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STAGES OF INTANGIBLE ASSETS REPRODUCTION

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The idea of classical and modern scientists about the essence of economic cyclicity has been considered and significant differences in the understanding of both the content and components of enterprise resource reproduction cyclicity have been found.

A theoretical justification has been provided as to the cyclical nature and composition of the intangible resources (IRE) reproduction stages of a company. A conclusion has been drawn that the economic cycle is an open circle or a "Hegelian" helix, which consists of the system development stages and provides for a return to the initial stage, but at a new level.

The reproduction of resources is proposed to be understood as a process of continuous recovery of consumer qualities. The stage of reproduction of resources is defined as a phase, a part of the process of reproduction, which qualitatively differs from others.

The reproduction of IRE has been proved to generally consist of two stages (phases): creation (updating) and wear of IRE. The stages of costs reproduction of IRE are proposed to be the phase of expenditures on the creation (updating) of IRE and the phase of costs recovery (depreciation of IRE). A conclusion has been drawn that only full compliance of the cycles of costs reproduction and reproduction of consumer qualities provides balance and continuity of reproduction of IRE.

For the purpose of comparison of two characteristics of wear cyclicity, namely, time and volume, the indicators of wear speed and acceleration are used, which makes it possible to justify management decisions. The speed of wear characterizes the amount of loss of consumer qualities per time unit. The acceleration of wear describes how rapidly the amount of consumer qualities decreases in a certain period of time.

Prospects for further research are the development of theoretical foundations of the IRE reproduction effectiveness as well as analysis of characteristics and features of the stages of the reproduction cycle of certain types of IRE.

Keywords: reproduction cyclicity, stages of reproduction, wear of intangible resources, speed and acceleration of wear.

СТАДІЇ ВІДТВОРЕННЯ НЕМАТЕРІАЛЬНИХ РЕСУРСІВ ПІДПРИЄМСТВА

Літвінов О. С.

У статті розглянуто уявлення класиків і сучасних науковців щодо сутності економічної циклічності та визначено суттєві розбіжності в розумінні як змісту, так і складових циклічності відтворення ресурсів підприємства.

Теоретично обґрунтовано сутність циклічності та склад стадій відтворення нематеріальних ресурсів (далі – НМР) підприємства. Зроблено висновок, що економічний цикл становить собою розімкнене коло або "гегелівську" спіраль, яка складається зі стадій розвитку системи й передбачає повернення системи до початкової стадії, але на якісно новому рівні.

Під відтворенням ресурсів пропонують розуміти безперервний процес відновлення їх споживчих якостей. Стадію відтворення ресурсів визначають як етап, частину процесу відтворення, яка має певну якісну відмінність від інших.

Обґрунтовано, що процес відтворення НМР узагалі складається із двох стадій (етапів): створення (оновлення) та зношення об'єкта НМР. Стадіями вартісного відтворення НМР запропоновано вважати здійснення витрат на створення (оновлення) НМР та відшкодування витрат (амортизація НМР). Зроблено висновок, що тільки повна відповідність циклів вартісного відтворення і відтворення споживчих якостей забезпечує збалансованість та нерозривність відтворення НМР.

З метою зіставлення двох характеристик циклічності відтворення – часу й обсягу – запропоновано використовувати показники швидкості та прискорення зношення, що дозволяє обґрунтувати управлінські рішення. Швидкість зношення характеризує обсяг втрати споживчих якостей на одиницю часу. Прискорення зношення характеризує, наскільки швидко відбувається зменшення обсягу споживчих якостей за певний проміжок часу.

Перспективою подальших досліджень є розроблення теоретичних основ аналізу ефективності відтворення НМР, а також аналіз і характеристика особливостей стадій циклу відтворення окремих видів НМР.

Ключові слова: циклічність відтворення, стадії відтворення, зношення нематеріальних ресурсів, швидкість та прискорення зношення.

СТАДИИ ВОСПРОИЗВОДСТВА НЕМАТЕРИАЛЬНЫХ РЕСУРСОВ ПРЕДПРИЯТИЯ

Литвинов А. С.

В статье рассмотрены представления классиков и современных ученых о сущности экономической цикличности и выявлены существенные расхождения в понимании как содержания, так и составляющих цикличности воспроизводства ресурсов предприятия.

Теоретически обоснованы сущность цикличности и состав стадий воспроизводства нематериальных ресурсов (далее – НМР) предприятия. Сделан вывод о том, что экономический цикл представляет собой разомкнутый круг или "гегелевскую" спираль, состоящую из стадий развития системы, которая предусматривает возвращение системы к первоначальной стадии, но на качественно новом уровне.

Под воспроизводством ресурсов предлагается понимать непрерывный процесс возобновления их потребительских свойств. Под стадией воспроизводства ресурсов предлагается понимать этап процесса воспроизводства, который имеет определенное качественное отличие от других.

Обосновано, что процесс воспроизводства НМР состоит из двух стадий (этапов): создания (обновления) и износа объекта НМР. Стадиями стоимостного воспроизводства НМР предложено считать осуществление расходов на создание (обновление) НМР и возмещение затрат (амортизация НМР). Сделан вывод, что только полное соответствие циклов стоимостного воспроизводства и воспроизводства потребительских свойств обеспечивает сбалансированность и неразрывность воспроизводства НМР.

С целью сопоставления двух характеристик цикличности воспроизводства – времени и объема – предложено использовать показатели скорости и ускорения износа, что позволяет обосновать управленческие решения. Скорость износа характеризует объем потери потребительских качеств в единицу времени. Ускорение износа характеризует то, насколько

быстро происходит уменьшение объема потребительских качеств за определенный промежуток времени.

Перспективой дальнейших исследований является разработка теоретических основ анализа эффективности воспроизводства НМР, а также анализ и характеристика особенностей стадий цикла воспроизводства отдельных видов НМР.

Ключевые слова: цикличность воспроизводства, стадии воспроизводства, износ нематериальных ресурсов, скорость и ускорение износа.

Understanding the cyclical reproduction of resources is an important component of management of a company. Particularly relevant in modern conditions of information revolution is precisely the question of establishing cyclical reproduction of intangible resources of a company. Nevertheless, the question of theoretical definition of reproduction stages of intangible resources remains quite unresolved.

The article provides a theoretical justification of the cyclical nature and composition of the stages of intangible resources reproduction in a company. The following tasks are set: to analyze the cyclical nature of the stages and cycles in the economy; to establish the essence and cost of reproduction of consumer value of intangible resources, their stages and relationships.

The topic of cycling has been subject of discussion for many years. This is due to the fact that people wanted to predict the future by using their own knowledge and experience. You could say that the key to coming to terms with reality, lies within cycling and its never-ending state of change. Many science publications and articles written by well-known economists, were often dedicated to defining the points and features of economic cycles. Various economists, such as: K. Zhuglyar, F. Quesnay, J. Kitchin, N. Kondratiev, S. Kuznets, K. Marx, K. Rodbertus, S. Sismondi, M. Tuhan-Baranovskyi, J. Schumpeter and others, were particularly distinguished in research in cycling, coming to the conclusion that cycling is ever-changing and therefore affects many macro- and micro-economic systems.

The modern understanding of economic cycling came through uniting economics and physics laws, as the progression in physics was far beyond the analogical progress in economics. In physics a cycle is a unity of processes, which always result in the original state. Similarly, the economic cycle had the same definition, whereby the economic system is cycling back to its original state. On the other hand, economic systems are not isolated, which in turn results in an inability to return to their original state [1, p. 9]. In fact, because of the outer impact, reiteration of some stages or periods, in the evolution of the system, does not prove the existence of a closed economic cycle.

A cycle in economy ends with a brand new state of the system, which leads to the conclusion about its open, rather than closed nature. The concept about open economic cycles is based on the "negation of the negation" the idea by F.-W. Hegel. He said, a circle has a start and an end; the end overlapping with the start. Thus, the cycle begins again, although the system differs from its last iteration cycle and therefore we get a different starting point after each iteration. Combined ideas about cycling and the evolution of the system were given the name "The Spire of Hegel". Y. Yakovets and A. Gamburtsev said that the open circle in the shape of the spire allows us to combine simultaneous, reversible and irreversible changes in economic systems. They are reversible, because each cycle has the same stages, phases or periods and they are irreversible because each stage and each cycle is unique [2].

Y. Yerokhina defined a stage as a point in a system evolution with some unique features. A phase is the condition of a system at one point in time. A cycle is the process which

involves transition into a brand new stage of the system evolution [1, p. 10]. The key flaw of this definition was the possibility to understand it also as a definition of system development, as it missed the requirement for a repetition of stages. On the other hand, the author thinks that an open economic cycle is a unity of evolution stages that require the system to fall back to its initial state, although on an entirely new level.

Resources reproduction at an enterprise is a type of micro-economic cycling. Resources reproduction is a continuous process of reconstruction of its consumer quality. Because of wear and tear, resources are continuously losing their consumer quality, whilst gaining it back, which results in the restoration of the cycling recurrence. A cycle of resource restoration may be considered as a consistently built set of stages, and stages of reproduction, moreover its last stage is always overlapping into the first stage, but on an entirely new level. The stage of reproduction of resources is a phase, part of the reproduction process, which is qualitatively different.

Scientists mostly focused on the analysis of reproduction of material resources of an enterprise (fixed assets or funds), then the issues of reproduction of labor, raw materials and financial resources. This kept the issue of intangible resources of an enterprise poorly understood.

The difference between IRE and material resources lies in the lack of material substance of IRE. But there are also a lot of similar qualities between material and technical resources and IRE, for example: they both belong to a non-negotiable resource; they may contain utility and lose consumer qualities under the obsolescence over long periods of time. Let us take a look at the existing scientific theories about the stages (phases) of reproduction of material and technical resources of enterprises.

According to the International Quality Standard ISO 9000, the following stages of reproduction of fixed assets are defined: 1) forecasting; 2) research and experimental development; 3) organizational and technical preparation of production; 4) establishment of fixed assets; 5) development of the created (updated) plant and equipment; 6) operation of fixed assets; 7) disposal of fixed assets. According to the ISO 9000 standards, all the objects of fixed assets should be going through those steps successively. Moreover, since reproduction is a continuous process, after the last 7th phase, the first stage overlaps and begins again.

According to V. Ovadenko, the cycle of reconstruction of fixed assets is divided into two following phases, depending on the fund functioning form: potential and real. The potential phase contains run-up stages of fixed assets – from first to third. The real phase, according to the author, includes the stages of creation and use of fixed assets [3, p. 4–5]. This differentiation helps us classify the reproduction stages by the cost level; cost is a more efficient way in the real phase, rather than in the potential one. But in order to determine the reproduction essence it is more important to divide the reproduction process stages by the area, enterprise or turnover.

By I. Sklar, we should distinguish reproduction of fixed capital in both natural-material and cost shapes. The reproduction cycle in the natural-material form may be divided into creation, separation, functioning and fixed capital element replacement

stages [4, p. 9]. Although distinguishing natural and costs reproduction is a right thing to do, we may say, that economic reproduction is a more important way; because it is also object of utility reproduction.

According to I. Levytska, fixed assets reproduction contains two phases: investment and operational [5, p. 10]. By this classification, the stages of forecasting, research and experimental development, organizational and technical preparation of production, purchase or renewal of fixed assets and disposal of fixed assets may belong to the investment stage, while the stages of development of the acquired fixed assets and operation of fixed assets belong to the operational stage. It should be also added, that the stage of creating (updating) fixed assets may belong to the operational stage, in the case the enterprise carries costs of it on its own.

N. Yefimenko considers that the quality of the reproduction of capital includes the following stages: production, distribution, exchange, consumption (use) [6, p. 78]. These stages of reproduction, in the author's opinion, to a greater extent are attributable to the macro level, while at the micro-level, there are no stages of distribution and exchange.

The key difference between fixed assets and IRE lies in the fact that fixed assets exist in the material form, which explains the difference between the fixed assets and IRE reproduction cycles. H. Shvydanenko and T. Boiko are absolutely right, claiming that formation, consumption and restoration-improvement are stages of intellectual resources reproduction [7, p. 89]. L. V. Vasiurenko divides reproduction into the stages of formation and use, while does not see updates as a distinct reproduction stage [8].

Sometimes, among the reproduction cycle stages, actions, aimed for analysis, forecasting demand for reproduction objects are also distinguished. One can, conditionally, consider those actions as management. From the author's perspective, management, especially the degree of compliance with the requirements of the enterprise IRE facility analysis, analysis of IRE facility wear as a result of scientific and technical progress, analysis of optimum choice of depreciation of IRE facility, making decisions concerning the creation of a new or upgrade of an existing IRE facility, research and development of new facilities or IRE actions to upgrade the existing IRE facility must now be carried out continuously throughout the reproduction cycle, not just by the end of the operation. This means, that considering any of management functions as a separate reproduction cycle stage would go against the continuous nature of the reproduction process.

So, after reviewing the current reproduction cycle understanding, one can draw a conclusion, that it is possible to break the process of IRE reproduction into two totally different parts-stages: the period of creation of customer qualities and the period of the loss of them. Creation of customer qualities is possible in either creating a brand new IRE facility, or by updating the existing one. IRE does not have any material shape, which means that it doesn't have wear and tear either. So, an IRE facility loses its qualities only as a result of obsolescence which appears with more advanced solutions on the market. Unlike material resources, an IRE facility loses its customer qualities without taking in account the way it was in use, and only depends on the external factors. So the stage of losing IRE facility customer qualities can't be called IRE operation, use or consumption.

So, the process of IRE reproduction in most cases contains the following two stages: creating (updating) and wear of an IRE facility. The stage of creating (updating) includes actions, which lead to creating a new, or updating the available IRE facility, which will fulfil customer demands. Under IRE wear we understand the process of losing its customer qualities.

The first stage of the reproduction process may be done by the enterprise own resources or using the capacities of third-party companies. In the case, the creation (updating) stage of the IRE facility was done by the enterprise itself, without using third-party services, the author proposes to call

such reproduction internal. On the other hand, if the creation process of the IRE facility was outside the enterprise, the author proposes to call it external. Also, in the case, the creation of the IRE facility was done outside the enterprise by a third-party, and then it was updated by the enterprise itself, or if it was created at the enterprise, but updated by third-parties, in both cases the author proposes to call such reproduction the mixed one.

It should be also noted, that the stages of reproduction occur cyclically, repeating all the time, which is caused by the cyclic nature of the reproduction process. An only change that the reproduction process has, is that such process always starts with creating an IRE facility, while after the wear stage two possible options appear. The first option is creating a new IRE facility and its wear. The second one is updating the active IRE facility and its wear in future (Fig. 1).

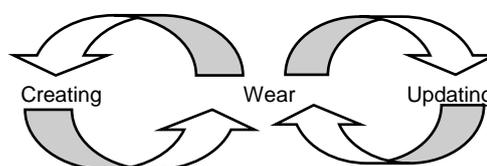


Fig. 1. The IRE reproduction cycle

Those reproduction cycles can repeat, but at some point the second option of the cycle should start from the stage of creating a new IRE facility.

Since the development of scientific and technological progress is continuous and unstoppable, IRE loses its customer qualities all the time because of the obsolescence. The processes of creating, updating IRE, unlike wear, are discrete in terms of temporal dynamics, and may be considered as moments of stages, rather than periods. So, the cycle of re-creating IRE, considering a time variable is a continuous process of IRE wear, which includes the stages of creating and updating IRE facilities.

Also we should take a look at the reproduction cycle from the customer point of view onto the changes of qualities of IRE facilities. On the wear stage an IRE facility loses its customer qualities. Losing qualities as a result of the entry of more efficient IRE facilities on the market is an objective process that is independent of either the activity or inactivity of the company.

At the same time, reduced consumer qualities of IRE facilities can be described by different speed and acceleration. Wear speed shows the loss of the amount of customer qualities within a time unit. IRE facility wear acceleration shows how rapidly it loses customer qualities within a time unit and it is calculated by the ratio of the wear speed change to the change duration (see formulas 1 and 2).

$$V_k = \frac{|\Delta K|}{\Delta t}, \quad (1)$$

$$a_k = \frac{\Delta V_k}{\Delta t}, \quad (2)$$

where V_k is wear speed of the IRE facility;

ΔK is the change in the customer quality amount;

Δt is the duration of the index of change;

a_k is wear and tear acceleration;

ΔV_k is the change in the wear and tear speed.

At the creation (update) stage the consumer quality amount of IRE rises. As said before, creation (upgrade) leads to an immediate increase of the consumer qualities of the IRE facility and then the process of wear and tear comes in its place, but with an already increased amount of IRE customer qualities (Fig. 2).

As one can see in Fig. 2, in the first period of duration a consumer quality loss of 60 % occurred, which means that the wear and tear speed is equal to 60 % per time unit. During the second period, the speed of wear was $(80 - 40) / (2 - 1) = 40\%$ per time unit, which means it had significantly reduced. So, the speed of depreciation decreased by 20 % per time unit, which describes the negative acceleration wear.

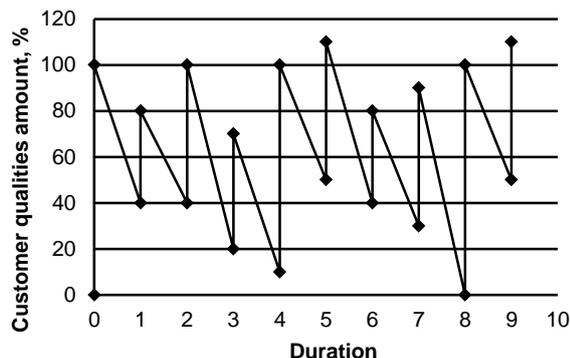


Fig. 2. Changes in consumer qualities over time

From a trigonometric view, the wear speed of the IRE facility may be presented as a tangent, which is formed between the tangent to the function and the positive direction of the axis OX. In our example wear has a linear dependence on time, so it coincides with the tangent function. As is generally known, the tangent is the ratio of the opposite cathetus to the adjacent cathetus, so during the first period the opposite cathetus is equal to $(40 - 100) = -60\%$, and the adjacent cathetus is equal to $(1 - 0) = 1$. So tangent is equal to 60 % depreciation per time unit, which is the speed of depreciation. One may also add that the customer quality wear change speed is always equal to a negative number, because the obtuse angle tangent is always negative, so the wear function is always directed to the reduction of customer qualities and makes an angle with OX axis positive direction.

Also, the speed of deterioration can be represented as the slope coefficient (k) of the tangent function deterioration:

$$y = kx + b. \tag{3}$$

In this example, the linear function of wear in the first time interval can be represented as the formula:

$$y = -60x + 100. \tag{4}$$

The angular coefficient function $k = (-60)$, which corresponds to the speed of deterioration of the object of study. Another mathematical expression speed of depreciation can be derived from the tool wear, as it is the slope of the tangent. Everything concerning the speed can be attributed to the accelerated wear and the only difference is that the function of changes in consumer qualities over time will replace the function of change of velocity over time of wear.

As rightly pointed by N. Yefimenko, identifying the characteristics of the reproduction process has important methodological and practical importance [9, p. 111]. The possibility of a mathematical expression of speed and acceleration of depreciation as one of the main features of the process of reproduction is an important prerequisite for the management of reproduction observations.

The difference between the creation and updating of an IRE object is, first of all, in the changes in the IRE object. If the cycle of reproduction involves creating a new IRE object, which means that the old object is replaced with a new one,

then the used IRE facility ceases to exist. The update of the IRE facility includes improving consumer qualities of an existing IRE object. In addition to this "objective" differences between creating and updating there is another, the meaningful one. This difference is in the change of the content, consumer qualities and characteristics of the IRE facility. Updating is a restoration of consumer qualities of the old IRE object. Since the loss of consumer qualities of an IRE facility is associated with their demolition, demolition compensation is updating the old IRE object.

While creating a new IRE object provides for the creation of a completely new value, that is the object of the new consumer qualities, characteristics.

Some of the authors who analyze updating and creating new objects think that updating, upgrading a form of partial reproduction and replacement of the old facility with a new one is a complete reproduction of the object of fixed assets [5]. In the author's view, this is an erroneous conclusion, the authors identify reproduction objects with reproduction in kind. It means that if one object is replaced by another – there is complete reproduction, and if the object does not change, and it has undergone some changes, it is only partial reproduction.

I. Mustetsa considers that replacement of parts of a reproduction object during the repair, makes a new object, and if any part of the object is not repaired, this object can be considered obsolete [10, p. 149]. It should be noted that the repair does not replace the object, but only updates the old one, in addition, the need for repairs, and subsequently the obsolescence of reproduction should be defined as a degree of loss of consumer qualities of the object.

It is more reasonable to consider the reproduction in terms of reproduction of consumer qualities of an object. Accordingly complete reproduction can be considered consumer reproduction of the object of study in full (as shown in Fig. 2 in the second period), while partial reproduction can be called rendition that restores only the original consumer qualities of the object (as shown in Fig. 2 in the first period). If based on the understanding of reproduction as the process of restoring consumer qualities, it becomes clear that a complete reproduction of the object may be done by updating the old and creating a new IRE object. In turn, partial reproduction can also consist in updating and creating an IRE object. As a result, full and partial reproduction depends on how a consumer IRE facility changes as a result of updating or creating a new object.

Determining the nature of full and partial reproduction of the content coincides with the definition of simple and narrow reproduction. In order to prevent the provision of similar values to different concepts, the author considers it necessary to refuse from the further use of the concepts of full and partial reproduction in favor of using the concepts of simple, narrow and expanded reproduction of IRE facilities. Suchwise there is no a priori relationship between the choice of the way to restore consumer qualities of an IRE object (creation or update) and scale reproduction of an IRE object (simple, extended or narrow).

Some scientists offer to consider depreciation, amortization fund formation, etc. as a separate stage of wear along with the stages of creation (update) and demolition. Thereby, these researchers propose to combine the study of value reproduction and reproduction of consumer qualities which the author believes to be incorrect. The processes of costs reproduction and reproduction of consumer qualities belong to various aspects of reproduction. Wear may be divided into two forms: wear of consumer qualities (economic reproduction) and value wear of IRE (costs reproduction).

The costs reproduction aims to restore the value of the IRE and provide the transfer process, the inclusion of part (or all of) the costs of creating IRE to the cost of the enterprise. The process of inclusion of the costs of establishing (updating) an IRE facility to the costs production is called amortization of IRE. Amortization of IRE objects takes place

due to the fact that IRE can be used over a relatively long period of time during which they are to wear. Wear leads to the need of refund invested in creating an IRE facility in order to finance the process of reproduction.

The value of IRE that moved, included in the price of enterprise is called depreciation. Since the costs reproduction should provide financial and economic reproduction process, it is logical to form the reproduction stage based on the financial stages of economic reproduction of an IRE facility. According to I. Gontareva, the value (price) only facilitates but does not address the issue of comparability of costs, results or resources. Cost and price (cash value) are heterogeneous in their content [11, p. 81]. The essence of the concept of value is revealed to consumer value.

Consequently the stages of costs reproduction of an IRE object can be considered as follows: 1) expenditures on creation (update) of an IRE facility; 2) cost recovery (depreciation of an IRE facility). The cycle of costs reproduction provides a consistent flow of two stages of reproduction, and the only difference, after reimbursement under two possible reversals is associated with the creation of a new, or updating an old object of IRE.

The sequence of stages of costs reproduction depends on the wear of consumer qualities of the IRE object. If the company upgrades an IRE object, the IRE value grows and the amount of costs that have been used to reconstruct the IRE object increases. If the company decides to create a new IRE object, then the cost will increase by an appropriate amount of costs.

Reimbursement of expenses for creation (update) of an IRE by using their depreciation. An important issue for the company is the organization of depreciation so that the recovery of depreciation should match the IRE facility.

The system includes the amortization process of establishing the real value of the IRE, the installation period of the useful IRE object, the election method of calculating depreciation. The issue of establishing an effective system of depreciation of IRE has been discussed in many scientific studies of domestic and foreign scientists and may be the subject of a separate study.

T. Belozerova rightly observes that, depending on the tasks, depreciation may: a) fully comply with the process of wear; b) be partially affected by the loss of their asset consumer properties; c) be carried out completely independently and without regard to depreciation. As a result, the author proposes a parallel accounting of amortization and depreciation of fixed capital [12, p. 23]. Properly setting the difference between depreciation and wear, or costs reproduction and reproduction of consumer qualities T. Belozerova unfortunately does not conclude that the company must ensure the implementation of the first option, namely, to organize depreciation so that it is fully consistent with the process of wearing. Analysis of the degree of conformity of the depreciation level of wear can take place due to the calculation of compliance that offers count ratio coefficient of wear to the return value.

In the case the company amortizes the IRE object partially or completely independently of the process of deterioration there may be disturbances in the system of reproduction. Possibly there are two variants of disturbances in the system of reproduction: 1) advance reproduction to reproduction of consumer qualities; 2) lag of costs reproduction to reproduction of consumer qualities. Let us consider each of these problems in more detail. Ahead on the economic cost of reproduction leads to the fact that IRE facilities are able to meet the needs but no residual value. These IRE facilities can still be used for their intended purpose, their level of overall wear is less than 100 %, and the cost is fully amortized. The main problem of such disparities in reproduction is the violation of the economically viable calculation of the cost of the enterprise, as there is an overestimation of the size of the company's expenses, such as depreciation. Economic errors in calculating the cost lead to erroneous calculation of profits, namely

artificially lowering its volume. The consequence of understating the amount of profits of the enterprise may be making wrong management decisions regarding the appropriateness of the activity, as well as the possibility of investment decisions. Another problem with the accelerated reproduction of costs may be making wrong decisions on the use of the depreciation fund, for example, using it for other purposes or early creation (update) of the IRE facility which has not worn yet.

If an IRE object cannot satisfy the consumer needs for its intended purpose, the company should create a new IRE object or update the old one to continue functioning. Actions to create a new or update the existing IRE object need cash that the company should have in the form of a depreciation fund. Reproduction of the necessary consumer qualities of costly reproduction leads to a lack (deficiency) of the main sources of funding creation (update) of an IRE facility – the depreciation fund. As a result, the company either uses other sources of funding, which in any case leads to additional costs or delays the process of creation (update) of the IRE facility to the time when it ends the cycle of costs reproduction, which will certainly lead to a deterioration of the results of the company. Another problem is the lag of costs reproduction of economically unwarranted lowering costs and the fact that the enterprise overstated the amount of its income. This results in the first place in a possibility of making wrong management decisions regarding the prospects of the company, and, secondly, overestimation of the size of the income tax. In this way, any deviation in the processes of costs reproduction and reproduction of consumer qualities of IRE objects lead to deterioration in the effectiveness of the company as well as to its bankruptcy.

Sometimes scientists justify individual businessman's desire to quickly return the invested funds. Over time, new, cheaper and technically advanced facilities appear, which means, according to these researchers, that the company must quickly turn the means invested in the creation of old objects to be able to replace the old items with new ones. However, the development of scientific and technical progress should be considered in the evaluation of reproduction of consumer qualities of the IRE object or other assets by calculating its level of wear. The current ratio should take into account the degree of lag existing between the IRE facility for utility value not only of itself at the moment of creation, and the IRE of objects created under the current conditions of scientific and technical progress. If the company takes into account when calculating the depreciation of scientific and technical progress development, and the degree of depreciation depends on the level of deterioration, the company may return the 100 % value of IRE for the time they wear 100 %.

All this suggests that only full compliance between the costs reproduction and the reproduction of consumer qualities of IRE objects provides a balance and continuity of reproduction. Any deviation in reproduction cycles of consumer quality and cost of reproduction leads to poor results and reproduction of the enterprise as a whole. The company needs to establish a system of depreciation, which will allow for depreciation in strict relation to the degree of the IRE facility wear.

Therefore, the economic cycle is a circle or an open-loop "Hegelian" helix, which consists of the stages of development of the system and provides for the return of the initial stage, but to a new level. Reproduction of resources is the process of continuous recovery of consumer qualities. Cyclical reproduction is ongoing loss of consumer qualities of their resources as a result of wear and tear of a parallel process of recovery.

The stage of reproduction of resources is defined as a part of the process of reproduction, which is a quality feature of others. It has been proved that the reproduction of IRE generally consists of two stages: creation (update) and wear of an IRE facility. The stage of creation (update) of an IRE

facility includes actions aimed at creating a new (updating the existing) IRE object, which as a result will meet the requirements for its utility value. Under IRE wear the author proposed to understand the loss of the IRE consumer qualities. The stages of the value reproduction of IRE are offered to be considered as follows: 1) expenditure on creation (update) of IRE; 2) cost recovery (depreciation IRE). It was concluded that only full compliance of the cycles of costs reproduction and reproduction of consumer qualities provides balance and continuity of reproduction of IRE.

For the purpose of comparison of two characteristics of wear cyclicity, namely, time and volume, the author proposes to use the indicators of wear speed and acceleration, which makes it possible to justify management decisions. The speed of wear characterizes the amount of loss of consumer qualities per time unit. The acceleration of wear describes how rapidly the consumer quality declines over time.

Prospects for further research are the development of theoretical foundations of the effectiveness of IRE reproduction and analysis of the features and characteristics of the stages of the reproduction cycle of certain types of IRE.

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