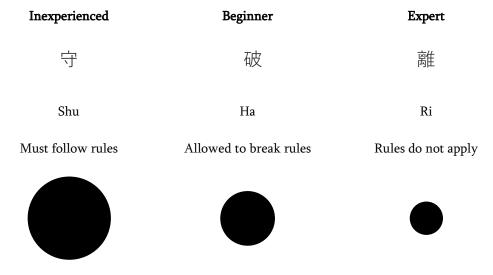


Figure 1. Model of improvisation based on Shu Ha Ri

Source: created based on [24]

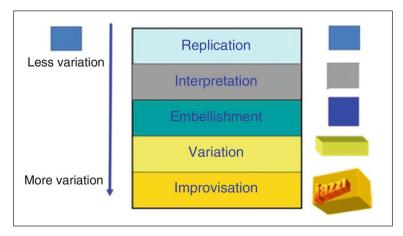


Figure 2. Model of real-time decision-making

Source: [25]

Summary of the main research material. As it has been mentioned, improvisation is inseparable from learning. The model of learning improvisation by Sivaraman and Wilson [24] based on *Shu Ha Ri* is presented in Figure 1.

Shu-Ha-Ri is a Japanese method of learning that analyses and anticipates the behavior of the learner. It is used in steps that learners have to take from the beginner level to the expert level in order to develop specific skills. In the Shu stage, it is required to comply and follow certain rules; this stage has the highest number of people. The Ha stage allows breaking traditions and digressing from the rules; the number of participants in this stage is lower. In the Ri stage, there is no attachment to form and rules, and everything occurs naturally; this stage includes only the most advanced learners [19].

The "Shu-Ha-Ri" model illustrates that larger groups and unqualified people follow rules, qualified people have a right to break rules, and the small groups of experts can ignore rules; however, all of them act following the same systemic limitations [24].

Stein analyses improvisation as a model of real-time decision-making and distinguishes its three levels (Figure 2).

Replication is opposite to improvisation, i.e., it is only emulation with all of its structural and functional properties.

- 1. Interpretation encompasses slight changes while following instructions.
- 2. Embellishment is and active and purposeful action that replaces an action; however, it does not overstep clearly set boundaries.
- 3. Variation is active modification of an action in order to get a certain result. Variation can highlight certain features and diminish others preserving the identity and harmony of the original.
- 4. Improvisation allows changing structural and functional properties following certain guidelines. The improviser attempts to make

changes but preserve the original outline that limit the choice of a solution when the usual procedures and routine are changed.

Falkheimer and Sandberg developed a model that could become a source of inspiration for communication specialists [4]. The authors claim that strategic improvisation can emerge only then the following three parts are included: *composition* (clear frame), *interpretation* (new understanding), and *improvisation* (adaptation to existing conditions) (Figure 3).

Figure 3 shows how an existing composition (goal, business plan, strategy, rules in an organisation) creates an opportunity to create something new in a specific situation and feel safe while improvising. Interpretation occurs when a person makes existing material his/her own. Strategic improvisation encompasses combining known aspects with something new. Strategic improvisation emerges when all three parts, i.e., composition, interpretation and improvisation, interact [4].

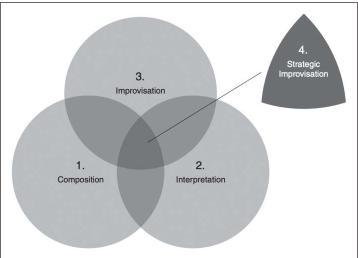


Figure 3. Model of communication improvisation *Source:* [4]

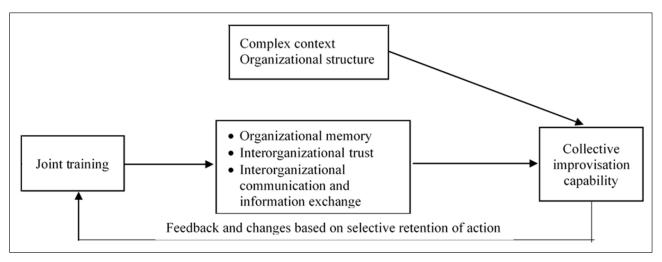


Figure 4. Model of collective improvisation

Source: [22]

Roud emphasises the importance of collective improvisation and proposes a model of collective improvisation. The model reveals how general learning can impact collective improvisation skills (Figure 4) [22].

Figure 4 shows that interorganisational trust, interorganisational communication, exchange of information and organisational structure can have impact on collective improvisation. Organisational memory, interorganisational trust, interorganisational communication and exchange of information are intermediate variables. Complex circumstances and organisational structure are independent variables that can have impact on collective improvisation skills [22].

The increasingly popular collective improvisation is an important means of better crisis management; however, it is not clear whether it is possible to assess skills to improvise on the collective level. Scientists must specify how improvisation oversteps the boundaries of analysis including how collective improvisation impacts the participants' experience, and how this experience can be shared.

Frykmer et al. acknowledges that improvisation during a crisis can be the only suitable way to solve problems due to the lack of time; however, the author emphasises that previous studies on collective improvisation focus on positive results while negative results are ignored. There is a danger that collective improvisation may become the norm in order to justify any process when there is a digression from the initial plan [8].

Hodge and Ratten claim that an organisation that encourages improvisation naturally enhances its employers' skills and creates conditions to learn in

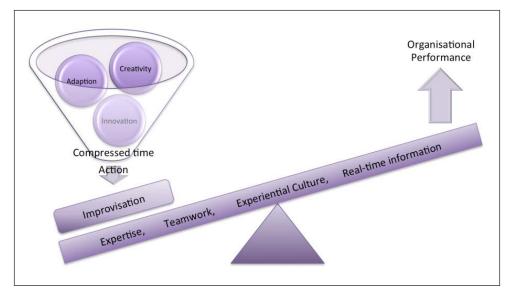


Figure 5. Improvisational process model

Source: [14]

the work place; the authors present an improvisational process model (Figure 5) [14].

It has been noted that improvisational management is usually related to creativity, innovation and adaptation. Hodge and Ratten maintain that creativity, innovation and adaptation are the main constituents of improvisation; however, this is not enough to ensure the improvisation process [14].

- Creativity is not improvisation because the creative process can be postponed or continued.
 Creativity can be planned thoroughly, whereas improvisation rejects planning. However, improvisation is related to innovation where creativity is a constituent.
- -Adaptation is not improvisation because it can be a result of planning and cannot be postponed. However, improvisation includes using prepared material in order to adapt existing concepts in new situations.

Innovation is not improvisation because it can be carried out in a certain period of time, planned or post-poned. However, improvisation can help create innovation because generation of new ideas is carried out real-time without planning. The lever in the improvisational process model shows which elements allow creating results of improvised activities, i.e., the more the skills an organisation has, the greater their impact on the results.

Individual factors:

- Competency stands for a team member's skills or abilities in a specific situation.
- Teamwork abilities are abilities to agree when team members trust one another and have a common goal.

Organisational factors:

- Experimental culture s culture where experimentation is a norm and it is expected that certain

failures will help to improve and will make the organisation stronger.

– Information real-time is the main factor that allows team members to gain knowledge necessary for efficient improvisation real-time. Small organisations have natural real-time information flows because their members are close to each other. As organisations grow, managers have to ensure that information continues to be beneficial when real-time decision making has to be carried out [14].

Leybourne proposes a matrix of improvisation that helps project managers of organisations to determine situations where improvisation could be useful (Figure 6).

The activities in the matrix are classified based on two axes, i.e., creativity and analytical ability to adapt. In this context, creativity relates to experience making new decisions and the amount of improvisation. The analytical ability to adapt is related to how freely one can choose means and methods for project control.

The vertical axis in the matrix describes the level of the creative challenge that can be high or low and can contradict the paradigm in a specific area or specific process. The horizontal axis describes the level of analytical adaptation that can also be high or low. It should be noted that improvisational work should be based on and related to traditional analytical means such as decision-making and analysis. However, when collecting and analysing data during the planning stage, much creativity may be required as well as an answer to the question, "Can improvised activities help?"

Box 1: high level of creativity, low level of analytical ability to adapt. This category includes non-profit organisations, creative art organisations that carry out

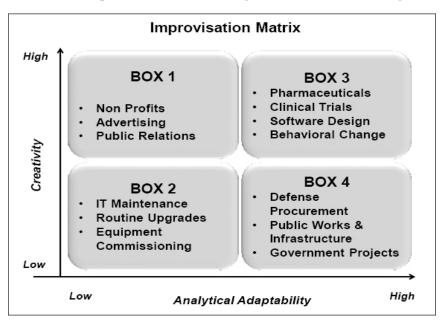


Figure 6. Matrix of improvisation

Source: [18]

fund collection projects that need a great amount of creative energy. The activities often resemble previous projects so the analytical aspect is often similar to previous effort and is low on the scale of the ability to adapt.

Box 2: low creativity level, low analytical ability to adapt. This includes organisations such as software maintenance or IT activities as they do not need a high level of creativity. Technical maintenance works usually inherit properties from an existing system; thus, it is expected that the team will follow existing work protocols.

Box 3: high level of creativity, high analytical ability to adapt. This type of activity is particular to the industry of pharmaceutics. New medications need scientific research and development, and the research is unexpected and requires high level of creativity. However, development of medications is strictly regulated; thus, there is a need to carry out big amounts of analytical work and be able to adapt in order to control a long-term project.

Box 4: low level of creativity, high analytical ability to adapt. This category includes many public sector organisations that have to follow various standard procedures set by the government. Even though the requirements for data submission and analysis in this category are high, work is created following a very specific and predetermined plan.

Summing up the improvisational management models presented in this chapter, it can be said that in terms of improvisational management, scientists are mostly interested in the link between improvisation and learning, decision-making real-time, communication, collective improvisation, and the improvisational process. Leybourne presents a matrix that helps to determine situations favourable for improvisation [18].

It focuses on the fact that the lower an employee's qualifications, the more often s/he follows rules, and people with better education tend to look at rules in a more flexible way. It should be noted that structure is supposed to be followed in improvisational management as it allows interpreting existing material personally and improvise coordinating the existing thing with a new one. The success of collective improvisation is impacted by the organisational structure, communication, trust and exchange of information. Organisations that promote improvisation improve their employees' competencies and create conditions

for them to learn in the workplace: teamwork skills and competencies, organisational culture and real-time information are important.

Hadida et al. distinguishes the following three levels of improvisational management (Table 1):

- 1. During individual improvisation, one participant adapts his/her work to emerging information real-time in order to find a new solution to a problem. Information technology increases human capability to improvise, helps to connect to the world real-time, and develops entrepreneurship.
- 2. Interpersonal improvisation emerges when a team member activates ideas in the whole team and encourages experimenting. Information technology helps to overcome physical distance and encourages interpersonal improvisation.
- 3. Organisational improvisation occurs within an organisation. It shows the ability of an organisation to perceive new knowledge, teaches structure and flexibility of activities. Organisational level improvisation can mean connecting separate individual improvisations or a collective and whole entity [11].

Improvisational management levels are presented in Table 1. As we can see, individual improvisation occurs real-time, interpersonal – in small teams, and organisational – in an entire organisation. Hadida et al. says that this structure helps to understand improvisational management better and allows anticipating future research areas [11]. Scientists have also determined the following three degrees of improvisation: minor, bounded and structural.

Minor improvisation reflects small changes to existing processes, e.g., application of an existing solution in a new way instead of looking for a new solution.

Bounded improvisation encompasses new processes or products in existing structures that have clear boundaries.

Structural improvisation emerges when separate areas of an organisation unexpectedly connect; this sometimes leads to the definition of a new mission and anew business strategy [11].

The interaction of improvisational management levels at different degrees of improvisation created by Hadida et al. is presented in Table 2.

The data in Table 2 shows that an organisation has 3 improvisational management levels that can be related to classical management: personal and interpersonal – micro level, organisational – macro level.

Levels of improvisational management

Table 1

Levels of improvisational management				
Individual improvisation	Interpersonal improvisation	Organisational improvisation		
Occurs in organisations when		Stands for the ability of the entire		
employees adapt to new information	adaptation and response real-time	organisation to improvise, i.e., to		
thus improvising real-time.		assimilate new knowledge, be flexible,		
	organisation does not join in.	give in to research.		

Source: created based on [11]

Table 2 Interaction of improvisational management levels at different degrees of improvisation

	Degrees/levels	Individual	Interpersonal	Organisational
Minor		Spontaneous practice	Synchronisation	Space for experimenting
Average	Bounded	Expert leadership	Yes-and	Constrained improvisation
Strong	Structural	Dropping tools	Minimal structuring	Platform organisation

Source: created based on [11]

The 3 improvisational degrees linked to the improvisational management levels give rise to synergy.

Spontaneous practice (minor degree/individual level) emerges when an individual improvises during an existing process. Organisations can teach their employees to be spontaneous by asking to carry out task in different ways. A spontaneous action requires high level competencies that often arise from existing experience.

Expert leadership (bounded degree/individual level) – when experienced leaders improvise completely new actions within the boundaries of existing organisational structures. Such improvisation is suitable in situations when experts are attributed a goal and independence, whereas the remaining members have little space for creativity.

The process *dropping tools* (structural degree / individual level) occurs independently from the context of an organisation and is not bounded in nature. This is like saving oneself from a situation that can be life threatening.

Synchronisation (minor degree/interpersonal level) occurs when team members adapt to each other's actions. This level reaches the so-called peak, i.e., the highest performance of a team.

Yes-and (bounded degree/interpersonal level) rule is borrowed from performance arts (theatre improvisation specifically) and describes the response of one individual to another individual's initiative. It is bounded because the yes principle acts as minimal structuring.

Minimal structuring (structural degree/interpersonal level) is a combination of leadership and permission. Rules (goals and duties) show what does not go together and provide an employee with flexibility to improvise when finding solutions to problems in an independent and creative way. The relationship among leaders is based on trust in colleagues. It is acknowledged that there is no one right answer. Fast response is oriented towards existing resources. A leader has an impartial position and allows employees to experiment.

Space for experimenting (minor degree/organisational level): when organisation moves away from the top-bottom model and defines the organisational structure more freely, it creates space for experimenting. Organisations can provide employees with freedom to work creatively with projects.

Constrained improvisation (bounded degree/ organisational level) is a temporary improvisational practice coordinated with organisational goals. Its

success depends on good internal microclimate and suitable management top-bottom balance.

Platform organisation (structural degree/organisational level) is a virtual scheme of organisation that encompasses a large number of employees. It helps organise a start-up business but is rarely applied in established organisations.

Hadida et al. levels of improvisational management help understand how individual, interpersonal and organisational improvisation in an organisation occurs and how they relate to the degrees of improvisation from minor to strong improvisation [11].

According to the concept of improvisational management and existing improvisational management models, a new model of improvisational management relations that connects the improvisational levels is proposed (Figure 7).

Figure 7 shows that improvisation in management is related to creativity, innovation and adaptation. It is applied more often in non-profit organisations than in public sector organisations.

The relation of the members of improvisation to the improvisational process differs, i.e., it is minor with inexperienced improvisers (it is required to follow rules), average with beginner improvisers (allowed to break rules and digress from rules), and strong with expert improvisers (no attachment to forms and rules, everything occurs naturally).

Moreover, the application degree of improvisation in organisations is different, i.e., improvisation can be minor (when minor changes of existing processes occur), bounded (when new processes that have clear boundaries emerge) and structural (strong level improvisation that can lead to new business strategy).

Strategic improvisation emerges when there are all the necessary conditions, i.e., the participants of improvisation learn to improvise continuously, the leaders of organisations encourage improvisation at work, error is tolerated, teamwork is employed, there are no communicational disturbances, and information is shared real-time. Also, every organisation must evaluate negative aspects of improvisation in management such as risk, exhaustion, inadmissible errors.

Strategic improvisation can occur on three levels, i.e., individual (when employees adapt to new information and improvise real-time), interpersonal (when adaptation and response occur real-time in small teams but the organisation itself does not join), and organisational (when the entire organisation improvises while acquiring new knowledge).

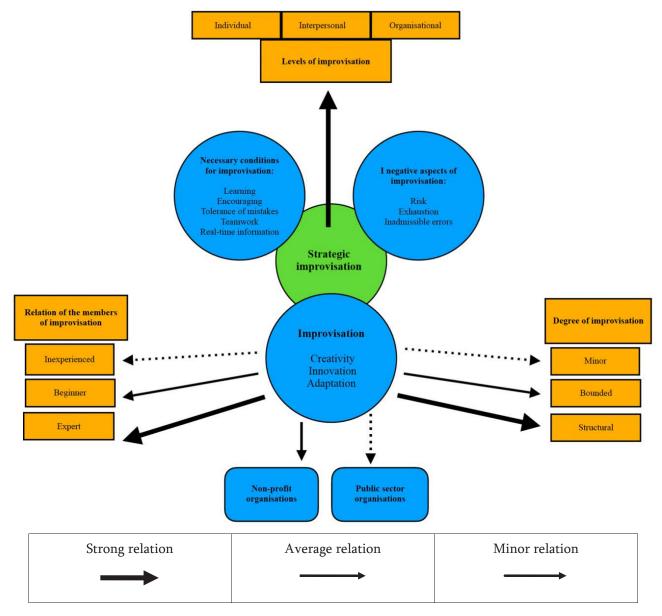


Figure 7. Model of improvisational management relations

Conclusions from the study. The scientific literature analysis and discussion of the results reveal the increasing importance of improvisational management elements such as real-time decision-making, learning and teaching, teamwork, preparation for improvisation and improvisation stages; the emphasis is also put on the necessity of fast dispersion of information and good communication, creativity and analytical ability to adapt on three levels of improvisational management, i.e., individual, interpersonal and organisational.

Improvisation in management is related to competencies and abilities of the participants from beginner improvisers to expert improvisers when unqualified people follow rules while experienced improvisers are allowed to ignore rules.

Having analysed the existing models of improvisational management and their interaction at different

degrees of improvisation, a new model of improvisational management relations was proposed; this model reveals the relations of improvisational management with the participants of improvisation at different degrees of application and emphasises the importance of strategic improvisation. Strategic improvisation can occur on three levels (individual, interpersonal and organisational) and emerges when all the necessary conditions are met and negative aspects of improvisational management are assessed.

It is important to note that even though improvisational management attracts more and more attention of scientists that study organisations, there is still a lack of empirical studies and improvisational management models that would help to understand the relations among different elements of improvisation outside of the area of music.

References:

- 1. Barbosa F.P.M. & Davel E. (2022) Organizational improvisation: challenges and perspectives for management education. *Cadernos EBAPE. BR*, no. 19, pp. 1016–1030.
 - 2. Barrett F.J. (2012) Yes to the mess: Surprising leadership lessons from jazz. Harvard Business Press.
- 3. Barrett F.J., Huffaker J., Fisher C.M. & Burgaud D. (2018) Improvisation and Transformation: Yes to the Mess. Springer.
- 4. Falkheimer J. & Sandberg K.G. (2018) The art of strategic improvisation: A professional concept for contemporary communication managers. *Journal of Communication Management*, vol. 22, issue 2, pp. 253–258.
- 5. Fisher C.M., Barrett F.J. (2019) The experience of improvising in organizations: A creative process perspective. *Academy of Management Perspectives*, vol. 33(2), pp. 148–162.
 - 6. Fisher C.M. & Amabile T. (2008) Creativity, improvisation and organizations. Routledge, pp. 13–24.
- 7. Fisher C.M., Barrett F.J. (2019) The experience of improvising in organizations: A creative process perspective. *Academy of Management Perspectives*, vol. 33(2), pp. 148–162.
- 8. Frykmer T., Uhr C. & Tehler H. (2018) On collective improvisation in crisis management A scoping study analysis. *Safety science*, vol. 110, pp. 100–109.
 - 9. Furu, P. (2006) The art of collaborative leadership in jazz bands. Adler, 490 p.
- 10. Gojny-Zbierowska M. & Zbierowski P. (2021) Improvisation as Responsible Innovation in Organizations. *Sustainability*, vol. 13(4).
- 11. Hadida A.L., Tarvainen W. & Rose J. (2015) Organizational improvisation: A consolidating review and framework. *International Journal of Management Reviews*, vol. 17(4), pp. 437–459.
- 12. Hains-Wesson R., Pollard V. & Campbell A. (2017) A three-stage process of improvisation for teamwork: Action research. *Issues in Educational Research*, vol. 27(1), pp. 82–98.
 - 13. Hill E., O'Sullivan T. & O'Sullivan C. (2012) Creative arts marketing. Routledge.
- 14. Hodge J. & Ratten V. (2015) Time pressure and improvisation: enhancing creativity, adaption and innovation at high speed. *Development and Learning in Organizations: An International Journal*, vol. 29(6), pp. 7–9.
- 15. Jambekar A.B. & Pelc K.I. (2007) Improvisation model for team performance enhancement in a manufacturing environment. *Team Performance Management: An International Journal*, vol. 13, issue 7/8, pp. 259–274.
- 16. Klein L., Biesenthal C. & Dehlin E. (2015) Improvisation in project management: A praxeology. *International journal of project management*, vol. 33(2), pp. 267–277.
- 17. Kuura A. & Sandoval I. (2019) Improvisation in project management: Lessons from Jazz. *Project Management Development–Practice and Perspectives*, no. 8, pp. 15–28.
- 18. Leybourne S.A. (2011) Improvisation and project management: what, when, and how. Paper presented at PMI® Global Congress 2011 North America, Dallas, TX. Newtown Square, PA: Project Management Institute.
- 19. Miller D.A. (2008) Understanding Japanese EFL learners through the "Shu Ha Ri" approach to learning in the communicative lecture theatre.
- 20. Pina e Cunha M. (2002) All that jazz: três aplicações do conceito de improvisação organizacional. *Revista de Administração de Empresas*, vol. 42(3), pp. 1–7.
- 21. Rerup C. (2001) "Houston, we have a problem": Anticipation and improvisation as sources of organizational resilience. Snider Entrepreneurial Center, Wharton School.
 - 22. Roud E. (2021) Collective improvisation in emergency response. Safety Science, no. 135.
- 23. Schwenke D., Dshemuchadse M., Rasehorn L., Klarhölter D. & Scherbaum S. (2021) Improv to improve: the impact of improvisational theater on creativity, acceptance, and psychological well-being. *Journal of Creativity in Mental Health*, vol. 16(1), pp. 31–48.
- 24. Sivaraman R. & Wilson C. (2016) Making projects sing: a musical perspective of project management. Business Expert Press.
- 25. Stein E.W. (2011) Improvisation as model for real-time decision making. In Supporting real time decision-making. Springer, Boston, MA, pp. 13–32
- 26. Zenk L., Hynek N., Schreder G. & Bottaro G. (2022) Toward a system model of improvisation. *Thinking Skills and Creativity*, vol. 43.

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