

## GROWTH INDICATORS FOR THE HOTEL INDUSTRY: AN ALTERNATIVE MODEL BASED ON DIGITAL TECHNOLOGIES, AGILE TRANSFORMATION AND PROCESS FRAMEWORKS

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**Abstract:** The paper discusses genesis, content, and prospects of development of the hotel industry in conditions of new digital technologies, transformation of Agile methods, and process frameworks, given the unpredictability of the world and domestic tourism. The primary result of this research is the design of an alternative model of hotel facility management oriented to the new criteria and growth indicators. The model is to be based on the integral interaction of digital technologies and innovation trends of the sixth technological paradigm, as well as fulfillment of the strategy of sustainable development. At present, it is extremely important for the hotel business to create a new business model enabling it to considerably expand and adapt its range of services to win new segments of the market.

**Keywords:** hotel business, Agile methods, process framework (Scrum), product portfolio management (LPM), lifecycle of hotel facilities (PLC), change management.

### 1 Introduction

The year of 2020 fuelled the increased demand for such managerial model and business development concept as change management. Forecasts about the way the world is going to change (after the pandemic) in 2021-2024 are largely questionable and apocalyptic, yet they share one true point – the world is bound to change. At least, this holds true for individual segments of the world economy, such as the industry of tourism and entertainment.

The COVID-19 pandemic has landed the global economy into the biggest-ever crisis. All regions of the world have turned out to be affected by it to a certain extent. It is the sphere of services that is to suffer the greatest damage: the travel business is paralyzed, restaurants and hotels are closed, the industry of mass entertainment and shopping gets compromised, and air traffic has been downsized dramatically (Beresneva, 2019; Grunyova, 2019; Korotkaya, 2020). The true toll is yet to be found out, although one can already make a preliminary conclusion: countries having a large proportion of services in their GDP will be the ones to suffer most. First of all, these are the USA where the share of services is over 77%, Great Britain – 71%, and France – 70%. In Russia's GDP, the proportion of services is markedly lower – 54% (Antropova, 2020; Solomonova, 2020). On the one hand, a low share of services in GDP of the RF will help mitigate the damage done by the pandemic; on the other hand, it is indicative of Russia's lagging behind in developing this crucial sector of the economy, as the modern world ascended the epoch of services back in the 1990s.

The international tourism is one of the most important segments of the services sphere. Nowadays, tourism has turned into one of the highest-margin and most rapidly developing branches of the world economy. Yielding over 8% of the goods and services export, tourism itself accounts for almost 34% in the world's services export segment. The sphere of tourism is inseparably associated with another vital sector of the world economy – with the hotel business.

The hotel business is one of the most rapidly developing branches accounting for almost 8% of the world's GNP and around 6% of the total tax collection (Averbukh, 2010; Aleeva, 2018; Kenzina, 2019; Machalkin & Moreva, 2018).

Development of the hotel business fuels the progress of other focus areas, too: transportation, trade, construction, agriculture, consumer goods production, the sphere of services, etc. On average, per each 10 tourists staying at a hotel, there are directly about 3 jobs and 2 more jobs which are indirectly associated with service (employees of travel agencies, transport companies, and so on). Over recent 20 years (until 2020), the quantity of

international trips doubled. The steadily growing demand brought about the similar growth of guest room stock of the hotels. According to Deloitte, there were more than 184 thousand hotels with around 18 million rooms all over the world as of the end of 2019.

In the RF, the contribution of the industry of tourism into GDP is 2,5-3 times lower than that of developed countries, ranging within 4-5%; on top of that, according to expert appraisal, in 2020, the travel business (including the hotel and restaurant sectors) lost about 1,3 trillion rubles in total from its annual turnover of 3,7 trillion rubles. Due to the Coronavirus pandemic and closed borders between countries, Russia's outbound flow of tourists has shrunk by 77%, inbound – by 93%, and the flow of tourists traveling within the country has decreased by 30-40% (Yankina, 2018; Hunt, 2004; Kidd, 1994).

All the above factors confirm that Russia's hotel business needs to work out modern strategic approaches which will adapt it to the new reality, remain flexible and relevant under any development scenarios of the international and domestic tourism and under any force majeure circumstances that may emerge.

The model which is classical for capitalism has come up close to a sort of the "midlife crisis". So, profit is still an essential condition for stable operation of a business, but to stay successful in the market, one has to consider increasingly more factors. In particular, investors, customers, and employees want the business to respond to changing public values and to pay more attention to environmental and social questions.

At present, a company's success will not be measured by money only. To keep afloat, a business will have to reconsider corporate objectives and to redefine its role and importance for the world around it. The new definition of the term "growth" must include fundamentally different metrics: for example, the indicators of personal development (training, happiness, and longevity), health of both employees and customers, reduction of the harmful impact on the environment (Brymer, 1995; Olderoege, 2018; Timofeeva, 2018).

With regard to this, the hotel business has to create a new business model implying transition to a brand new qualitative level of working with customers and personnel. It also has to considerably expand and adapt the range of hotel services to win new segments of the market.

Today, the principles of change management in the hotel activity cannot be implemented without using digital technologies and Agile transformation of business. Among the principal advantages yielded by Agile and Scrum technologies (as a process framework), one can list the 25-35% reduction of costs, the 20% enhancement of quality, and the 100-200% acceleration of launching new products and services.

75% of efforts aimed at transformation of business fall short of their objectives in terms of the obtained value, deadlines, or both (Boy et al., 2017). The majority of large hotel chains are built of individual units and specialized functions. This creates a source of inefficiency which can be eliminated by using flexible approaches. However, to use Agile throughout the company, the managerial system has to learn to work differently at all levels.

At the hotel facilities, successful implementation of Agile transformation has to begin with changing the top managers' habitual work methods. They must adopt the flexible way of thinking and share the values and principles of flexible approaches. A rigid hierarchical structure of an organization is a barrier to Agile working.

The use of the process framework and Agile methods in transforming the hotel business will allow achieving three principal results: reducing time-to-market (i.e., the time span from the idea up to the product being marketed), boosting

customer experience (the quality in terms of being sought after by the end user), and enhancing productivity (performance as the scope of work per unit time) – as well as several intermediary results: transparency, predictability, motivation, and some others.

Reduction of risks for the business remains one of the key tasks of the Agile approach (Schwab, 2016). It concerns the most varied risks: e.g., marketing an irrelevant (not appropriate, not required, not paying back) product, wasting resources (time, effort, money, attention). The process framework in the hotel business will allow carrying out the iterative and incremental approach – i.e., orienting to stage-by-stage moving along the path of marketing services, consistently creating potentially ready for launching "values" and receiving fast feedback from the environment, customers, and users.

With regard to the above, one can state the fact that survival and development of the Russian hotel industry directly depends on the speed and quality of implementing the modern business management approaches. A new model of management of the hotel facility has to be formed that will rely on the integral interaction of digital technologies with innovation trends of the sixth technological paradigm and fulfillment of the strategy of Society 5.0. This implies ever stricter social and environmental standards and the use of innovation technologies – the resource-saving ones, the information ones, and those closely related to completing sustainable development tasks.

## 2 Literature Review

Russian and foreign scientists continuously monitor and study new trends in the way the hotel business evolves and advanced methods, technologies, and tools of management are explored and implemented in the hotel industry.

So, Steven L. Goldman (Goldman et al., 1994) discuss an approach to managing a flexible enterprise based on changing needs and wishes of certain groups of customers. They also consider relevant sales assessment tools for measuring flexibility of the company and identifying ways for it to follow to become a stronger competitor. Studies by Jacques Boy, Christian Dudek, Sabine Kuschel (2017), Amit Mitra (2005), Paul T. Kidd (1994), and A. Chelyapin (2016) deal with questions of project management, flexibility of business, stability of business processes, and the use of corporate knowledge in conditions of progressive globalization considering project management in information technologies, rapid spread of computer technologies and communications, and changing organizational structures (Vorobyev, 2016). Woodrow W. Clark II and Ted K. Bradshaw (2004) examine current issues of energy management and the integration of energy policy with sustainable development in their works.

Best practices of Agile and conventional software development are compared by Barry W. Boehm, Richard Turner, Grady Booch, Alistair Cockburn, and Arthur B. Pyster (2003). They analyze changes underlying the choice of flexible, iterative (Scrum, Extreme Programming, Evo, and Unified Process) or planned methods in particular project situations. Craig Larman's research (2016) shows that iterative methods reduce the risk of failure as compared to conventional development models and cites some proofs of the value of opting for flexible and iterative methods.

Further on, Fred A. Cummins (2014) considers questions of advancing IT as the key tool for forming flexible enterprise models and data based on convergence of key technologies, including SOA and BPM. The use of Rails applications and service frameworks for connecting business objects and databases within object-relational matching is suggested by Dave Thomas, Sam Ruby, and David Heinemeier Hansson (2018). Jutta Eckstein (2003) analyzes transformation of Agile processes for smaller teams and their effect on architecture of the enterprise.

Mobile business technologies which allow providing unrivalled value to the customers, regardless of their actual location, are scrutinized by Nicholas D. Evans (2002); he addresses strategies and tactics of winning competitive advantages and the said technologies used for the purpose. The author suggests a complete step-by-step implementation plan for this kind of business: planning, process models, architecture, and implementation.

Alongside this, the majority of problems are in fact the human element ones, even in software; they cannot be solved with tools and technologies. So, numerous studies, in particular, the work by Amr Elsamadisy (2017), focus on aspects of personal flexibility, team building, communication, feedback, and all other team work skills.

Proceeding from the above, the hotel industry has a vital issue to face. On the one hand, this is the problem of developing the current system of theoretical and methodological knowledge in provision of sustainable development and competitiveness of Russian hotel facilities. The other aspect of the problem involves elaborating an alternative model of growth indicators for the hotel industry on the said basis using digital technologies, Agile transformation, and process frameworks.

## 3 Research Methodological Framework

For Russian hotel facilities, implementation of change management principles using digital technologies and Agile transformation of business can be an efficient toolkit to fulfill tasks of sustainable development and competitiveness. The objective of this research is to design an alternative model of growth indicators, or measures of growth, for the hotel industry based on digital technologies, Agile transformation, and process frameworks. There are the following research tasks: to analyze development of Russia's hotel industry market for the latest 5 years; to study methodological approaches available in the hotel business development, exploration and implementation of advanced methods, technologies, and tools of management in the hotel industry; to develop the authors' experimental proprietary model of the hotel business development (abbreviated as FIESD). The authors also aim to assess all factors directly or indirectly affecting the hotel facilities' ability to adapt to modern challenges and conduct Agile transformation of their business; to conduct a market study of the hotel services market of the Republic of Mordovia. Finally, the said tasks include testing out the FIESD model at the region's hotel facilities (those of the Republic of Mordovia) and building the proprietary model of growth indicators of Agile development transformation (FIESD) for the hotel business in the Republic of Mordovia.

For integrated appraisal of possibilities and prospects Agile transformation holds for the hotel business within the concept of sustainable development, the authors of the paper have developed the analytic hierarchy technique based on objective assessment. The analytic hierarchy method is a systematic procedure for hierarchical representation of elements determining the key research problem. The method consists in decomposing a problem into progressively simpler constituents and further processing the sequence of the decision-making person's judgments by pairwise comparisons. As a result, the relative degree (intensity) of interaction of the elements within the hierarchy can be expressed. According to the authors, this method can well be applied for integrated appraisal of all factors directly or indirectly affecting the hotel facilities' ability to adapt to modern challenges and conduct Agile transformation of their business.

The developed technique and criteria system of the new growth indicators for the hotel business relies on the analytic hierarchy method (AHM) and includes 3 criteria or approaches:

P1 takes into account the hotels' economic and competitive standing in the market;

P2 describes environmental friendliness and social development of the hotel facilities;

P3 represents their level of adaptation to environmental factors.

As the information basis of the research, the authors used data of the Federal State Statistics Service for 2019, as well as performance indicators of the hotel facilities in the Republic of Mordovia (Monitoring of Development of the Information Society in the Russian Federation, 2019).

#### 4 Results and Discussion

The hotel facility management model must be in line with all modern trends and must ensure efficient fulfillment of the principles of change management, Agile transformation, process frameworks, and sustainable development.

The following components can be suggested for the authors' experimental proprietary model of development of the hotel business: flexibility, inclusiveness, environmental friendliness, and social development (see Fig. 1).

Figure 1 Proprietary model of growth indicators for Agile development transformation of the hotel business



Source: compiled by the authors

This model (abbreviated as FIESD) is oriented to modern, adaptive, and innovation advance of the hotel business along the key lines, in particular:

- Flexibility: the flexible system of management is formed. Multiple variants of strategic development and tactical tools for fast adaptation to the dynamic market environment are prepared on the basis of Agile transformation and process frameworks;
- Inclusiveness: this is a principle up to which a hotel's activity is organized and its corporate climate is formed. It enables both employees and customers to participate in various aspects of the said activity (daily work processes, education, culture), regardless of their position, appearance, origin, gender, and health status, which improves satisfaction and the quality of personal and social development of the personnel, customers, and all stakeholders;
- Environmental friendliness: all-round use of the "green" technologies must not pass by the hotel industry, too. What is essential is not merely implementing environmental standards and using green power generation but applying the "green" thinking throughout the PDCA lifecycle stages;
- Social development: this is the most important constituent of the FIESD model. It implies integrated development of personnel and customer potential of the hotel facility. Here, the priority objective must involve consistent transition of customers and employees to a totally new level of development. New ways of meeting the potential customers' needs have to be achieved for the hotel service to become an inseparable part of life of every person (Uemura, 2017; Mitra, 2005).

The feature of the FIESD model is its implying a slightly different approach to quantitative assessment of economic, social, trend, and other factors of development of hotel facilities. There is no doubt that quantitative indicators cannot be abandoned completely but in the modern world, it is far not all factors that can and must be measured in figures. It is essential to suggest a technique which would successfully combine in itself the quantitative approach and qualitative characteristics. Meanwhile, the qualitative parameters have to occupy one of the

decisive places within it. As the basis for developing such a technique, the analytic hierarchy method can be adopted (AHM).

For integrated appraisal of possibilities and prospects Agile transformation holds for the hotel business within the concept of sustainable development, based on objective assessment, the authors have developed the analytic hierarchy technique. The analytic hierarchy method is a systematic procedure for hierarchical representation of elements identifying the key research problem. It consists in decomposing a problem into progressively simpler constituents and further processing the sequence of the decision-making person's judgments by pairwise comparisons. As a result, the relative degree (intensity) of interaction of the elements within the hierarchy can be expressed. In terms of the objective of this research, it provides an integrated approach to assessment of all factors directly or indirectly affecting the hotel facilities' ability to adapt to modern challenges and conduct Agile transformation of their business.

Based on the analytic hierarchy method, the technique and criteria system of the new growth indicators for the hotel business will rely on the following criteria: P1 – the criterion taking into account the hotels' economic and competitive standing in the market; P2 – the criterion describing environmental friendliness and social development of the hotel facilities; P3 – the criterion representing their level of adaptation to environmental factors.

Each criterion must have a scoring system to allow assessing it in an integrated way and identifying the key problem areas. According to the authors, the suggested criteria must include the following indicators.

1. Growth rate of hotel facilities' economic and competitive standing in the hotel services market for the latest 5 years:

1.1 The coefficient characterizing growth rate of the market share occupied by a hotel facility for the latest 5 years, k1;

1.2 The coefficient characterizing growth rate of EBITDA (earnings before interest, taxes, depreciation, and amortization) of the hotel facility, k2;

1.3 The coefficient characterizing growth rate of communication activity and the image level hotels for the latest 5 years, k3;

1.4 The coefficient characterizing growth rate of the range of primary and additional services of the hotel facility for the latest 5 years, k4;

1.5 The coefficient characterizing innovation initiative and benchmarking of the hotel facility, k5;

2. Environmental friendliness and social development of hotel facilities:

2.1 The coefficient characterizing environmental efficiency indicators of management, k6;

2.2 The coefficient characterizing environmental efficiency indicators of functioning, k7;

2.3 The coefficient characterizing satisfaction and stability of the hotel personnel, k8;

2.4 The coefficient characterizing involvement of the personnel and their commitment to organizational culture values, its power, k9;

2.5 The coefficient characterizing the proportion of loyal and committed customers of the hotel facility, k10;

2.6 The coefficient characterizing the implemented Diversity & Inclusion strategy which implies diversity and inclusiveness in personnel policy, possibilities for meeting employees' personal growth and creative potential objectives, regardless of their age, race, gender, or sexual orientation, k11;

3. Strategic flexibility of hotel facilities and their level of adaptation to environmental factors:

3.1 The coefficient characterizing the ability of the hotel facility to promptly respond to change of environmental factors, k12;

3.2 The coefficient characterizing change management and the quality of Agile transformation based on the Scrum technology (process framework) at the hotel facility, k13.

All selected criteria are compared with each other pairwise, and a relative degree of importance is found for each criterion in the pair. Based on the resulting comparison matrix, for each criterion, their relative importance value for achieving the set objective in general is determined.

Let preliminary ranking of indicators considering the hotels' economic and competitive standing in the hotel services market be conducted, with the rating (rank) of each of them found by Delphi procedure using the five-point scale (see Table 1).

Table 1 Rated scores of criteria associated with the new growth indicators for the hotel business in the hotel services market for the latest 5 years

Criterion	Rank
<b>1. Hotel facilities' economic and competitive standing in the hotel services market for the latest 5 years</b>	
The coefficient characterizing growth rate of the market share occupied by a hotel facility for the latest 5 years, k1	4,5
The coefficient characterizing growth rate of EBITDA (earnings before interest, taxes, depreciation, and amortization) of the hotel facility, k2	4,5
The coefficient characterizing growth rate of communication activity and the image level of the hotel for the latest 5 years, k3	3
The coefficient characterizing growth rate of the range of principal and extra services offered by the hotel facility for the latest 5 years, k4	2
The coefficient characterizing innovation initiative and benchmarking of the hotel facility, k5	1
<b>2. Environmental friendliness and social development of hotel facilities</b>	
The coefficient characterizing environmental efficiency indicators of management, k6	5
The coefficient characterizing environmental efficiency indicators of functioning, k7	5
The coefficient characterizing satisfaction and stability of the hotel personnel, k8	4
The coefficient characterizing involvement of the personnel and their commitment to organizational culture values, its power, k9	3
The coefficient characterizing the proportion of loyal and committed customers of the hotel facility, k10	2
The coefficient characterizing the implemented Diversity & Inclusion strategy which implies diversity and inclusiveness in personnel policy, possibilities for meeting employees' personal growth and creative potential objectives, regardless of their age, race, gender, or sexual orientation, k11	1
<b>3. Strategic flexibility of hotel facilities and their level of adaptation to environmental factors</b>	
The coefficient characterizing the ability of the hotel facility to promptly respond to change of environmental factors, k12	1,5
The coefficient characterizing change management and the quality of Agile transformation based on the Scrum technology (process framework) at the hotel facility, k13	1,5

Source: compiled by the authors

Next, rating of the criteria has to be compiled taking into account the degree of importance of each criterion to identify the contribution (weighting factor) of each of them into achievement of the set objective (Table 2).

Table 2 Rating of criteria of the new growth indicators for the hotel business in the hotel services market

Approaches	Rank
P1 – Economic and competitive standing of hotel facilities in the hotel services market	3
P2 – Environmental friendliness and social development of hotel facilities	2
P3 – Strategic flexibility of hotel facilities and their level of adaptation to environmental factors	1

Source: compiled by the authors

For each of the criteria suggested, significance weights of coefficients are determined using the scale of relative importance of the said approaches and priority vector identification using the analytic hierarchy method (Table 3).

Table 3 Priority vector identification

	K <sub>1</sub>	K <sub>2</sub>	K <sub>3</sub>	K <sub>4</sub>	K <sub>5</sub>	K <sub>6</sub>	K <sub>7</sub>	K <sub>8</sub>	K <sub>9</sub>	K <sub>10</sub>	K <sub>11</sub>	K <sub>12</sub>	K <sub>13</sub>	Geometrical mean (weight)	Importance
K <sub>1</sub>	1	1,00	1,50	2,25	4,50	1,35	1,35	1,69	2,25	3,38	6,75	9,00	9,00	2,551	0,153
K <sub>2</sub>	1,00	1	1,50	2,25	4,50	1,35	1,35	1,69	2,25	3,38	6,75	9,00	9,00	2,551	0,153
K <sub>3</sub>	0,67	0,67	1	1,50	3,00	0,90	0,90	1,13	1,50	2,25	4,50	6,00	6,00	1,701	0,102
K <sub>4</sub>	0,44	0,44	0,67	1	2,00	0,60	0,60	0,75	1,00	1,50	3,00	4,00	4,00	1,134	0,068
K <sub>5</sub>	0,22	0,22	0,33	0,50	1	0,30	0,30	0,38	0,50	0,75	1,50	2,00	2,00	0,567	0,034
K <sub>6</sub>	0,74	0,74	1,11	1,67	3,33	1	1,00	1,25	1,67	2,50	5,00	6,67	6,67	1,890	0,114
K <sub>7</sub>	0,74	0,74	1,11	1,67	3,33	1,00	1	1,25	1,67	2,50	5,00	6,67	6,67	1,890	0,114
K <sub>8</sub>	0,59	0,59	0,89	1,33	2,67	0,80	0,80	1	1,33	2,00	4,00	5,33	5,33	1,512	0,091
K <sub>9</sub>	0,44	0,44	0,67	1,00	2,00	0,60	0,60	0,75	1	1,50	3,00	4,00	4,00	1,134	0,068
K <sub>10</sub>	0,30	0,30	0,44	0,67	1,33	0,40	0,40	0,50	0,67	1	2,00	2,67	2,67	0,756	0,045
K <sub>11</sub>	0,15	0,15	0,22	0,33	0,67	0,20	0,20	0,25	0,33	0,50	1	1,33	1,33	0,378	0,023
K <sub>12</sub>	0,11	0,11	0,17	0,25	0,50	0,15	0,15	0,19	0,25	0,38	0,75	1	1,00	0,283	0,017
K <sub>13</sub>	0,11	0,11	0,17	0,25	0,50	0,15	0,15	0,19	0,25	0,38	0,75	1,00	1	0,283	0,017

Source: compiled by the authors

For convenient calculation, the weights were presented not in unit fractions but in percentage points:

$$K_{k3} = 15,3 * K_1 + 15,3 * K_2 + 10,2 * K_3 + 6,8 * K_4 + 3,4 * K_5 + 11,4 * K_6 + 11,4 * K_7 + 9,1 * K_8 + 6,8 * K_9 + 4,5 * K_{10} + 2,3 * K_{11} + 1,7 * K_{12} + 1,7 * K_{13}$$

So, 4 ranges of values can be singled out for each of the selected indicators (Table 4).

Table 4 Criteria scorecard of the new growth indicators for the hotel business in the hotel services market broken down according to groups

Indicators	Group 1	Group 2	Group 3	Group 4
K <sub>1</sub>	Growth of the market share is less than 1% (k < 1)	Growth of the market share is from 1% to 5% (k = 1-5)	Growth of the market share is from 5% to 10% (k = 5-10)	Growth of the market share is over 10% (k > 10)
K <sub>2</sub>	EBITDA growth rate is less than 5% (k < 5)	EBITDA growth rate is from 5% to 20% (k = 5-20)	EBITDA growth rate is from 20% to 50% (k = 20-50)	EBITDA growth rate is over 50% (k > 50)
K <sub>3</sub>	Costs for the marketing communications mix stagnate or are cut back; the image goes down or remains unchanged (k < 1)	Spending for the MCM is increased up to 10% per year; the image is on the rise of up to 5% per year (k = 1,2 - 1,5)	Spending for the MCM is increased within 10-25% per year; the image grows by 5-15% per year (k = 1,5 - 1,8)	The annual spending for the MCM is over 25% higher; the image is enhanced more than 15% per year (k > 1,8)
K <sub>4</sub>	The range of primary and extra services is not changed. The chain of branches is not expanded. Digital technologies are not implemented. (k = 1)	Primary services are not expanded. The quantity of extra services is up to 10% more. They start implementing digital technologies. The chain of branches is not expanded. (k = 1-5)	There is up to 10% expansion of primary services. The quantity of extra services is up to 20% more. Digital technologies are implemented extensively. They start expanding the chain (opening 1-2 branches). (k = 5-20)	There is a 10-30% expansion of primary services. The quantity of extra services goes up to 20-50% more. Digital technologies are implemented extensively. They are active in zooming the chain (with 3-5 branches opened). (k > 20)
K <sub>5</sub>	Innovations are used poorly, and no benchmarking is in use. (k = 1)	Innovations are implemented at a slow pace only, less than 5% per year. Benchmarking is not used. (k = 1-5)	Innovations are implemented at the level of leading companies up to 20% per year. They start using benchmarking. (k = 5-20)	The hotel facility features a high innovation initiative (from 20 to 50%). Best practices are studied and benchmarking is used extensively. (k > 20)
K <sub>6</sub>	The managers do not consider environmental questions. There is no environmental efficiency standard in place (ISO 14031 is ignored).	The environmental constituent starts gaining a certain status, although a formal one only. The environmental efficiency standard is	The managers realize the importance of environmental issues in the activity of the hotel facility. Environmental standards are developed within ISO	The questions of environmental protection, energy efficiency, and the use of "green" technologies are the managers' top priority.

Indicators	Group 1 (k = 0)	Group 2 developed. ISO 14031 is considered. (k = 1)	Group 3 14031; adjustments are made to the development strategy and programs. (k = 2)	Group 4 Both the ISO 14031 environmental efficiency standard and the BREEAM environmental standard are implemented. (k = 3)
K <sub>7</sub>	Energy saving technologies, environmentally friendly raw materials and supplies, control of waste and recycled materials, etc. are not used. (k = 0)	They start using energy saving technologies. There is still no control of exhaust products and level of waste. (k = 1)	Energy saving technologies, control of waste and recycled materials are used extensively. (k = 2)	The use of "green power generation", environmentally friendly raw materials and supplies, control of waste and recycled materials, etc. are implemented. (k = 3)
K <sub>8</sub>	The personnel turnover rate is high. There is no personnel policy. The employees' satisfaction is low. (k = 0)	The personnel turnover rate is medium. They start developing personnel policy. The employees' satisfaction is average, too. (k = 1)	The personnel turnover rate is low. Personnel policy has been developed and implemented. The hotel employees' satisfaction is high. (k = 2)	The personnel turnover rate is extremely low. The hotel has personnel policy and strategy developed and implemented for all categories of employees. The employees are the principal resource of the hotel, and their satisfaction is maximal. (k = 3)
K <sub>9</sub>	There is absolutely no loyalty of the personnel. Organizational culture sits at level 0. (k = 0)	There is little loyalty of the personnel. Organizational culture is at the basic level of development. (k = 1)	Loyalty of the personnel is at the high level. An efficient incentive system encompassing all categories of employees is up. There is formalized organizational culture in the form of corporate standards, codes of ethics, and values. (k = 2)	The personnel are committed to values and principles of the hotel facility. They believe themselves to be a part and parcel of the company. (k = 3)
K <sub>10</sub>	There is absolutely no customer loyalty. The customer database is formed in a random way; the work on formation and maintenance thereof is in the nascent condition. (k = 0)	There is little customer loyalty. The customer database is maintained diligently. There is a basic incentive program for repeat guests. (k = 1)	Customer loyalty is at the high level. There is an elaborate efficient incentive system for standing customers. The customer database keeps expanding. (k = 2)	Customer loyalty is high, the customers are committed to values and principles of the hotel facility. They believe themselves to be an integral part of the company. (k = 3)
K <sub>11</sub>	There is no policy of Diversity & Inclusion, toward both the personnel and customers. (k = 0)	The personnel policy is underway; it implies transparent career growth. The customer policy is equal for all categories of potential customers. (k = 1)	For all categories of the hotel employees, there are an HR strategy, an efficient system of career and personal growth. Customers' individual requirements and wishes are taken into account. (k = 2)	There is the Diversity & Inclusion strategy. Diversity and inclusiveness are observed in both personnel and customer policies.
K <sub>12</sub>	There is no possibility to adapt to environmental factors. (k = 0)	The minimum number of environmental factors are considered. (k = 1)	Adaptation to changes of the environment is effective. (k = 2)	The hotel facility is proactive (forward-looking) to changes of the environment.

Indicators	Group 1	Group 2	Group 3	Group 4
K <sub>13</sub>	There is no change management system. The development of information systems and business processes is at the basic level. (k = 0)	Standard and universal information technologies are implemented. Some business processes are streamlined. (k = 1)	Modern adapted information systems are in use. All business processes are streamlined. Change management is at the basic level. (k = 2)	Change management and Agile transformation based on the Scrum technology are implemented at the hotel facility. (k = 3)

Source: compiled by the authors

Further on, depending on their score in the developed hotel facilities assessment scale, the hotel facilities are ranked into classes characterizing their levels of possibilities and prospects of Agile business transformation. The scale includes 5 classes of enhancing Agile transformation based on the sustainable development concept; for ranking, the lower and higher limits of the groups are substituted in the above assessment formula (Table 5).

Table 5 Growth indicators for the hotel business in the hotel services market. Results of appraisal

Class	Score	Features
1	Over 521	The hotel facilities use modern information technologies, flexible (matrix) organizational structures of management, team work principle; they feature the high organizational culture and personnel involvement into the end result of the work. Here, the practice of change management and Agile transformation based on the Scrum technology is used in the hotel facilities' activity extensively.
2	217–520	These hotel facilities are distinguished by the high level of competitiveness and sustainable development. Here, they already use modern adapted information systems, and all business processes are streamlined. Change management is at the medium level. The access to information about their activity is quite open, and available resources are used efficiently. In general, all indicators (personnel loyalty, HR policy, etc.) are very close to the optimal values.
3	93–216	The basic level of change management and sustainable development is formed which is assessed as satisfactory. This can be caused by two factors: either managers do not consider this question a priority one, or they only start implementing standards of the process approach to change management. Extensive use of information systems, optimization of key business processes, formation of the database of loyal customers, and the good personnel policy can be traced.
4	55–92	Efficiency of the sustainable development system is very low. Quality management system standards are not observed, and the information about activity is not transparent. One can note some attempts to implement modern universal information systems, optimization of some business processes, as well as management of the customer database. There are no environmental efficiency standards.
5	Under 54	These hotel facilities (chains) are on the brink of survival or closing down. They are not stable, not adapted to changes of the environment. Their implementation of information systems is poor, there is no optimization of business processes, and little attention is paid to the personnel policy, working with customers, and environmental management.

Source: compiled by the authors

The shared principles behind this appraisal are the principle of objective and well-reasoned assessment, the target principle, those of consistency, centralization (availability of a person responsible for conducting the appraisal), and continuous improvement.

As can be seen from the above table, according to results of analyzing the possibilities and prospects of Agile transformation of the hotel business, one can conclude to which group a particular hotel facility or hotel chain belongs. Further on, this can serve as a tool for making relevant managerial decisions and reorganizing the hotel facility management.

The authors have tested out their model using the case of the region's hotel enterprises – those of the Republic of Mordovia. More specifically, it was the hotel facilities of Saransk city that were included into the scope.

The Republic of Mordovia becomes increasingly attractive for tourists to visit. In recent years, the 11% growth of the indicator

has been an objective confirmation of progress of the country's tourism. In 2020, Mordovia counted 85 collective accommodation facilities, with 65 of them being hotels and similar facilities, 20 – health-resort organizations and recreational organizations. In the market of Saransk city, there are two representatives of the international hotel chains. Inventory of the collective accommodation facilities amounted to 3210 rooms as of the year end (Monitoring of Development of the Information Society in the Russian Federation, 2019).

The collective accommodation facilities served the total of 136,6 thousand people during the year; 7,5% of the total count of guests were foreign citizens. In 2019, the income earned by the collective accommodation facilities rendering their services made 1020,6 million rubles (Monitoring of Development of the Information Society in the Russian Federation, 2019).

The volume of the hotel services market in the Republic of Mordovia plotted over time is shown in Figure 2 (compiled using the data of the official website of the Federal Tourism Agency of the RF).

Figure 2 Volume of the hotel services market in the Republic of Mordovia plotted over time, million rubles



Source: compiled by the authors according to the data of the Ministry of Economy, Trade, and Entrepreneurship of the Republic of Mordovia

It is clear from the diagram that the volume trend of the hotel services market in the Republic of Mordovia follows a repeated pattern. In 2016, a slight downturn of sales is observed in the hotel market lowering to 520,2 million rubles. In 2017, the volume of the market resumed growing to hit its maximum in 2018 at the size of 2764,1 million rubles. The increment is associated with the FIFA event held in Saransk. In 2019, sales of Mordovia's hotel market fell back to 567,2 million rubles.

Here is the range of primary services offered by the hotels of Saransk city, the Republic of Mordovia:

- Hotel services;
- Reception and accommodation of foreign and Russian tourists;
- Culture and entertainment, show, concert services;
- Catering services;
- Renting out rooms to organizations, etc. (see Table 6).

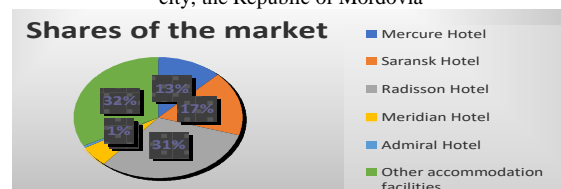
Table 6 Standard services offered by the hotels of Saransk city in the Republic of Mordovia

Basic rate, breakfast not included	Basic rate, breakfast included	Half-board rate	Full board rate
The rate includes: 1. Accommodation of the selected category Complementary options: 1. Wi-Fi 2. Using the swimming pool 3. Using the gym (from 07.00 till 00.00) 4. Guarded parking	The rate includes: 1. Accommodation of the selected category 2. Buffet breakfast Complementary options: 1. Wi-Fi 2. Using the swimming pool 3. Using the gym (from 07.00 till 00.00) 4. Guarded parking	The rate includes: 1. Accommodation of the selected category 2. Buffet breakfast 3. Buffet supper Complementary options: 1. Wi-Fi 2. Using the swimming pool 3. Using the gym (from 07.00 till 00.00) 4. Guarded parking	The rate includes: 1. Accommodation of the selected category 2. Buffet breakfast 3. Set lunch 4. Buffet supper Complementary options: 1. Wi-Fi 2. Using the swimming pool 3. Using the gym (from 07.00 till 00.00) 4. Guarded parking

Source: compiled by the authors according to the companies' data

Figure 3 shows the shares of the market held by the leading hotel facilities of Saransk city of the Republic of Mordovia. The total of sales for the industry (the 2019 data) was 347,4 million rubles (Monitoring of Development of the Information Society in the Russian Federation, 2019). Broken down to principal hotels individually, the sales volumes and respective shares in percentage points are as follows: Mercure Saransk Center – 43,4 million rubles – 12,5%; Saransk – 60,1 million rubles – 17,3%; Radisson Hotel & Congress Center Saransk (in 2019, the hotel was branded as Four Points by Sheraton) – 108,9 million rubles – 31,3%; Meridian – 19,1 million rubles – 5,5%; Admiral – 2,5 million rubles – 0,7%.

Figure 3 Market shares of the leading hotel facilities in Saransk city, the Republic of Mordovia

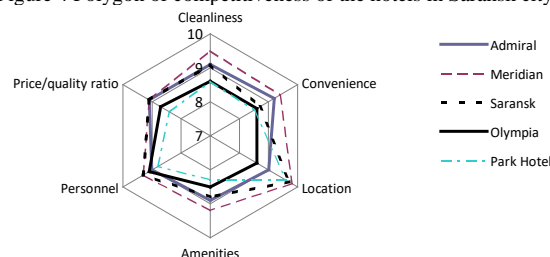


Source: compiled by the authors according to the companies' data

Thus, the hotel services market of Saransk city is represented by quite large hotels occupying considerable shares of the market each; rather pronounced competitor pressure is noted, too.

Polygon of competitiveness of the hotel facilities of Saransk city is given in Figure 4.

Figure 4 Polygon of competitiveness of the hotels in Saransk city



Source: compiled by the authors according to the companies' data

According to the data of calculating the index of competitiveness, the rating of all hotels of Saransk city has been compiled (Table 7). The indicator characterizing hotel employees' satisfaction and stability is quite high in the city hotels.

Table 7 Hotels in Saransk city. Index of Competitiveness

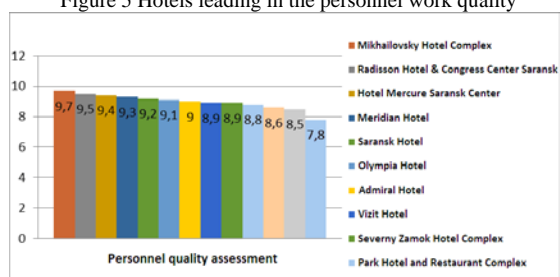
Hotels	Index of Competitiveness
Meridian Hotel	9,3
Radisson Hotel & Congress Center Saransk	9,4
Hotel Mercure Saransk Center	9,5
Admiral Hotel	9
Hotel and Restaurant Complex Park Hotel	8,6
Mirta Hotel	7,7
Olympia Hotel	8,7
Saransk Hotel	9
Severny Zamok Hotel Complex	8,7
Hotel Complex Mikhailovsky	9
Sura Hotel Complex	9,1
Rassvet Hotel	8,4
Apartment on Lesnaya Str.	9,3
Apartment on Rossiyskoy Armii Avenue	10
Apartment on Popova Str.	9,4
Apartment on Soviet Square	9,6
Rosemary Inn (mini-hotel)	9,3
Raiskoe Mestechko Guest House	8,3
Vastoma Mini-Hotel	8,8

Source: compiled by the authors according to the companies' data

As the greater part of the city's collective accommodation facilities score high on the personnel work quality, from 8 to 10

points (Booking.com), it makes sense singling out 3 principal zones of the said hotels. The first one is the high price segment zone, featuring the high service level and best indicators in assessment of work of their personnel (all scores are over 8,8). The second one is the medium price segment zone, with the high- and medium-level service. In this zone, as for personnel work quality points, the scatter band is the widest (ranging from 8,2 to 9,9 points). The third zone is the low price segment one (at under 1000 rubles per night); it has the medium service level and rather good scores in the personnel work (8,5 – 9,5 points). Figure 5 shows the hotels leading in their personnel work quality.

Figure 5 Hotels leading in the personnel work quality



Source: compiled by the authors according to the data of the Booking.com website

The indicator characterizing the proportion of loyal and committed customers of hotel facilities relies on assessing their satisfaction first of all. Based on customer reviews, various online booking websites offer a 10-point scale rating of hotels. Let scores of the hotels of Saransk city on the most well-known websites – booking.com, tripadvisor.ru, and 101hotels.ru – be considered (Table 8).

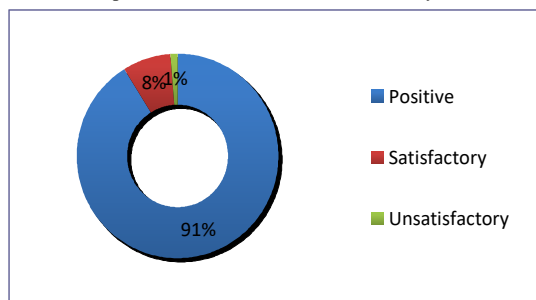
Table 8 Scores of the hotels of Saransk city on online booking websites

Website	Radisson Hotel & Congress Center Saransk	Mercure Saransk Center	Olympia Hotel	Admiral Hotel	Meridian Hotel	Saransk Hotel	Park Hotel
101Hotels.ru (0-10)	9,2	9,3	8,9	9,1	9,4	9,1	8,8
Booking.com (0-10)	9,0	9,1	8,7	9	9,3	9	8,3
Tripadvisor.ru (0-5)	5,0	4,9	4	4,5	4,5	3,5	3,1
Oteleus.ru (0-5)	4,8	4,9	4,2	4,5	4,6	4,3	4,0
Average score	7,0	7,1	6,45	6,77	6,95	6,47	6,05

Source: compiled by the authors according to the data of booking websites

The hotels of the city have many positive reviews and acknowledgements. As for negative reviews, there are about 9% of them (Figure 6).

Figure 6 The structure of reviews on the Booking.com web portal about the hotels of Saransk city

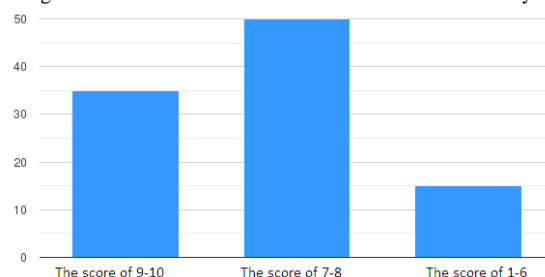


Source: compiled by the authors according to the data of the Booking.com website

To find out the customers' satisfaction level, a questionnaire survey of consumers of the city's hotel services was conducted.

The customers were asked the question: "How likely would it be for you to recommend the city's hotels to your friends?" According to their answers, the respondents were subdivided into three groups (see Figure 7).

Figure 7 Answers of customers of the hotels in Saransk city



Source: compiled by the authors according to findings of the research

Those estimating the likelihood at 9-10 are loyal customers of a hotel facility who are ready to recommend it to their friends; the percentage of such answers was 35%.

The scores of 7-8 were marked by customers who were satisfied with their hotels in general but had no wish to recommend them to others; there were 50% of such respondents.

The customers who gave 1-6 points were not satisfied with their hotel facilities, will not recommend them, and might be looking for an alternative. Their number was 15%.

$$NPS = \% \text{ of "advocates"} - \% \text{ of "critics"} = (35/100) - (15/100) = 0,5 = 50\%$$

The good indicator on loyalty is considered to be the figure of 50% and higher, so the loyalty of customers of the hotels in Saransk city is quite high.

The coefficient characterizing environmental efficiency indicators of management is associated with hotel management methods involving "green" technologies. The city's leading hotels, namely, Hotel Mercure Saransk Center, and Radisson Hotel & Congress Center Saransk, emphasize saving water. For that, they have a number of methods implemented: water-saving shower heads, more efficient washing machines, reuse of water, etc. Many hotels do not use disposable plastic dishes. Alongside this, the city's hotels offer their guests to opt out of having their bed clothes, bathrobes, and slippers changed unless it is absolutely necessary, and so on. The hotels also encourage opting out of daily room cleaning at least sometimes; as a compensation, extra points in loyalty program, discounts for the hotel services, etc. can be offered to these guests (Kabushkin, 2017; Ponkratov et al., 2016; Lapyghin, 2017; Yankina, 2018).

To build the proprietary model of growth indicators of Agile development transformation for the hotel business of the Republic of Mordovia (FIESD), let the indicators of competitiveness of the regions' hotels and scores in the criteria of the new growth indicators of the hotel business be presented as a table. Based on statistic data and the conducted analysis of the hotel facilities, let rating of the criteria of the new growth indicators for the hotel business in the hotel services market of Saransk city be compiled (Table 9).

Table 9 Indicators for building the proprietary model of growth indicators of Agile development transformation for the hotel business of the Republic of Mordovia (FIESD)

Names of the collective accommodation facilities	Scores in the criteria of the new growth indicators	Index of competitiveness
Meridian Hotel	290	9,3
Radisson Hotel & Congress Center Saransk	382	9,4
Hotel Mercure Saransk Center	387	9,5
Admiral Hotel	255	9
Park Hotel and Restaurant Complex	300	8,6

Names of the collective accommodation facilities	Scores in the criteria of the new growth indicators	Index of competitiveness
Mirta Hotel	175	7,7
Olympia Hotel	180	8,7
Saransk Hotel	180	9
Severnoy Zamok Hotel Complex	180	8,7
Hotel Complex Mikhailovsky	162	9
Sura Hotel Complex	220	9,1
Rassvet Hotel	76	8,4
Apartment on Lesnaya Str.	170	9,3
Apartment on Rossiyskoy Armii Avenue	190	10
Apartment on Popova Str.	170	9,4
Apartment on Soviet Square	180	9,6
Rosemary Inn (mini-hotel)	50	9,3
Raiskoe Mestechko Guest House	150	8,3
Vastoma Mini-Hotel	100	8,8

Source: compiled by the authors according to findings of the research

Based on the analytic hierarchy technique and the conducted study of the hotel facilities of the Republic of Mordovia, let scores of criteria of the new growth indicators for the hotel business in the hotel services market be rated (Table 10).

Table 10 Hotels of Saransk city. Rated scores of criteria associated with the new growth indicators for the hotel business in the hotel services market for the latest 5 years

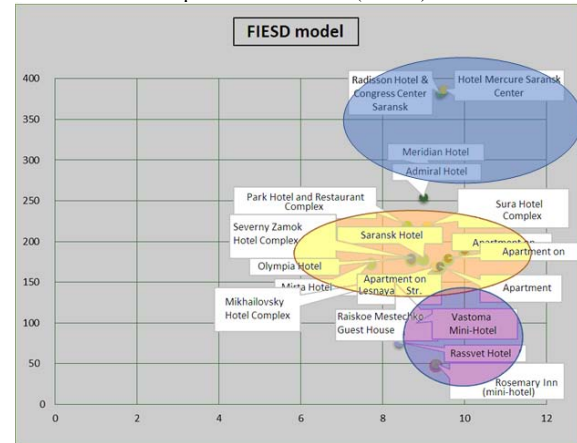
Indicators	Hotels																		
	Meridian	Radisson Hotel	Mercure	Admiral	Park Hotel	Mirta	Olympia	Saransk	Severnoy Zamok	Mikhailovsky	Sura	Rassvet	Appt. on Lesnaya Str.	Appt. on Rossiyskoy Armii Avenue	Appt. on Popova Str.	Appt. on Soviet Square	Rosemary Inn	Raiskoe Mestechko Guest House	Vastoma
1. The hotel facilities' economic and competitive standing in the hotel services market for the latest 5 years																			
k1	10	20	20	15	15	13	10	10	10	10	16	10	10	10	10	10	6	12	7
k2	34	34	34	10	34	18	10	14	18	10	10	18	10	18	10	10	2	20	10
k3	20	27	27	14	20	12	14	10	10	14	14	10	14	10	14	14	3	7	7
k4	18	28	28	18	18	14	18	14	10	18	18	14	18	14	14	18	4	12	8
k5	10	20	20	15	15	13	10	10	10	10	16	10	10	10	10	10	6	12	7
2. Environmental friendliness and social development of the hotel facilities																			
k6	27	27	27	23	27	17	13	17	17	17	23	10	17	13	17	13	5	14	14
k7	23	28	28	27	23	13	17	13	13	17	17	13	17	13	17	13	5	5	7
k8	21	31	31	26	21	19	21	21	22	13	26	5	19	19	19	21	5	11	6
k9	25	35	35	25	25	10	15	15	8	25	4	10	10	10	15	15	4	11	7
k10	22	32	32	32	22	21	22	21	21	22	9	21	22	21	22	22	4	13	7
k11	20	25	25	30	25	10	10	10	10	20	4	10	10	10	10	10	4	9	9
3. Strategic flexibility of the hotel facilities and their level of adaptation to environmental factors																			
k12	40	45	50	13	40	9	10	10	10	9	3	9	13	9	10	10	3	7	4
k13	20	30	30	12	20	9	10	10	10	9	2	9	12	9	10	10	2	9	6
TOTAL:	290	382	387	255	300	175	180	180	180	162	220	76	170	190	170	180	50	150	100

Source: compiled by the authors according to findings of the research

The FIESD matrix of development of the region's hotel facilities has to be plotted for consistent representation of the quality of growth indicators. It implies quantitative correlation of Agile transformation indicators and the competitiveness level of the region's hotels.

Based on the table data, let the proprietary model of growth indicators of Agile development transformation be built for the hotel business of the Republic of Mordovia (FIESD) (see Fig. 8).

Figure 8 Proprietary model of growth indicators of Agile development transformation for the hotel business in the Republic of Mordovia (FIESD)



Source: compiled by the authors according to findings of the research

Results of building of the FIESD model have shown that the hotels of the Republic of Mordovia can be subdivided into 3 principal classes according to results of appraisal of the hotel business growth indicators and competitiveness indices: classes 2, 3, and 4. None of the region's hotel facilities belongs to hotel class 1 (scoring over 521 points).

Class 2 hotels (with 217-520 points) are Radisson Hotel & Congress Center Saransk, Hotel Mercure Saransk Center, Meridian Hotel, Admiral Hotel, Hotel and Restaurant Complex Park Hotel, and some others; they are distinguished by the high level of competitiveness and sustainable development. These hotels use modern adapted information systems and streamline all their business processes. Their change management is at the medium level. On balance, all indicators (employees' loyalty, personnel policy, etc.) are very close to the optimum values.

Class 3 hotels (93-216 points) include Olympia Hotel, Saransk Hotel, Mirta Hotel, and others. For them, the basic level of change management and sustainable development is characteristic which is also evaluated as satisfactory. Here, one can trace active use of information systems, optimization of key business processes, an established base of loyal customers, and good personnel policy.

The hotels of class 4 (those having 55-92 points) are Vastoma Mini-Hotel and Rassvet Hotel. They are distinguished by the low efficiency of sustainable development system. Quality management system standards are not adhered to, and the information about their activity is not transparent. One can note some attempts to implement modern universal information systems and to streamline some business processes. Environmental efficiency standards are not in place at class 4 hotels.

Only one hotel facility of the above, Rosemary Inn, scored less than 54 points (so, it belongs to class 5). This hotel is poorly adapted to changes of the environment; it lacks implementation of information systems, streamlining of business processes. Here, little attention is paid to personnel policy, working with customers, and environmental management, too.



## 5 Conclusion

Thus, the authors of the paper have developed the technique of analytic hierarchy for integrated appraisal of possibilities and prospects of Agile transformation of the hotel business within the concept of sustainable development. Within the research, analysis of the five-year progress of Russia's hotel industry market has been conducted; in terms of development of the hotel business, methodological approaches have been identified based on the use of advanced methods, technologies and tools of management adopted by the hotel industry. Alongside this, the authors' proprietary model of development of the hotel business (FIESD) has been developed. Factors affecting the ability of the hotel facilities, both directly and indirectly, to adapt to the current challenges and conduct Agile transformation of their business have been evaluated. The authors have also conducted a market study of hotel services of the Republic of Mordovia, based on which they have designed their proprietary model of growth indicators for Agile development transformation of the hotel business in the Republic of Mordovia (FIESD).

Oriented to the modern, adaptive, and innovation development of the hotel business, this model (FIESD) has allowed highlighting problem areas and growth points in the development of the hotel enterprises of the Republic of Mordovia.

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**Primary Paper Section:** A

**Secondary Paper Section:** AE, AH