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SYSTEMATIC TRANSFORMATION OF QUALITY MANAGEMENT IN TOURISM AND HOTEL BUSINESS SPHERE IN MILITARY CONDITION

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СИСТЕМНІ ТРАНСФОРМАЦІЇ МЕНЕДЖМЕНТУ ЯКОСТІ У СФЕРІ ТУРИЗМУ І ГОТЕЛЬНОГО БІЗНЕСУ В УМОВАХ ВОЄННОГО СТАНУ

In the conditions of military conditions, the domestic actors of tourism and hotel business are increasingly oriented to work through Internet services for planning trips and Internet services of formation of individual routes of travel, on which you can buy tickets for the plane, train, various excursions, in museums and theaters, learn about interesting places and useful services in "one-window" mode. There is a practice of organizing and selling virtual tours to cities, museums, etc. Each quality management function has a physical infrastructure (which generalizes its operating systems) and a virtual IT infrastructure (which generalizes hardware, system, and network). Therefore, there are transformations of their quality management due to transferring their physical and virtual IT infrastructures with quality management to the third-party operator cloud. In this cloud, the quality management functions take on a new meaning. Thus, the article aims for peculiarities detailed description of the systematic transformation of the management system of quality management of tourism and hotel business of military conditions. According to the survey results, systematic quality management transformations in the

tourism and hotel business sphere are any changes, as a result of which the mechanism of quality management acquires new content. These transformations can be full or partial, as a result of the development and deepening of migration processes in the cloud of physical and virtual IT-infrastructures with quality management. Among such processes: backup, replication, files, and directories synchronize, and the entire system synchronizes. According to the research results, the completed transformations of quality management, not just type, forms, and essential properties of management conversion that affect the whole quality management system, but also other types of activity. Such transformation realizes if migration processes in the cloud IT-infrastructure of quality management are characterized by synchronization of the whole system of quality control simultaneously with synchronization of other types of activity that influence the quality of products. The result provides for the creation of a new system. Prospects for further research in this direction involved the possibility of using the data concerning systematic transformations of quality management systems in tourism and hotel business for the cycle of continuous improvement Deming adaptation for military conditions.

В умовах воєнного стану вітчизняні суб'єкти сфери туризму і готельного бізнесу все більше орієнтовані на роботу через інтернет-сервіси планування поїздок та інтернет-сервіси формування індивідуальних маршрутів подорожі (на яких можна купити квитки на літак, поїзд, різні екскурсії, в музеї та театри, дізнатися про цікаві місця та корисні послуги в режимі "одного вікна"). Наявна практика організації та продажу віртуальних екскурсій містами та музеями тощо. Кожна з функції керування якістю має фізичну інфраструктуру (що узагальнює її операційні системи) та віртуальну IT-інфраструктуру (що узагальнює апаратні засоби, системне та сполучне ОП). Відтак, паралельно відбуваються трансформації менеджменту якості, у межах яких наявне перенесення власних фізичних та віртуальних IT-інфраструктур з управління якістю у хмару стороннього оператора (де функції керування якістю набувають якісно нового змісту). Стаття спрямована на опис особливостей системної трансформації системи менеджменту якості сфери туризму і готельного бізнесу в умовах воєнного стану. У межах дослідження доведено, що системні трансформації менеджменту якості у сфері туризму і готельного бізнесу — це будь-які його зміні, внаслідок яких він набуває якісно нового змісту, щодо механізму керування якістю. Ці трансформації набувають повного або часткового характеру, внаслідок розвитку та поглиблення таких процесів міграції в хмару фізичних та віртуальних IT-інфраструктур управління якістю, як: бекап; реплікація; синхронізація файлів і каталогів; синхронізація всієї системи. Додатково за результатами дослідження доведено, що завершені трансформації менеджменту якості — це не тільки перетворення виду, форми, істотних властивостей менеджменту, які зачіпають всю систему керування якістю, але й інші види діяльності. Така трансформація відбувається лише якщо процеси міграції в хмару IT-інфраструктур з управління якістю характеризуються синхронізацією всієї системи керування якістю одночасно з синхронізацією за іншими видами діяльності, що впливають на якість продукції (робіт, послуг). Результат забезпечує утворення нової, цілісної системи. Перспективи подальших розвідок у даному напрямі полягають у можливості використання даних, щодо системних трансформацій менеджменту якості у сфері туризму та готельного бізнесу, для адаптації циклу постійного поліпшення Демінга до умов воєнного стану.

Key words: quality management functions, migration processes into clouds, significant management properties, virtual IT-infrastructures, operating systems.

Ключові слова: функції керування якістю, процеси міграції в хмару, істотні властивості менеджменту, віртуальна IT-інфраструктура; операційні системи.

FORMULATING THE GENERAL ISSUE AND DEFINING ITS CONNECTION TO SIGNIFICANT OR PRACTICAL TASKS

Russia's massive invasion of Ukraine on February 24, 2022, has created new realities for the tourist and hotel business. These realities, first of all, are connected with the systemic transformations of quality management caused by the migration of the physical and virtual IT infrastructure that realizes such management mechanism functions to the third-party operator cloud. The high functionality of clouds and their services should be noted, as they allow, through the capabilities of the virtual data center, to collect and process any amount of data, the processes, and resources necessary for the general management of quality and to ensure their safety. However, the main reasons caused for such transformations are formed by the consequences of the economic recession, the rise in fuel prices, and the fall in demand for tickets, and package tours, as a result of which dozens of hotel enterprises, tourist agencies, and tour operators have disappeared from the market. At the same time, in increasingly dangerous conditions, the specifics of production and employment of labor resources and work with clients have changed. In particular, 15 to 20% of tourist and hotel business enterprises in the market are reoriented to work in Internet services and convert the majority of employees and communications with clients to a remote mode. They gradually abandon physical and virtual infrastructure for quality management in favor of cloud services. There was a significant decrease in the effectiveness of the activity of such sphere subjects. The priority has been to manage the quality of products (works, services) without significant investments in the software, which forms possibilities to use it anywhere in the world.

THE ANALYSIS OF THE LAST RESEARCHES AND PUBLICATIONS IN WHICH THE SOLUTION OF THIS PROBLEM IS BEGUN

Among the most informative sources in which the transformations of the quality management system research there are Stepanenko T. [5], Tarasyuk G., Babych N. [6], Smernitsky D. [4], and Pankova L. [3]. At the same time, in the mentioned works, there are enough processes of transformation of quality management systems, among them conditioned by the adoption of normative-legal acts and domestic and international standards of quality ISO. The quality system transformations in military conditions arise, are radically different, and are currently uninvestigated.

THE OBJECTIVES OF THE PAPER (GOAL SETTING)

The article aims for peculiarities detailed description of the systematic transformation of the management system of quality management of tourism and hotel business of military conditions.

THE PAPER MAIN BODY WITH FULL REASONING OF ACADEMIC RESULTS

In military conditions, domestic actors in the tourism and hotel business are increasingly oriented to work through Internet services planning trips and Internet services of formation of individual routes of travel (where you can buy tickets for the plane, train, various excursions, museums, and theaters, learn about interesting places and useful services in the "one-stop" mode). There is a practice of organizing and selling virtual tours to cities and museums of Ukraine and countries of the world, digital road shows, etc. (this creates an attractive image of the city or tourist attraction and forms an urgent demand for travel).

Each of the quality management functions has a physical infrastructure (which generalizes its operating systems) and a virtual infrastructure (which generalizes hardware (servers, storage systems, client systems, network equipment), system and communication software). Therefore, there are transformations of their quality management, in particular, due to transferring their own physical and virtual IT infrastructures with quality management to the third-party operator's cloud (for example, Microsoft, Google, EULA, Kamatera). In this cloud, the quality management functions take on a new meaning.

This new meaning determines [2]:

1) organization of maximum personalized, omnichannel interaction between quality managers and employees responsible for complying with quality regulations;

2) digital channels of communication for all employees, what are involved in the functions, mechanism of quality management forming;

3) flexibility and speed up of operations, functions of quality management firming (quick decision-making, operations adaptation to the current moment and customer needs requirements);

4) innovative opportunities for development (simultaneous work with one function of several managers, ready-made quality solutions, strategy Mobile First);

5) modern technologies for working with data (information technologies to operational processes in the product's life cycle and resources corresponding in the quality field).

In addition to the foregoing, new content of quality management mechanism of tourism and hotel business provides for synchronization, digitization of its functions (and hence kind, forms, a significant characteristic of the management), modification of the content of corrective influence.

Accordingly, the new content of the quality management mechanism in the tourism and hotel business sphere is presented in Fig 1.
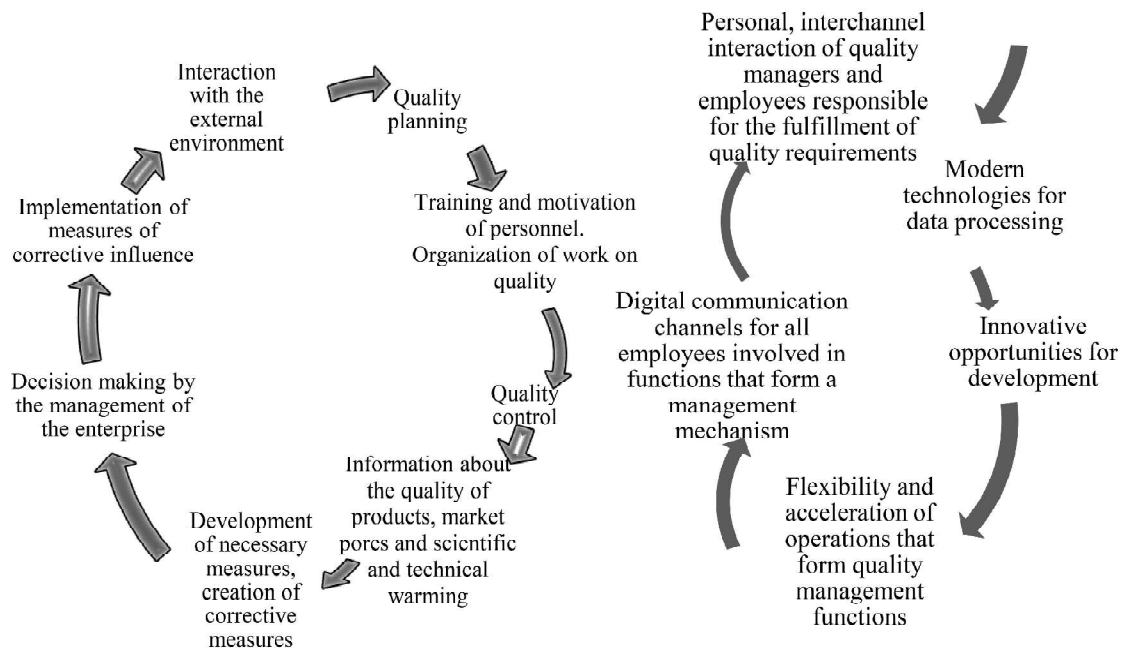
Quality functions (Circle 1) Expand the contents of the function (Circle 2)

Note
* Circle 1 — function conversions (they become synchronized, digitized); Circle 2— the content of corrective influence modification.

Fig. 1. The new content of the quality management mechanism in the tourism and hotel business sphere

Source: Created by the author basis on [1; 3].

Table 1. The content of processes migration to the cloud IT infrastructure quality management of tourism and hospitality business entity backup uses

Processes typology	The content of processes	Result of backup	Transformable function
Data transfer operates product life cycle (works and services) and relevant resources to achieve the objectives in the field of quality. Data transfer from the «Iron» server to the cloud.	Stage 1. installation business entity into their physical server Veeam Agent*; Stage 2. Creates the virtual server with a capacity identical to the one that client had earlier. Stage 3. Running the virtual machine Using the image of Veeam Recovery Media. Stage 4. All data recovering using backup (if they exist in the repository)	All information for performing primary quality management functions is stored on a remote protected platform (without access to unauthorized users). Setting Goals in quality planning, training, and motivating staff, through a single Data Center	quality planning training and motivation of personnel;
Data transfer of platforms virtualization quality requirements incompatible with the cloud operator platform			

Note
* installs on his physical server Veeam Agent.
Source: Created by the author basis on [3].

It can be stated, that new content of the quality management mechanism in the sphere of tourism and hotel business takes its form completely or partially. All this occurs as a result of the development and deepening of such processes migrating to the cloud physical and virtual IT infrastructure with quality management as [2]:
— backup;
— replication;

Table 2. The content of processes migration to the cloud IT-infrastructure quality management of tourism and hospitality business entity replication uses

Processes typology	The content of processes	Result of replication	Transformable function
Organizational	The service gets access to the quality work organization panel and through conducts replication (copying) of data from virtual machines on the capacity of the cloud provider. At the same time, the reproduction is subject to*: - instructions on the appointment of officials responsible for quality work for the organization; - instructions on providing participants with quality standards and other normative documents; - instructions on resource allocation for the performance of works on quality in the planned terms.	Digitization of the business entity and reproduction in the cloud: - organizational structure on quality; - obligations, powers, relations of employees. This process of creation transfers the formation of electronic schemes systems according to which the business entity performs the function of quality work organization.	quality control; organization of work on quality
Operating	The service gets access to communication networks formed in the current quality control system and through it conducts their replication (copying) from virtual machines at the capacity of the cloud provider* The following processes are started: - quality control instructions replication. - replication of guidance and other materials for staff training creation of the quality management system.	Digitization of the business entity and reproduction in the cloud: - the operational structure of quality control; - algorithms that reproduce how control activities are performed. Creating conditions for remote meetings.	

Note
* After the migration is complete, the client starts the replicas, organizes network connectivity and can exclude machines in his private cloud.
Source: Created by the author basis on [2; 5].

— files and directories synchronize;
— the entire system synchronize.
At the same time, systemic transformations of quality management are any changes. At the same time, they acquire a complete look only if migration processes are characterized by synchronization of the whole quality management system simultaneously with synchronization of other activities that affect the quality of products, works, and services.

Backups are the migration processes made via backup service (BaaS) that summarizes the cloud storage, Data Center, and Veeam Cloud Connect technology). At the same time, the content of migration processes in the cloud IT infrastructure quality management through backup (Table. 1) transforms collecting data and formation of information to perform quality management primarily, setting goals in the field of quality. Among such functions are selected quality planning, training, and personnel motivation.

Replication is the migration process, made through "virtualized" service, digitizes:
— the quality organizational structure (reproduces obligation, powers, and relations of employees in the form of an electronic scheme, using which business entity performs the organization of work on quality);
— quality control operating structure (reproduces the established methods of control activity).

Replication is carried out by various software products (for example, Veeam Backup & Replication). At the same time, the content of the outlined cloud migration processes consists of ideal copy creation not only of the informative and operational information but also of all communication addresses of employees. Replication in combination with communication addresses [2; 6]:
1) reproduces common and personalized goals and field of activity (What, where, and when it should be done? How can this be done, and who should do it? Which types of materials and equipment should be used?);
2) form the conditions for remote meetings to allow solving current staff problems.

Replication transforms quality work organization functions and quality control in the meaning of migration processes to the cloud IT— infrastructure quality management, shown in Table. 2.

Files and directories synchronize the process of creation in cloud storage an exact copy of the quality

management mechanism (the content of which is present in fig. 1). Files and directories synchronize provides:

1) full reproduction of all available methods and types of activity of guidance and operational character (if they are aimed at managing the process, eliminating the causes of poor performance at all stages of the product life cycle, or providing a service (quality loop) to achieve economic efficiency);

2) the communicative, remote omnichannel environment. It allows for solving current managers' problems, discussing issues of strategic partnership development, exchanging experience, and proposing new initiatives for cooperation.

The content of migration processes in the cloud of its infrastructure for quality management of tourism and hotel business subject based on file and directory synchronization (shown in Table 3) provides transformation of all functions forming quality management mechanism (without touching the elements of corrective influence).

The given specificity of migration in the cloud of physical and virtual it-infrastructure of quality management is suitable only for the subjects that have introduced Unix-like operational systems of quality management. It allows realizing in the cloud service the conceptual model of mutually dependent types of activity and limited influence on quality at different stages of the life cycle of products, works, and services.

The specific thing is that backup, replication, files, and directories synchronize are the creation of partial or full digitized copies quality management mechanism. These copies created don't work without external interference and systematic actions of quality managers to detect deviations from established requirements to the quality of products, works, and services and to develop solutions to eliminate such deviations. At the same time, it is possible to transform the quality management system using synchronization like a system. The transformation involves [2]:

1) transferring into the cloud all tasks, functions, processes, structures, organizational elements, methods, and measures on quality management;

2) the environment of the corrective influence form (that are systematic managers actions algorithms in conditions of maximum personalization, omnichannel interactions, flexibility, and speed up the operations, which form functions of quality management, innovative possibilities for development, and accessibility to modern technologies for work with data).

The content of migration processes in the cloud IT-infrastructure quality management of tourism and hospitality business entity the entire system synchronizes using shown in Table 4.

In the military situation in the tourism and hotel business, it is necessary to complete the transformation of quality management or its

Table 3. The content of processes migration to the cloud IT-infrastructure quality management of tourism and hospitality business entity file and directory synchronization uses

Processes typology	The content of processes	Result of file and directory synchronization	Transformable function
file synchronization, directory synchronization	Selection in the cloud of a virtual machine with the required capacity and configuration by the operator (on the client side) RSync-demon, the synchronization starts*, and the network connectivity configuration. After these steps, the server is ready to receive the load.	Full reproduction of all available methods and activities of a communicative and operational nature, omnichannel remote environment	All functions form a quality management mechanism without touching the elements of corrective influence.

Note
* When synchronization is complete, the receiving machine is the exact copy of the source machine.
Source: Created by the author basis on [1; 2; 6].

continuous character. Continuity is possible only if changes are simultaneous with other activities that influence the quality of products (works, services), and their result ensures the formation of a new whole system. This is facilitated by parallelization of the process of synchronization of the quality management system with synchronization [1, pp. 44—46; 4]:

1. processes of designing and developing technical requirements for products (works or services);

2. processes of product development (works, services) through special internet services of travel planning, services of individual routes, media platforms, etc.;

3. logistics processes (including the materials, semi-finished products, constructions, components, tools,

Table 4. The content of processes migration to the cloud IT-infrastructure quality management of tourism and hospitality business entity system synchronizes using

Processes typology	The content of processes	System synchronizes result	Transformable function
Digitizing a quality management system with disconnected servers. Digitizing the quality management system without stopping the work process	Install the program in Cloud Extender and Cloud Replicator. Version VMware vSphere into the client side (which should not be below 5.5). To install in Cloud Extender and Cloud Replicator should be highlighted 4 virtual processors, 12Gb RAM, and 22 GB hard drive. System configuration: the creation of a scheme of dependencies between the applications, creation of schemes of all kinds of quality works on the cloud infrastructure.	Synchronization of the quality management mechanism.	Transfer to the cloud all tasks, functions, processes, structures, organizational elements, methods, and measures used for quality control. Transfer to the cloud of corrective influence.

Note
* Digitizing a quality management system with servers off and no workflow stops is available.
Source: Created by the author basis on [1; 2].

special clothing, household equipment, and so on logistical support);

4. processes of preparation and development of production;

5. other types of activity control processes.

Systemic transformations of quality management are any changes in his character, but their completed character is not only the transformation of the species, forms, and essential management properties which affect not only the whole system of quality management but also other types of activity. In full synchronization of quality management process becomes fully digitized and covers all stages of producing products (works or services).

At the same time, the advantage of such management is its continuous improvement in real-time.

CONCLUSIONS FROM THIS STUDY AND PROSPECTS FOR FURTHER EXPLORATION IN THIS AREA

The research has shown that systematic transformation of quality management in the tourism and hotel business sphere is any changes in which quality management mechanism new content acquires. These transformations (full or partial), as a result of the development and deepening of migration processes in the cloud of physical and virtual IT-infrastructures with quality management. Among such processes: backup, replication, files, and directories synchronize, and the entire system synchronizes. According to the survey results following conclusions can be made:

1. Completed transformations of quality management this isn't only type, forms, and essential properties of management conversion that affect the whole system of quality management, but also other types of activity. Such transformation realizes if the migration processes in the cloud IT-infrastructure of quality management are characterized by synchronization of the whole system of quality control simultaneously with synchronization of other types of activity that influence the quality of products, works, and services. The result provides for the creation of a new whole system.

2. In conditions of full synchronization of processes, quality management becomes fully digital. It covers all stages of production of products (works, services), such as designing and developing technical requirements for products, product development and logistics processes, processes of preparation and development of production, and other types of activity control processes.

3. At the same time, the advantage of such management is its continuous improvement in real-time. If a result of control and analysis of the collected information, the products of tourism and hotel business entities meet established requirements, the next cycle of management in the cloud will repeat automatically. In other cases, the algorithms built into the cloud will look for ways to improve quality management technology. At the same time, product quality will be consistently improv through the passage of each life cycle by the introduced changes.

Prospects for further research in this direction involved the possibility of using the data concerning systematic transformations of quality management systems in tourism and hotel business for the cycle of continuous improvement Deming adaptation for military conditions.

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