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Changing entrepreneurial attitudes for mitigating the global pandemic's social drama

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This paper investigates international experiences and perspectives on how entrepreneurs can improve management practices while minimizing the COVID-19 pandemic's social drama. The paper probes how companies deal with the myriad challenges they face amid the unfolding pandemic and how these processes' economic and cultural dimensions may exert an enduring effect. A novel dataset analyses how entrepreneurs manage the change of management processes in a sample of ten countries. Three economic impacts on entrepreneurs caused by the pandemic were observed: (1) a deficit as a result of social distancing reduced due to the growth of Internet retailing; (2) a deficit resulting from a fall in demand decreased due to innovations that mitigate this demand-side change; (3) a social crisis in the labour market due to social distance and relocating many employees to remote working practices. In countries with the most considerable number of cases of COVID-19, it is recommended that attitudes towards entrepreneurial risk be raised. In countries with the vastest number of fatal cases per 100,000 people, implications for change management in entrepreneurship are an increase in Internet retailing level, a reduction in entrepreneurial fear of failure, and an increase in entrepreneurial risk awareness. Besides, an anonymous sociological survey among companies' directors and managers in Russia on management initiatives taken on between late 2020–early 2021 shows that companies maintain a 60.21% readiness for such systemic challenges while their readiness for change increased under the influence of the pandemic. The contribution to the literature of this article lies in rethinking the COVID-19 crisis from the standpoint of social drama, which made it possible to clarify the cause-and-effect relationships of change management in entrepreneurship. For the first time, the paper proposes systemic—socio-economic recommendations for improving the practice of change management against the background of such a social drama.

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Introduction

Amid the unfolding COVID-19 pandemic, societies' response has been unpredictable. Different countries took divergent approaches to how measures to mitigate the spread of disease. Social distancing measures were soon introduced and later complemented with COVID-19 tests. Further efforts to address the pandemic became the norm.

For businesses, the pandemic management has created challenges and uncertainties, including increased demand for some products and services, a crisis of supply chains and consumer spending, and limitations in operating under social conditions. Wide protests against self-isolation are also signs of social drama reacting to the pandemic's management.

A pandemic is a shock that can affect different people/businesses in other ways as survival is set at stake. Consequently, survival behaviour is formed due to social drama (a conflict generated by social restraints due to a pandemic). Social tension is a severe consequence of the lockdown and requires a thorough study to support sustainable development. Subsequently, this paper discovers how companies have dealt with those challenges and whether the economic and cultural dimensions may have a long-lasting effect. This paper fills a gap in the literature connected to the uncertainty of the essence and scale of social drama performances amid the unfolding pandemic. The paper hypothesizes that companies' ability to adapt to such crises through practical change management processes sets their resilience against the pandemic's effects through the lens of change management in entrepreneurship offers a mechanism for dealing with it. The research's uniqueness is provided using the official statistical data and alternative data from a new sociological survey. This allows us to supplement a generalized international overview with a thorough case study of Russia's experience—i.e., a quantitative and qualitative analysis of change management in entrepreneurship to mitigate the unfolding pandemic's social effects.

The goal here is to gauge international experiences and perspectives on how entrepreneurs can improve their change management practices minimizing the pandemic's socio-economic impact. The article rethinks the COVID-19 crisis from the standpoint of social drama, which clarifies the cause-and-effect relationships of change management in entrepreneurship and recommends improved management practices.

After this introduction, a literature review is provided, materials are described, and the research methodology is presented. Solving the research tasks requires (i) undertaking a case study on social drama and effective change in management processes in Russia in 2020–2021; (ii) determining the essence and scale of the social drama amid the unfolding pandemic; (iii) studying the international experience of change management in entrepreneurship amid the unfolding pandemic in 2020–2021; (iv) suggesting the managerial implications for change management in entrepreneurship. Finally, we discuss the paper's contribution to the ongoing literature and present the conclusions.

Literature review

The theoretical basis of this research includes social drama issues are found in Batdı and Elaldı (2020), Cheetham et al. (2021), Gram et al. (2021), Grigore et al. (2020), Grimm et al. (2021), Im et al. (2021), Ivanova-Gongne and Lång (2019), Liang (2020), Liu (2020), Ochsner et al. (2020), Popkova et al. (2020, 2021), Szalma et al. (2020), and Xu and Cheng (2021). The theory and practice of change management in entrepreneurship are found in Binner (2020), Di Leva et al. (2020), Kovoor-Misra (2020), Matskulyak et al. (2020), Mousa (2021), Purwanti et al. (2020), Ramos Farroñán and Palomino (2020), and Stibe (2020).

The paper also draws on the growing knowledge of the unfolding COVID-19 pandemic elaborated by Ahmedien (2020a, 2020b), Akamatsu et al. (2021), Clair et al. (2021), Cui and Kertész (2021), Hills and Eraso (2021), Hong et al. (2021), Marzouki et al. (2021), Morgan et al. (2020), and Tang and Li (2021).

The existing literature has studied the experience of the COVID-19 pandemic and crisis in Russia in sufficient detail. The content analysis of the available literature and the classification of its main provisions made it possible to identify the following consequences of the COVID-19 pandemic and crisis in Russia:

In the studies by Kitrar and Lipkind (2021), Klimanov et al. (2021), and Wang et al. (2020), it is emphasized that the main consequences of the COVID-19 pandemic and crisis in Russia are manifested in healthcare and the economy (considering the poorly studied and uncertain social implications);
In the works of Goncharenko and Tolstopyatenko (2020), Kakaulina (2021), Pospelova et al. (2020), Trofimov et al. (2021), it is pointed out that public management plays a key role in the fight against the pandemic, while the part of entrepreneurship is minor and of little significance;
In the works of Kulachinskaya et al. (2020), Schislyaeva and Plis (2021), it is pointed out that there is a wide range of crisis management measures that are effectively taken amid the COVID-19 pandemic in Russia.

Particular manifestations of social drama are described in the following works:

The psychological impact of lockdown on the life satisfaction of international students (Afzali et al., 2020);
Social fears related to the contents of the COVID-19 news feed (Ermolaev et al., 2020);
Aggravation of the situation of labour migrants from Central Asia in Russia (Ryazantsev et al., 2020);
Stress and anxiety of healthcare professionals due to the COVID-19 pandemic (Mosolova et al., 2021);
Fear of COVID-19 and adverse effects on psychological health (Yehudai et al., 2020);
Aggravated problems of gender inequality (Andreeva et al., 2021).

The most recent literature illustrates that a fundamental level of attention has been paid to these three aspects of the set problem, although only separately. The problem has been investigated incompletely. Specific research gaps are apparent in the inadequate elaboration of how social drama is manifested and causally connected to the unfolding pandemic.

Another apparent literature gap is the uncertainty of how to assuage and overcome social drama in the pandemic. Public management measures are not sufficient, and the effectiveness of entrepreneurial efforts is ambiguous. The responsibility for the fight against social drama usually rests with non-profit activities. It provides creating public benefits, which contradicts the role of entrepreneurial activities in a market economy.

Further gaps include the domination of the unilateral approach in studying social drama amid the unfolding pandemic. Either surface quantitative studies based on generalized international experiences or narrow case studies that reflect only certain countries' experiences are performed. We probe into these issues qualitatively, quantitatively, and systematically to fill the above gaps, using both broad international experience and Russia as a case study.

Methods

The advanced hypothesis is verified in the paper in reliance on qualitative research. Based on materials of the Department of

International and Regional Cooperation of the Russian Federation (2022), manifestations of social drama in Russia in 2020–2021 were identified, and their scale (quantitative) was determined through the comparison of these manifestations in Russia against other countries of the world worst hit by the COVID-19 pandemic.

Based on materials from the Ministry of Economic Development of the Russian Federation, Federal State Statistics Service (Rosstat), and the National Research University—Higher School of Economics Ministry of Economic Development of the Russian Federation, Federal State Statistics Service Rosstat, National Research University—Higher School of Economics (2022), the potential to overcome social drama in Russia is revealed change management in entrepreneurship. The difference in difference (DiD) method compares the impact of tax incentives on oil and gas companies (as those that implement the most active change management) to change in Russia. The statistical analysis through the example of the international sample of countries complements the results based on best practices in Russia.

To determine the essence and the scale of social drama amid the unfolding pandemic, statistics on the indicators that characterize social acting and the direction of change management at the governmental level in 2020 based on the dataset: 'COVID-19 and the 2020 crisis: Healthcare opportunities and consequences for the economy and business around the world" (Institute of Scientific Communications, 2021a), which also includes statistics from the World Health Organization, Statista, and other authoritative sources.

A new proprietary classification of countries is used; its advantage is that it combines the criterion of the total number of COVID-19 cases and the number of fatal cases per 100,000 people. This allows for consideration of the traditionally studied and most elaborated experiences of countries with the highest number of COVID-19 cases and the equally significant still less studied experience of countries with a high fatality rate from the disease.

The new classification enables us to cover countries that have suffered most from the pandemic by ensuring the inclusion of countries with a large population (e.g., USA, Russia, India, or China) but have still experienced enormous pandemic consequences (e.g., Bulgaria or Slovakia). The research was performed on countries with the maximum number of cases and fatalities per 100,000 people, selected based on the BBC's statistics (2022) (Fig. 1).

As Fig. 1 illustrates, the sample of countries with the maximum cases includes the USA, Brazil, India, Russia, the UK, France, Italy, Spain, Turkey, Germany, Czechia, Belgium, Slovenia, Hungary, Portugal, Bulgaria, and Slovakia. If the total number of cases is equally significant in all countries (except for the USA), the death rate is much differentiated. The highest death rate is observed in Bulgaria (475.4 fatal cases per 100,000 people). The USA, the UK, and Italy conform to both criteria.

To consider international experiences about change management in entrepreneurship in 2020–2021, regression analysis is used – to estimate the resilience of business against crisis, measured with the help of GDP growth rates, according to International Monetary Fund (2021). First, specific measures are used that are aimed at achieving the 'narrow' results connected to the particular consequences of social drama:

the transition to Internet retailing, the indicator for which is the level of development in Internet retailing as measured by the IMD (2021);
an increase in flexibility, the indicator for which is the level of agility of companies as assessed by the IMD (2021);
an increase in corporate social responsibility, the indicator for which is the social entrepreneurship index from the dataset: 'Social entrepreneurship in the world economy: From virtual evaluation to big data 2020—rating of social entrepreneurship (Institute of Scientific Communications, 2021b).

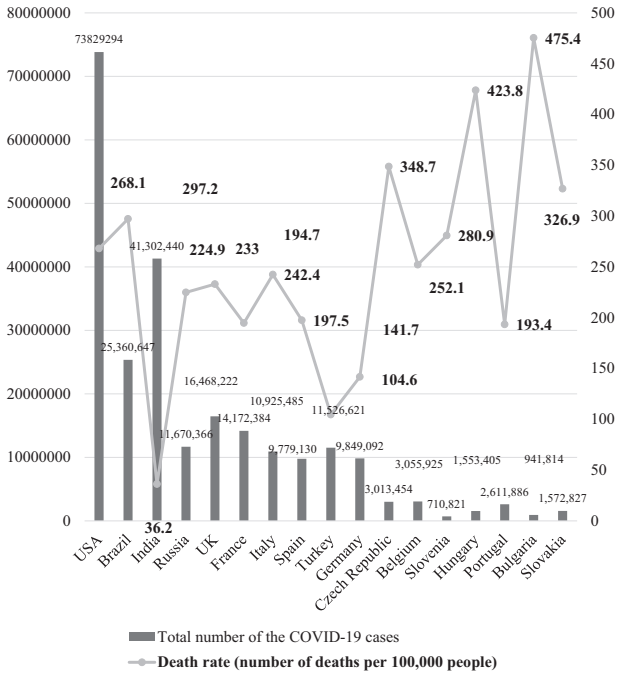

Fig. 1 Disease incidence and the specific death rate from COVID-19 as of 19 March 2021, in countries with the largest number of cases and countries with the highest number of fatal cases per 100,000 people. *Source*: Compiled by the authors based on the BBC (2022).

Second, general measures are used, aimed at achieving 'wide' results, which are not connected to specific performances of social drama:

a measure of risk management of an assessment of the entrepreneurial fear of failure from the materials of the IMD (2021);
a measure for the acceptance of risk and implementing innovations, the indicator for attitudes towards entrepreneurial risk from the World Economic Forum (2021).

Since the indicators in the rankings by IMD (2021) are measured by position, the values of regression coefficients (i.e., the level of development of Internet retailing, company agility, and the entrepreneurial fear of failure) should be harmful to consider the connections between the factor variables and the resulting positive variable. We collected the empirical data for the research in Table 1.

The logic of this research considers the receipt of the following economic and mathematical model:

$y = a + b_1{}^*x_1 + b_2{}^*x_2 + b_3{}^*x_3 + b_4{}^*x_4 + b_5{}^*x_5$ – in countries with the largest number of COVID-19 cases in 2020;

The simplex method was used to determine the optimal (with a limitation—equal or better than the 2020 level) indicators to achieve each sample country's non-negative economic growth rate. As a result, the applied recommendations for improving change management practice to contain social drama amid the unfolding pandemic are developed. Also, the Monte Carlo method is used to evaluate the probability of optimizing change management practice.

For qualitative determination of the essence and specifics of social drama amid the unfolding pandemic and quantitative

Table 1 Statistics on change management in countries with the largest number of cases and countries with the highest number of fatal cases per 100,000 people.

Country	Specific measures			General measures		Result: entrepreneurial resilience to crisis
	Measure of a transition to Internet retailing	Measure of an increase in the agility of companies	Measure of an increase in corporate social responsibility	Measure of risk management	Measure of the acceptance of risk and implementation of innovation	
	Level of Internet retailing development, position 1–63	Level of company agility, position 1–63	Social Entrepreneurship Index, points 1–100	Entrepreneurial fear of failure, position 1–63	Attitudes towards entrepreneurial risk, points 1–100	GDP growth rate (%)
	x_1	x_2	x_3	x_4	x_5	y
USA	2	15	73.238	17	75.9	−4.272
Brazil	43	39	49.027	188	51.1	−5.801
India	56	35	54.086	54	55.2	−10.289
Russia	37	61	61.147	37	52.7	−4.116
UK	3	26	70.496	34	65.3	−9.762
France	13	55	55.341	22	52.9	−9.757
Italy	27	45	57.568	4	49.8	−10.645
Spain	341	38	50.326	45	46.0	−12.830
Turkey	41	12	41.272	5	55.4	−4.985
Germany	12	43	61.140	6	62.7	−5.983
Czech Republic	22	32	38.401	-	45.7	−6.499
Belgium	11	31	45.775	46	46.1	−8.262
Slovenia	39	22	28.079	29	43.6	−6.700
Hungary	38	60	34.373	31	35.8	−6.100
Portugal	35	53	38.130	49	47.2	−10.002
Bulgaria	52	54	38.763	9	51.1	−4.000
Slovakia	30	56	34.700	33	44.0	−7.083

Source: Compiled by the authors based on IMD (2021), Institute of Scientific Communications (2021b), International Monetary Fund (2021), and the World Economic Forum (2021).

measuring of the scale of its principal manifestations, the relevant statistics are presented in Table 2.

Concerning the case study focusing on social drama and change management in Russia's entrepreneurship in 2020–2021, we used a survey of directors and managers of Russian companies on change management undertaken between late 2020-early 2021 (Institute of Scientific Communications, 2021c).

Results

Case study of social drama and change management in entrepreneurship in Russia in 2020–2021. To determine the scale of social drama in Russia in 2020–2021 based on data from Table 2, indicator values of the socioeconomic status of Russia amid the COVID-19 pandemic and crisis are compared with the arithmetical averages for the sample of countries, as well as with the maximum possible values (or the sample maximum). The results are shown in Fig. 2.

The materials of the Department of International and Regional Cooperation of the Russian Federation (2022) allowed revealing the following manifestations (qualitative) of social drama in Russia in 2020–2021 and clarifying their scale (quantitative) based on Fig. 2:

An increase in social isolation. A strong influence of social distancing on the society is confirmed by the high value of the self-isolation index, which is 92 points on average by country (out of 100): 1.52 compared to the sample average;

High healthcare expenditures, although this manifestation of social drama amid the COVID-19 pandemic and crisis is less strongly pronounced in Russia than in other countries worst hit by the pandemic. Thus, the share of the population where the healthcare expenditures of households exceed 25% of the total expenses or incomes in Russia is 0.60%:0.66 compared to the sample average and 0.60 compared to the sample maximum;

Although this manifestation of social drama amid the COVID-19 pandemic and crisis, the problem of access to medical services is less strongly pronounced in Russia than in other countries worst hit by the pandemic. Thus, the number of doctors per 10 thousand population in Russia is 37.50:1.15 compared to the sample average and 0.73 compared to the sample maximum. The number of medical attendants per 10 thousand population in Russia is 85.40:1.05 compared to the sample average and 0.44 compared to the sample maximum;

Fear of the viral threat, although this manifestation of social drama amid the COVID-19 pandemic and crisis is less strongly pronounced in Russia than in other countries worst hit by the pandemic because the number of tests for COVID-19 (21.54 million tests) is 3.29 compared to the sample average and 0.56 compared to the sample maximum. The prevalence rate of obesity in Russia is low (23.10%): 1 compared to the sample average and 0.23 compared to the sample maximum. The sanitation level in Russia is high: 99 points: 1.36 compared to the sample average;

The social crisis in the labour market results from social distancing. Thus, the COVID-19 threat for the labour market in Russia is 23 points: 1.31 (higher) compared to the sample average and 0.23 compared to the sample maximum;

A decline in the living standards and aggravation of income inequality due to the pandemic. Thus, the packages of anti-crisis tax stimuli in Russia are 2.90:0.57 compared to the sample average and 0.06 compared to the sample maximum;

Table 2 Statistics on the indicators of social drama amid the unfolding global pandemic and change management direction at the governmental level in 2020.

Country	COVID-19 tests	Share of population with household expenditures for healthcare that exceed 25% of total expenses or income	Self-isolation index	Employer responsibility amid the COVID-19 pandemic	Packages of anti-crisis tax stimuli	Medical staff per 10,000 people	Junior medical staff per 10,000 people	Obesity level	COVID-19 threat to the labour market	Sanitary level	Financing the fight against the viral threat
USA	38,218,637	0.8	69	75	11	26.1	145.5	36.2	37	92	n/a
Brazil	4,316,284	n/a	44	85	8	21.6	101.2	22.1	n/a	87	0.04
India	10,211,092	3.9	37	n/a	3.5	8.6	17.3	3.9	55	78	0.18
Russia	21,537,771	0.6	92	n/a	2.9	37.5	85.4	23.1	23	99	n/a
UK	10,651,308	0.5	60	76	n/a	28.1	81.7	27.8	33	93	n/a
France	1,384,633	0.2	83	73	5	32.7	114.7	21.6	44	82	n/a
Italy	5,660,454	1.1	82	83	4,6	39.8	57.4	19.9	63	n/a	n/a
Spain	5,734,599	1.2	72	n/a	n/a	38.7	57.3	23.8	n/a	85	n/a
Turkey	3,682,673	0.4	94	n/a	5	18.5	27.1	32.1	n/a	77	0.82
Germany	5,873,563	0.1	77	65	4.9	42.5	132.4	22.3	43	88	n/a
Czech Republic	573,446	0.1	81	n/a	n/a	41.2	84	26	n/a	68	n/a
Belgium	1,284,605	1.4	78	n/a	n/a	30.7	194.6	22.1	n/a	84	n/a
Slovenia	109,596	0.3	n/a	n/a	n/a	30.9	99.7	20.2	n/a	86	n/a
Hungary	286,983	0.3	80	n/a	n/a	34.1	69.2	26.4	n/a	68	n/a
Portugal	1,271,425	3.3	n/a	n/a	n/a	51.2	69.7	20.8	n/a	82	n/a
Bulgaria	156,351	0.8	82	n/a	n/a	40.3	48.2	25	n/a	n/a	n/a
Slovakia	219,269	0.4	n/a	n/a	n/a	34.2	3.2	20.5	n/a	73	n/a
Sample average	6.54	0.91	60.65	26.88	5.08	32.75	81.68	23.16	17.53	73.06	0.06
Maximum value	38.22	1	100	100	46	51.2	194.6	100	100	100	0.82

Source: Compiled by the authors based on Institute of Scientific Communications (2021a).

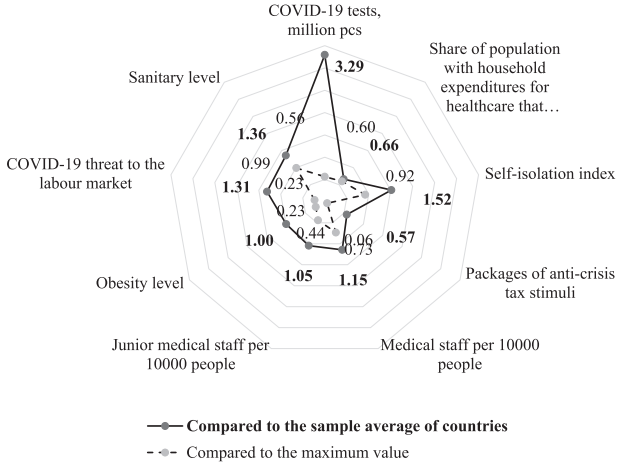

Fig. 2 The scale of social drama in Russia in 2020–2021. *Source:* Calculated and compiled by the authors.

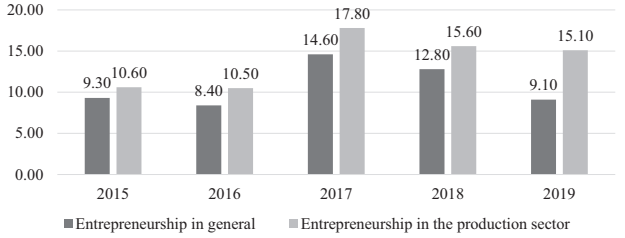

Fig. 3 Changes in the share of innovatively active (change management) companies in Russia in 2015–2019, %. *Source:* Compiled by the authors using the materials from the Ministry of Economic Development of the Russian Federation, Federal State Statistics Service Rosstat, National Research University - Higher School of Economics (2022).

The potential to overcome social drama amid the COVID-19 pandemic and crisis through change management in entrepreneurship in Russia is shown in Fig. 3.

As is shown in Fig. 3, in Russia, there is an upward trend in the share of innovatively active (change management) companies. In 2015, this share was 9.30%; in 2017, it was 14.60%, and in 2019, it was 9.10%. In 2020–2021, this share could have increased. In the production sector, the amount of business change management activity is higher than the average value for entrepreneurship—in 2019, it was 15.10%. The structure of change management in entrepreneurship in Russia in 2020 is shown in Fig. 4.

As is shown in Fig. 4, the structure of change management in entrepreneurship in Russia in 2020 is dominated by the purchase of machinery and equipment and other capital assets: 50.30% (51.20% in the production sector), as well as R&D: 41.80% (47.60% in the production sector). Since the change management potential in Russia in the production sector is higher than the average value for entrepreneurship, it is expedient to study the experience in this economic sector in more detail.

In late 2020–early 2021, the Institute of Scientific Communications (2021c) conducted an anonymous sociological survey among companies' directors and managers from different regions in Russia. Thirty small, medium, and large companies from Lipetsk, Kirov, Moscow, Rostov, Volgograd, Arkhangelsk Regions, and the Republic of Mari El (Yoshkar-Ola) were surveyed. The companies came from various economic sectors: wholesale and retail, the printing industry, technical services, construction, science, marketing, aircraft construction, processing

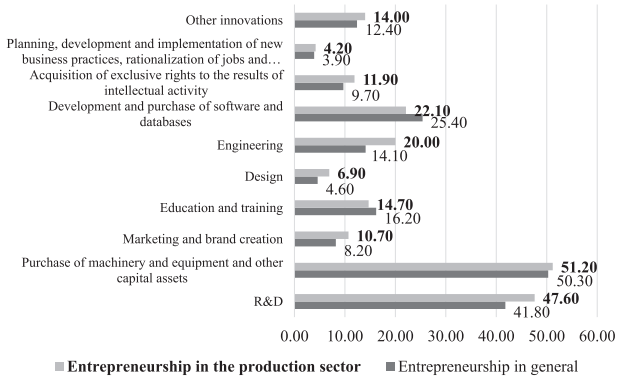

Fig. 4 The structure of change management in entrepreneurship in Russia in 2020, %. *Source:* Compiled by the authors using the materials from the Ministry of Economic Development of the Russian Federation, Federal State Statistics Service Rosstat, National Research University - Higher School of Economics (2022).

production, finance, and management, as well as the oil and gas industry.

The survey results show businesses face severe challenges because of Russia's pandemic in 2020–2021, connected to changes in legislation and deteriorating market conditions. According to the companies' representatives' evaluation, their readiness to address modern socio-economic challenges is 60.21%. Their evaluation of their companies' readiness for change is 7.52 points (out of 10). According to the respondents, the management areas that experience the most difference are human resources, planning, organizational structure, finance, and innovation. The causes of change include the growth of competition, the transformation of added value chains, technological progress, and dealing with crisis phenomena in the economy.

It should be noted that most companies have a person who handles change management (usually a director). Still, such processes are automatized in more than half of the companies. Employee resistance to change is high—5.64 points. This shows a conflict of interest and readiness for change between the management and employees in Russian companies. The survey also received a response from a company that does not enact change and feels it does not need to. Its experience confirms the representative character of the survey sample that shows a critically low (0.03%) share of resilient companies to crisis phenomena in the economy.

The oil and gas industry, which plays an essential role in the country's GDP and export potential, deserves special attention when studying the case experience of Russia. Specific state policies such as taxes and other financial instruments that improve the sustainable development policy of the oil and gas industry in Russia include the following (Skolkovo Moscow School of Management, 2021):

Cancellation of payments for negative impact on the environment for enterprises that have transferred to the "best available technologies" (a list of the best available "green", energy-efficient technologies) and their criteria are now described in sufficient detail in the Russian reference books of the best available technologies for the oil and gas industry, in particular);

Investment tax credit for implementing the "best available technologies";

Introduction of increased depreciation factor for energy-efficient equipment as well as the "best available technology" equipment;

Table 3 The impact of tax incentives on the readiness of oil and gas companies to change in Russia using the Difference in Difference (DiD) method.

	Oil and gas industry	Other sectors	Difference
Before the pandemic (in 2019)	4.89	5.97	4.89-5.97 = −1.08
In 2020–2021	8.34	6.70	8.34-6.70 = 1.64
Change	8.34-4.89 = 3.45	6.70-5.97 = 0.73	1.64-(−1.08) = 2.72

Source: Calculated and compiled by the authors.

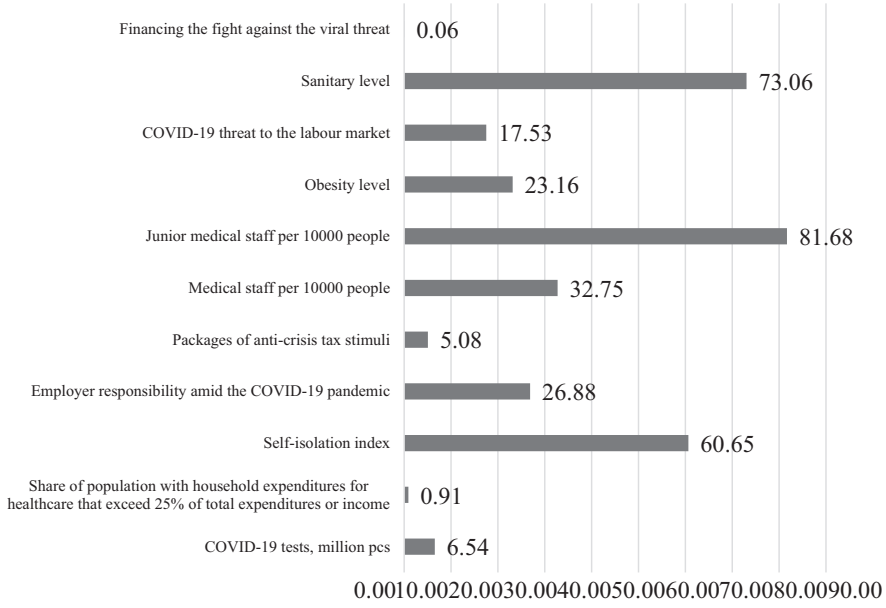

Fig. 5 Characteristics of social drama amid the unfolding pandemic and the direction of change management at the governmental level in 2020. *Source*: Calculated and compiled by the authors.

Application of a new way of raising finance by issuing green bonds for the "best available technology" projects and obtaining a coupon subsidy of up to 90%.

To take a deeper look at the impact of the COVID-19 pandemic on change management in the Russian oil and gas industry, we apply the Difference in Difference (DiD) method. Before the pandemic, the Russian government sought to maximize tax revenues from the extraction, sale, and export of oil and gas. The COVID-19 pandemic has clearly and convincingly demonstrated the need to preserve heritage for future generations and protect the environment. This is reflected in Russia's national initiatives to decarbonize the economy, launched in 2021.

The course towards sustainable development has transformed the policy of regulation of the oil and gas industry. Instead of increasing the tax burden, the Russian government, for the first time, practised reducing the tax burden in the aspect of stimulating corporate environmental responsibility initiatives of oil and gas companies. Since the oil and gas industry has a central role in decarbonizing the Russian economy, tax incentives are concentrated in this industry, which fundamentally distinguishes it from other industries.

To determine the impact of tax incentives for practices supporting environmentally sustainable development goals, the Institute for Scientific Communications surveyed a particular question for oil and gas companies on how their tax burden changed in 2020–2021 compared to 2019 under the influence of the COVID-19 pandemic. The survey results showed that the tax burden of oil and gas companies in Russia decreased by 15% but only for those companies that have transferred to the "best available technology".

Also, as part of the survey, it was revealed that the readiness of oil and gas companies for changes averaged 4.89 points before the pandemic (in 2019), and in 2020–2021 it increased to 8.34 points. In other sectors of the Russian economy (excluding the oil and gas industry), the average readiness of enterprises to change before the pandemic (in 2019) was 5.97 points, and in 2020–2021 it increased to 6.70 points. The DiD method is optimal for assessing the isolated impact of tax incentives on the readiness of oil and gas companies to change, excluding the impact of the pandemic (which was also on other sectors of the economy). The evaluation results are shown in Table 3.

This result indicates that tax incentives have increased the readiness of oil and gas companies to change in Russia by 2.72 points, while the impact of the pandemic is estimated at 0.73 points (3.45–2.72). Consequently, the change management in Russia's oil and gas industry is mainly determined by tax incentives, which should be extended to other sectors of the Russian economy.

As a regulatory state intervention in market processes to stimulate change management in entrepreneurship, this article recommends tax incentives similar to the oil and gas industry. For this, the following universal (suitable for various sectors of the economy) measures are proposed:

tax crediting for the introduction of "best available technologies";

provision of corporate income tax incentives for enterprises implementing "best available technologies";
extended information and consulting support (from the Federal Tax Service) on tax optimization for enterprises implementing the "best available technologies".

The results have proved the hypothesis that the ability of the companies to adapt to the COVID-19 crisis through the use of effective processes of change management determines their immunity to the consequences of the pandemic, and the mechanism of the fight against social drama must be based on the tool of change management in entrepreneurship.

The essence, specifics, and scale of social drama amid the unfolding pandemic. Based on the data from Table 2, the statistics on the given categories for these countries are summarized, which allows us to present the key characteristics of social drama amid the unfolding pandemic and the direction of change management at the governmental level in 2020 (Fig. 5).

The logical analysis of the events related to the COVID-19 pandemic in 2020 allows us to determine the three main impacts of social drama amid the unfolding pandemic. The statistical data from Fig. 5 facilitates specifying their importance.

First impact: a deficit caused by the results of social distancing: An outright halt or severe limitations placed on companies' activities and functioning led to reduced product range due to the impossibility of transforming added value chains in the short term. The strong influence of social distancing on society is confirmed by the high value of the self-isolation index, which constitutes 60.65 points (out of 100) on average in countries.

Second impact: a deficit as a result of the change in demand: Before introducing strict limitations on companies, feverish consumer demand led to households spending their savings on essential goods. These resources were soon depleted, further aggravated by the fall in income due to reduced wages (through layoffs and similar initiatives) and increased unemployment. The reduction of income led to consumer preferences favouring products with lower prices.

The strong influence of the pandemic on incomes is confirmed because the share of the population with household expenditure on healthcare that exceeds 25% of total expenditure or income is 0.91% on average, which illustrates the increased expenditure on healthcare.

Third impact: the social crisis in the labour market due to social distancing: Companies that reduced the scale of their activities suffered enormous financial losses or went out of business had to fire, lay off, or make employees redundant. The considerable threat COVID-19 confirms this posed to the labour market, constituting 17.53 points. Even though many employers demonstrated greater corporate social responsibility 26.88%.

As shown in Fig. 2, governments took active measures to mitigate the effects of social drama. These include the following:

financing the fight against the viral threat: 0.06 points on average;
increasing the level of healthcare: 73.06 points;
tackling obesity: efforts increased by 23.16%;
raising the number of junior medical staff per 10,000 people: by 81.68 points;
raising medical staff per 10,000 people: by 32.75 points;
providing COVID-19 tests: 6.54 million;
implementing a package of anti-crisis tax stimuli measures: 5.08 points.

However, the effectiveness of these implemented measures is not sufficiently high to overcome social drama effects. Therefore, it is also necessary to involve the entrepreneurial private sector to overcome social drama's effects amid the pandemic.

Table 4 The regression analysis results.

Level of Internet retailing development	−0.0114 (0.2198)
Level of company agility	0.0405 (0.4498)
Social entrepreneurship index	−0.1752 (0.1074)
Entrepreneurial fear of failure	0.0045 (0,7632)
Attitudes towards entrepreneurial risk	0.2652 (0.1278)
Cons	−13.8823* (0.0537)
Obs.	17
R-squared	0.4037

Robust standard errors are given in parentheses.
*$p < 0.1$.
Source: Calculated and compiled by the authors

Table 5 Regression analysis results for the selected key variable.

Level of Internet retailing development	−0.0165*** (0.0501)
Cons	−6.6971* (0.00000007)
Obs.	17
R-squared	0.2322

Robust standard errors are given in parentheses.
***$p < 0.01$, *$p < 0.1$.
Source: Calculated and compiled by the authors.

International change management experience in entrepreneurship amid the unfolding pandemic in 2020–2021. A perspective method for involving the entrepreneurial sector to mitigate social drama's effects caused by the pandemic is through change management, enabling a business to facilitate adaptation in a new market environment and balance supply and demand in the economy. The regression analysis results of the data from Table 1 are shown in Table 4.

Results from Table 4 have shown that only one factor of those under consideration (x_1) has a positive impact on economic growth; in other words. it is a good measure of economic crisis management amid the COVID-19 pandemic. When the level of Internet retailing development increases (improves) to reach the top position, the pace of economic growth increases by 0.01138%. In addition, F significance (0.269845) is too high for the results of all factors to be recognized as reliable. Therefore. we shall narrow down the research scope to the selected factor variable: level of Internet retailing development (x_1)—its regression statistics are shown in Table 5.

Results from Table 5 allow the following equation of multiple linear regression, which describes the contribution of various change management measures to business resilience against the pandemic crisis in 2020–2021 in countries with the largest number of cases:

$$y_1 = -6.6971 - 0.0165^{*}x_1 \quad (1)$$

As shown in the received regression Eq. (1), the economic growth rate does the following: in the case of an increase in the level of development of Internet retailing of 1 position, the result is economic growth of 0.0165% (positive influence of the factor on the result).

Multiple correlations are high (48.19%) and prove the achieved regression equation's reliability (1). The multicollinearity test is performed in Table 6.

As shown in Table 6, the cross-correlation of entrepreneurial change management measures in countries with the largest number of cases is well below 0.9. Therefore, multicollinearity of the factor variables is not found (the test is passed). Results of the White test demonstrate the absence of heteroscedasticity since with the 10% level of probability, the *P*-probability of adoption of the hypothesis on heteroscedasticity equals 0.050149 (significance *F*), which exceeds 0.10.

The quantitative and qualitative analysis of the international experience of entrepreneurial change management measures in 2020–2021 is summarized in Table 7.

As shown in Table 6, entrepreneurial change management measures enable reducing social drama in only one of the three designated directions—the deficit caused by social distancing is addressed through the expansion of internet retailing support companies online. The other directions cannot be addressed successfully through specific measures and require the implementation of general standards of change management in entrepreneurship: greater acceptance of entrepreneurial risks (and innovations); and a reduction in the entrepreneurial fear of failure (e.g., through the insurance of risks and accumulation of financial reserves).

Management implications for implementing change management measures to contain social drama amid the unfolding pandemic. Based on the received regression Eq. (1), our recommendations for optimizing the effectiveness of change management measures to address social drama amid the unfolding pandemic are as follows (Fig. 6):

As is shown in Fig. 6, with the maximum possible Internet usage (position 1) (+97.88%), the economic recession in 2020 would be lower by 10.19% (not 7.48%, in 6.71%). This will allow these worst-hit countries to mitigate the economic impact of the pandemic during the unfolding crisis. A probabilistic assessment of implementing the offered recommendations on change management with the Monte Carlo method's help is presented in Fig. 7.

As shown in Fig. 7, the recommended increase in the prevalence of e-commerce will occur with a probability of 20%. This means that the selected measure and the suggested recommendations are easily accessible to countries affected by the COVID-19 pandemic.

Table 6 The multicollinearity test on entrepreneurial change management measures.

R^2	x_1	x_2	x_3	x_4	x_5
x_1	1	-	-	-	-
x_2	0.03	1	-	-	-
x_3	−0.09	−0.19	1	-	-
x_4	0.11	0.06	−0.01	1	-
x_5	−0.26	−0.47	0.83		1

Source: Calculated and compiled by the author.

Discussion

The contribution of this paper to the literature consists of the clarification of social consequences of the COVID-19 pandemic and crisis in Russia and the identification of the prospects for overcoming social drama through change management in entrepreneurship. The comparative analysis of new scientific results with the existing literature is presented in Table 8.

As is shown in Table 8, as distinguished from FIO, it has been found that the consequences of the COVID-19 pandemic and crisis can not only be observed in healthcare and the economy but are also quite distinct in the social sphere—social drama (social situation) and are in: an increase in social isolation; high healthcare expenditures; the problem of access to medical services; fear of the viral threat; social crisis in the labour market as a result of social distancing; a decline in the living standards and aggravation of income inequality due to the pandemic.

As distinguished from FIO, it has been shown that the approach to crisis management amid the COVID-19 pandemic must involve deregulation: an increase in change management activity in entrepreneurship (the main role of the private sector).

As distinguished from FIO, it has been demonstrated that the variability of crisis management measures amid the COVID-19 pandemic is low: the development of e-commerce is the most effective measure, while other measures are ineffective.

The results have made it possible to clarify the consequences of the COVID-19 pandemic and crisis in Russia and to identify the prospects for overcoming social drama.

Conclusions

This research has shown that companies' ability to implement change effectively determines their resilience against crises like the COVID-19 pandemic and social drama. First, we have identified three critical impacts of social drama amid the unfolding pandemic. First impact: a deficit as a result of social distancing. The strong influence of social distancing on different societies is confirmed by the high value of the self-isolation index —60.65 points (out of 100) on average.

Table 7 International experience of entrepreneurial change management measures in 2020–2021.

Impact of social drama amid the unfolding pandemic	Direction of change management in entrepreneurship, which potentially decreases social drama	Indicator of the direction of implementation with the help of specific measures	Result of the direction of implementation
Deficit as a result of social distancing	The development of Internet retailing to support the work and sales of companies online	Level of Internet retailing development	Positive
Deficit as a result of a change in demand	Implementation of innovations to address the change in demand and deal with the deficit	Level of company agility	Negative
Social crisis in the labour market as a result of the effects of social distancing	Transfer of employees to remote working practices to prevent laying off workers	Social entrepreneurship index	Negative

Source: Developed and compiled by the authors.

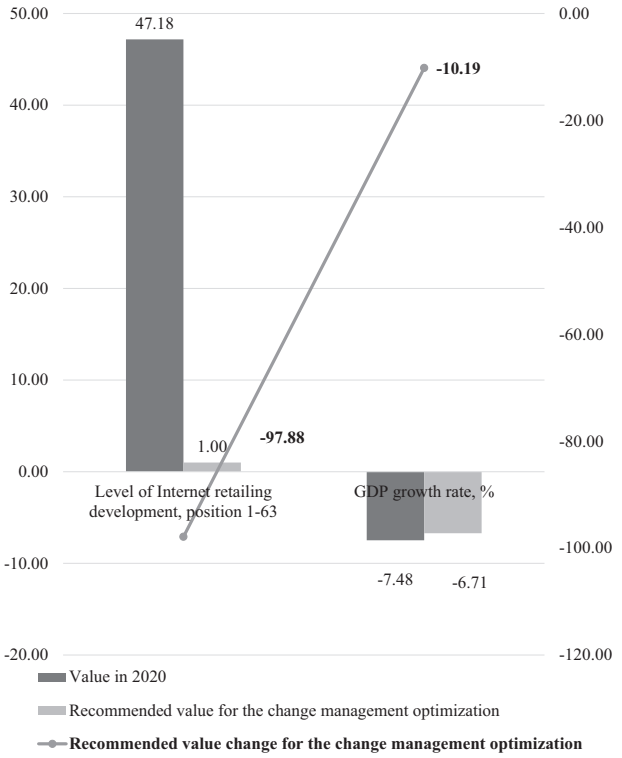

Fig. 6 Recommendations for optimizing the effectiveness of change management measures to contain social drama amid the unfolding pandemic. *Source*: Calculated and compiled by the authors.

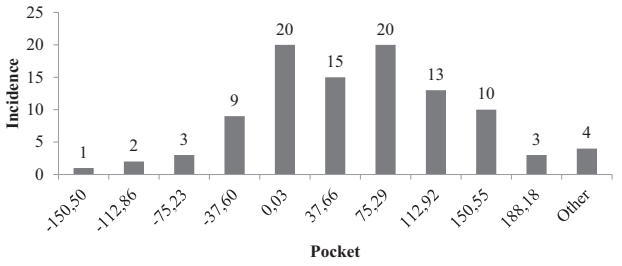

Fig. 7 Probabilistic assessment of implementing the recommendations on change management with the help of the Monte Carlo method. *Source*: calculated and compiled by the authors.

The second impact is a deficit due to the change in demand. The effect of the pandemic on incomes is confirmed by the fact that the share of the population in the countries studied with household expenditures on healthcare that exceed 25% of total spending or income is 0.91% on average.

The third impact is the social crisis in the labour market because of social distancing. This is confirmed by the enormous threat of COVID-19 to the labour market, which constitutes 17.53 points on average.

It has been shown that the effectiveness of government measures (e.g., increasing the level of healthcare provision and the number of COVID-19 tests) does not overcome social drama. However, such efforts have been pursued actively. For example, implementing a package of anti-crisis tax stimuli is assessed at 5.08 points. Therefore, it is necessary to involve the private sector in the fight against social drama amid the unfolding pandemic.

Second, the analysis of the international experience of change management practices enacted during the pandemic in 2020–2021 has shown that such measures (in countries of both categories) only allow a reduction in a social drama in one of the three directions identified—the deficit caused as a result of social distancing and addressed through faster development of Internet retailing to support the migration to greater remote working. The other directions cannot be implemented through specific measures but require general measures related to change management in entrepreneurship: a greater acceptance of entrepreneurial risk (and implementing innovations) in countries of both categories and a reduction in the entrepreneurial fear of failure (e.g., through risk insurance and accumulation of financial reserves) in countries with the highest number of fatal cases per 100,000 people.

Thirdly, we have offered the management implications for implementing change management to contain social drama amid the unfolding pandemic. An increase in the prevalence of e-commerce by 97.88% is recommended. As a result, the economic recession in 2020 would be lower by 10.19%. This will allow these worst-hit countries to mitigate the economic impact of the pandemic.

The probabilistic assessment of implementing the offered recommendations on change management with the Monte Carlo method's help has shown a 20% probability of implementing them. Therefore, the recommended measure is easily accessible to countries affected by the COVID-19 pandemic.

The case study on social drama and change management in entrepreneurship in Russia in 2020–2021 has shown that business faces serious challenges connected to changes in legislation and market conditions, the growth of competition, the transformation of added value chains, technological progress, and dealing with crisis phenomena in the economy.

According to the company representatives' surveys, their readiness to deal with modern socio-economic challenges is 60.21%, while their readiness for change is 7.52 points (out of 10). A critically low (0.03%) share of companies is resilient to crisis phenomena in the economy.

The value of the article lies in rethinking the COVID-19 crisis from the standpoint of social drama, which made it possible to clarify the cause-and-effect relationships of change management in entrepreneurship and, for the first time, propose systemic—socio-economic recommendations for improving the practice of change management against the background of the social drama of the pandemic.

Therefore, this paper's contribution to the literature is the necessity for, and key directions of, change management in entrepreneurship to mitigate social drama amid the unfolding pandemic. Second, the specification of a methodological approach to study social drama amid the unfolding pandemic in large countries with the sheerest number of cases and smaller countries with many fatal cases per capita. The case study of Russian entrepreneurs is primarily valuable to reflect social drama amid the unfolding pandemic fully.

It should be noted that different countries possess diverse institutional structures and norms that affect change management. For example, Japan and the United States adopt different approaches to change direction due to other institutional structures and norms. Thus, in this case, the use of macro data without regard to social norms, government efficiency, trust, democratic regime, etc., may distort estimates to some extent. This limitation was not overcome since the article's goal assumed the broadest possible coverage of economic systems (countries) to get universal and reliable data. It is advisable in future studies to clarify the generalized results achieved by conducting in-depth studies considering national experiences.

Table 8 Comparative analysis of new scientific findings.

Standard of comparison	Existing literature (accumulated scientific knowledge)	New scientific results obtained in this paper (an increase in scientific knowledge)
Consequences of the COVID-19 pandemic and crisis	They are mainly manifested in healthcare (healthcare crisis: overload of facilities) and the economy (GDP decline: economic crisis)	There are also such distinct phenomena in the social sphere as social drama (social crisis) that are manifested in: -An increase in social isolation; -High healthcare expenditures; -The problem of access to medical services; -Fear of the viral threat; -The social crisis in the labour market as a result of social distancing; -A decline in the living standards and aggravation of income inequality due to the pandemic.
The approach to crisis management amid the COVID-19 pandemic	Intensified state regulation of the economy (the main role of the public sector)	Deregulation: an increase in activity of change management in entrepreneurship (the main role of the private sector)
Variability of crisis management measures amid the COVID-19 pandemic	High: there is a wide range of crisis management measures that are effectively taken amid the COVID-19 pandemic	Low: the development of e-commerce is the most effective measure, while other measures are ineffective

Source: Developed and compiled by the authors.

Data availability

Dataset "COVID-19 and the 2020 crisis: healthcare opportunities and consequences for economy and business around the world". https://iscvolga.ru/dataset-crisis-2020.

Dataset "Social entrepreneurship in the world economy: from virtual evaluation to Big Data 2020": Rating of social entrepreneurship. https://iscvolga.ru/dataset-social-predprinim#6522574c-7d8a-4755-b363-51baf555fa1a.

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Competing interests
The authors declare no competing interests.

Ethical approval
Not applicable.

Informed consent
Not applicable.

Additional information
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