

# REGULARITY IN INNOVATION AND PLANNED AGING

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**Abstract:** *Technological development and its consequences, in the form of innovative aging of products and processes, lead to producers' attitude towards searching for ways and means of improving and changing their parameters. The trend of changing the parameters of innovative products and processes as a result of their rapid innovation aging has already formed a new alternative concept for innovation development. It also puts new requirements both on the consumer nature of innovative products and on the methods, approaches and ways of their production and consumption. The main directions that provide an effective way out of the constraints imposed by rapid innovation aging to create competitive innovative products are being actively applied by many companies in automotive and electronics. This new approach, quickly adopted by manufacturers, is already showing its advantages in the practice of many industrial companies. The purpose of this article is to explore this process and define the main directions of its alternative and development. In essence, this means shortening the life cycle of products and reducing their resource use.*

**Keywords:** INNOVATIVE DEVELOPMENT, INNOVATIVE AGING, PLANNED AGING, ETC.

## 1. Introduction

The trend of changing the parameters of innovative products and processes as a result of rapid innovation has begun to gain momentum. This speed is also in line with the aging plan for businesses or the fact that industrial products are becoming more and more damaged and increasingly need to buy new ones. It is usually acceptable for the products to arrive on the products within a few days after the expiry date. In addition, people also use some of the ways to catch up with aging, which has become the term "planned aging". They have many industrial products that are designed to compete with new ones as well as new products and services that use this market approach. There is also an alternative to innovative aging, which is actively applied by many companies, both in household and electronics, as well as in automotive and aviation engineering. This new, integrated, dynamic and alternative approach, which was quickly adopted by industrial companies, already shows its advantages in the following directions:

- New age is considered to be an integral part of every stage of our life. It is the main engine that drives science, technology and the economy forward.
- Planned aging as an established practice of modern industry has been deepening in recent years, shows a German study by the Federal Environmental Protection Agency. However, many experts, along with some of the manufacturers, believe that the frequent change of models leads to waste of resources and environmental damage. It appears that the average life of home appliances has decreased over the last few years by more than 3 years.
- The aim at the beginning of the last century was for industrial companies to produce better quality by keeping almost the same price. Or, the longer the life of the products is possible at the same price. This was the goal in the past, and today with the global economy and competition everyone wants to sell more and faster. This means that the repair stage of industrial products is already lost.
- Many experts believe that the shortened life of industrial products and equipment is achieved partly through the use of lower quality materials.
- Other experts believe that the planned aging by demonstrating its qualities of category efficiency should also be taken as an alternative to rapid innovation aging.
- Among the driving forces behind this process is the consumer-driven drive for industrialized products.
- High impact of environmental factors in the global environment.

The advantages of this new approach are shown in the following graph, Fig1.

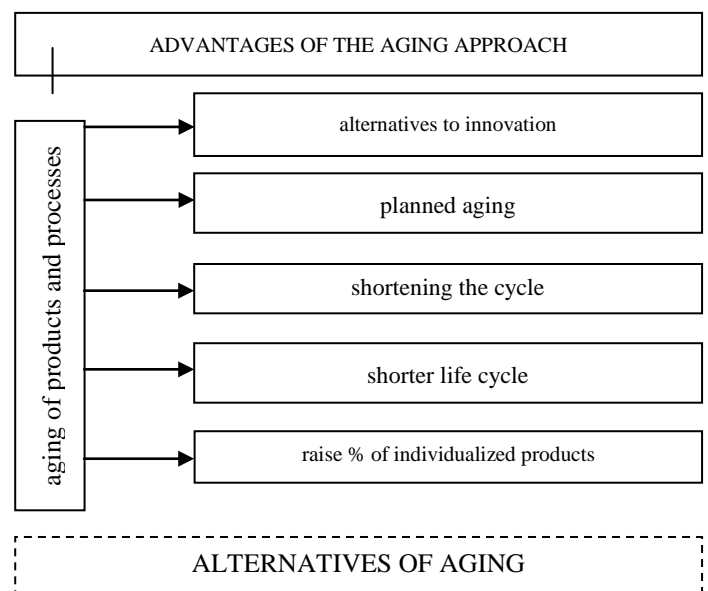


Fig 1. Advantages of the aging approach.

## 2. Planned (regulated) aging.

Planned or regulated aging is an American initiative from the early 20th century. The phrase "planned obsolescence" became popular after 1954, when American industrial designer Brooks Stevens gave the following definition in a speech: "creating a desire for the user to have something newer, a little bit better than it is needed. "Since then, large companies have begun to invest in development projects to produce the "next best product", including through design change itself. According to a German study submitted to the Bundestag in March 2013, the damage from such practices amounts to EUR 100 million per year.

As a result of several crises that are devastating to the global economy, real producers see that the problems of the global economy are rooted in the over-saturation of the market with commodities with too long a life cycle and difficult to improve consumer qualities, including design. It has to be concluded that the high quality of consumer goods inevitably leads to economic crisis, unemployment, and so on. An analysis has also been made that consumers are reluctant to spend a lot of money on quality equipment, but they are happy to make emotional purchases of low-quality, efficient design.

Currently, many manufacturers and consumers are opposed to the global approach to planned aging, but it is also certain that almost all of them work in a place that depends on the planned aging. Research, offices, factories, workshops, services - everything works because of the principles of planned aging. And this is not a temporary but a mandatory mechanism of the consumer society, driven by currency signs, circulation and replacement of products and services, which has already built its own principles of development and refinement.

### 3. Principles of planned aging.

Planned aging is based on the following basic principles;

- Deliberately planned lifecycle of the entire product (warranty period, expiration date, service life, etc.).
- Scheduled limitation of product properties for subsequent improvements (example of locking (freezing) some product functions ie it becomes non-functional.)
- Offering products with poor user qualities to be replaced by a better alternative (eg laptops and displays, or limited color coverage, poor spectrum, etc.)
- Mandatory introduction of legislative sanctions and obliging consumers and producers to update the product (eg, handsets, control devices, etc.)
- Expanding design and introducing one that is influenced by fashion marketing and seasonality factors;
- Suspend the supply of industrial products in exploitation with inexhaustible production resource (especially characteristic of computer equipment).
- Integration of components with lifecycle constraints, but including over 50% of the product value.
- Embedding of complex non-repairable items (capsulated). .Application of a single mailbox causes the device, device, etc. to be compromised, to meet the needs of the computer or to respond to any problems that may be caused by a crash, etc.
- Restrict the product's shelf life.
- Use of low-grade and low-grade materials, means that for every new device or product we buy, more consumables, more energy and more water are needed. And this leads to further pollution and greenhouse phenomena for the planet.

These principles of planning the aging of industrial products are shown in Figure 2.

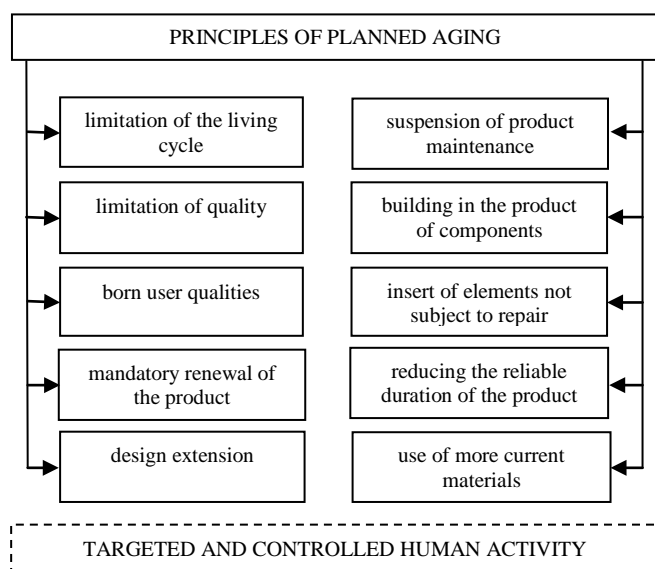


Fig.2. Principles of planned aging

As a conclusion to the above, it can be assumed that planned aging is purposeful and controlled activity by man in order to solve

some industrial, economic and social problems of the development of society. Including satisfaction of user's individual requirements. Considered as a development, from this point of view and from this angle of view, the planned aging is increasingly becoming an alternative to the rapid innovation of product and process aging.

### 4. Innovative aging.

Innovative aging is an inevitable consequence of innovative developments in the field of technology and technology on a holy scale. This direction of innovation aging emerges under the influence of innovative solutions expressed in the new, more modern, more productive and improved techno-economic indicators, constructed and introduced in production, machines and equipment compared to those produced before them. In these cases, the efficiency of the use of old machinery and equipment will be significantly lower and will devalue themselves to a certain extent. The effect of using such a technique will be reduced as the magnitude of this decrease will depend on the power of the manifestation of the factors characterizing their innovative aging. Innovative aging in its manifestations contains some features that most fully reveal its essence and the economic consequences of its influence on the elements of production. [11] The main feature is that it generates partial or complete relative devaluation of machinery, apparatus, equipment and other elements in terms of their user value, resulting in the need to replace the technically outdated equipment with a new one before it expires the duration of her physical wear. The economic feasibility of such substitution is not determined by the very fact of the emergence of new machines of similar technological purpose but by the degree of the innovation depreciation of the machines and equipment in operation and the level of lowering the technical and economic efficiency of their continued use. However, it should be borne in mind that the loss of consumer value and the need to replace machines is conditioned by a number of factors reflecting the specific directions of the impact of innovation development.

Taking into account these factors that characterize the qualitative side of innovation development, it is possible to reveal not only the mechanism of its impact on performance indicators but also its impact on the different aspects of the production process. Therefore, innovation aging is a legacy of innovation in all directions of world progress.

### 5. Principles of innovative aging.

The basic principles that provide an effective way out of the constraints imposed by rapid innovation aging in creating competitive innovative products are actively applied by many industrial firms. The basic principles of innovation aging rapidly adopted by industrial firms already show their advantages in the following directions:

- application of the modular principle of design and production of innovative products;
- Design and production of modules with different technological purpose;
- Design and production of innovative products with the highest possible reliability and short service life;
- Consideration of the design and production cycle as a continuous process and use of the methods of competitive engineering, simulation, virtual presentation, etc. with the aim of shortening the cycle as much as possible;
- as short a cycle as possible from an idea to an innovative product.

Innovative obsolescence is a regularity, and it imposes conditions that companies must comply with. This stems both from their technological attitude and from the strong impact of consumer interest on them. That is why more and more companies are starting to apply flexible technological and organizational forms of behavior

to the surrounding industrial and market world, which are an alternative to rapid innovation aging.

## 6. Technical progress and innovative and planned aging.

It is well known that technical progress, innovation development, innovation aging and planned aging are interconnected but they are not unique. They are not the same manifestation, although there is a definite relationship between them. This relationship essentially defines objective interactions and impacts on both world progress and the social relationships of society as a whole.

The interrelationship between innovation development, innovation aging and planned aging is shown graphically in Fig.3.

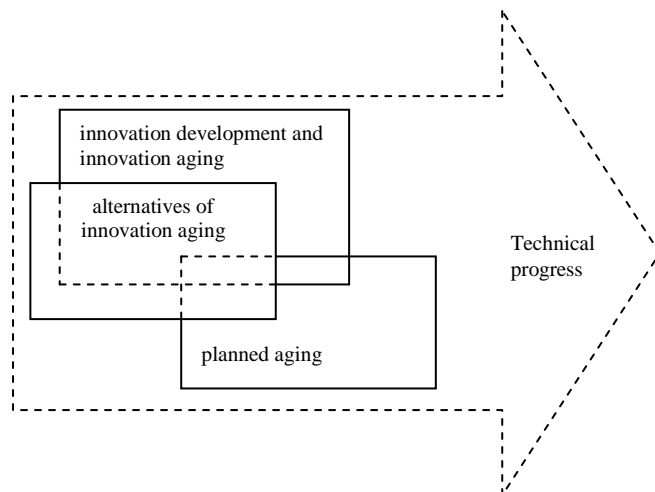


Fig.3. The interrelationship between innovation development innovation aging and planned aging

## 7. Imposed world practices and development trends.

Many companies that have captured elite and profitable corporate markets to be fair to the global economy also offer mediocre consumer technology, but are distinguished by its name and origin. Some models are positioned only for certain markets. There is also a big difference in the design and production of this technique. Typically, the elite series of large companies are produced in special factories. In addition, each user class has a planned aging and the mechanisms for achieving it are varied. Such aging mechanisms, the need for renewal, and even a defect in the technique to be profitable for maintenance only until the end of their warranty period are set. Such examples have many, but are most typical of computer technology. As examples, the following mechanisms already used in the art, including;

- Poor cooling, which is amortized and leads to a graphics card defect, recently and a processor (yes, many Intel Core processors have "died" unexpectedly). Designed to be non-preventive, difficult to replace, with a turbine that easily collects dust, with improperly installed ventilation openings that suck up rubbish;
- A battery with a limited life resource that has a chip that keeps it "alive" for about a year and subtle items. Chips with counters also have custom-grade printers;
- Built-in defect in a graphics chip, chipset, power supply, inverter or other important component. A

striking example of this is the graphics card of Nvidia, later also of AMD / ATI;

- Slightly chassis, which leads to bending, cracks unmasking on a motherboard, display, hard drive and more. important components;
- A hard disk designed to last until the end of the warranty period. The new "magnetic" drives have a much shorter resource than the old ones for SSD enforcement;
- Stay or limitation of maintenance on older models are simulated traffic flows passing through various jobs The resulting results provide effective operation of the automatic workshop created to clean metvarhni before painting.

In many of the technical universities in the world, the mechanisms of planned aging are studied by young engineers, designers and programmers. And that's okay because these specialists have to keep the world economy working and serve the interests of their investor. There is room for the idealists who want to design the perfect technique. Their task is to make quality corporate products for special purposes and special users. At present, the economies of individual countries, and more recently on a holy scale, are increasingly beginning to rely on planned aging, which is also beginning to control the development of technical progress. Revolutionary discoveries are bought, destroyed or stored for future use in the interest of planned aging. Small hardware and software companies with highly innovative new products are swallowed by the big ones in order to preserve the status quo and ensure a steady progressive development. There are many examples of the absorption and stopping of revolutionary technologies. It makes it imperative that you follow the principles of planned aging, and the bigger you are, the more aggressive you need to do in the development of the industry. This also imposes a planned success.

## 8. Constructive changes in products.

As a practice, there is already a requirement that a planned outgrowth technique is not intended for the consumer market, and the availability of this segment is not desirable for the global economy. Even if it is offered for sale outside of the corporate markets, its price is overwhelming for most consumers. Example: Hardware printers of the corporate market (eg Workstation) can be acquired by individuals after their use by a corporate client. This is an excellent opportunity at a low price to acquire a unique product without a built-in timer for aging and defect. Despite its high price on the consumer market, elite models are profitable for the corporate customer because they are bound by a quantity contract and subsequent replacement of the model with newer after 1-2 years. That's why sometimes a company that wants quality equipment for 100 jobs and it is more profitable to buy 100 computers with a corporate contract than the same 100 of the consumer market. Therefore, much of the computers and laptops offered were not in operation. Every retailer of used computers receives offers describing the parameters and the state of the art. Unlike other vendors who order middle and bad status due to the lower price, it is preferable only a technique with a high to perfect status.

In conclusion, it should be noted that the market is regulated not only by producers and intermediaries, but also by consumers. [12] As you can see, the market also offers products without planned aging, which are affordable or even in some cases lower than the products that are still defective. The spare parts which are necessary for the proper and safe operation of the products must be provided at a price commensurate with the nature and the life of the product.

## 9. Technological changes.

Investigation of physical and innovative aging in the context of solving contemporary development problems requires a review of traditional or conventional approaches to the formation of requirements in the use of technology and technology, and the search for flexible organizational forms of application. Given that the issue of creating new technologies, machines and devices essentially follows an upward trend of permanent innovative solutions leading to rapid innovation of technology and technology aging, the problem of planned aging is also developing. This development is in the direction of a regulated perception of the process of technical progress in the world.

The following conclusion can be drawn from this article. Analytically, the processes of innovation development, innovation aging and planned aging are analyzed. On this basis it is proved that there is a certain interdependence and interdependence between them. The more active the innovation development, the faster the innovation aging, this dependence can be assumed as a regularity. As far as planned aging is concerned, it is becoming more and more emerging as an emerging alternative process of innovative aging.

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