# INFORMATION SYSTEM DEVELOPMENT AND SERVICE PROVISION

High rates of scientific and technological progress in the field of informatization lead to the fact that all components of the technological environment, as well as IT and IS, become outdated quite quickly. According to expert estimates, their life cycle at the turn of the XX-XXI centuries was 3-5 years. After this period (after creation and implementation), they must be replaced by new generations, and otherwise they will lose the required competitiveness. At the same time, the IT and IS used at the enterprise should be operated continuously for such a period of time, while the tasks solved with their help remain relevant, that is, they should be created ―forever‖, but in a form that allows development and improvement in all technological components with the preservation or development of functionality. At the present stage of development of the field of informatization, the implementation of this requirement is quite possible. Firstly, the information and computer systems currently in operation are complex systems consisting of many heterogeneous components, each of which develops according to its own laws, that is, it has its own life cycle. Therefore, a radical restructuring of the operating IT or IS, that is a complete replacement with a new one, can be avoided by the purposeful and systematic replacement of their individual components, thereby ensuring gradual development without incapacitation. Secondly, compliance with internationally accepted standards and proven technologies also ensures the evolutionary development of the field of informatization. The indicated approaches and measures should be laid down already at the stage of creating IT or IS which a complex set of work is carried out in stages.

The first step in creating IS – designing. As a rule, this stage is performed by special design organizations using modern computer-aided design systems (CAD). This system is designed to provide all the development of IS in its entirety, that is, technical, software, methodological and other support. If the company does not use the services of a third-party organization to carry out the IS project, but manages it on its own, then to ensure the proper quality and depth of development, they usually use universal automation tools – CASE-facilities.

At the end of the design, the developing company creates an escort service, the tasks of which include authoring the production of IS and instances of systems supplied to consumers, supporting system modifications, defining standards and requirements for them, development technologies, etc. In the simplest version, the support service can function in the ―hot line‖ mode, when the operators of the developing company answer typical questions using answers pre-prepared for them. In more complex cases, the escort service uses special stands on which to recreate the user’s problematic situations and, through modeling, find ways out of them.

The next stage in the creation of IP is *manufacturing.* Obviously, this stage is carried out on the territory of the customer enterprise and, as a rule, with the involvement of its employees of the informatization service. Manufacturing is the process of installation, configuration, testing and coordination of designed IS modules.

The final stage is implementation. It is a set of works on setting up, commissioning and launching an IS with a demonstration to the representatives of the customer enterprise of the functional characteristics of the manufactured IS. If the demonstrated characteristics correspond to the agreed points of the technical specifications for the development of IS and satisfy the customer, then this stage ends with the signing of the act of acceptance of the product. After that, it is believed that the creation of IS as a product has been completed and its practical operation can begin. Like any other complex product, the IS must pass the development stage at the beginning of *operation*, which includes carrying out typical experimental work, analyzing non-standard situations, demonstrating the behavior of the system and personnel in different typical conditions, and so on. The result of this stage of work and IS is the knowledge, skills and skills of the service personnel and users, and the system itself must reach the manufacturer's declared functionality, performance, reliability, etc. In addition, the successful operation of the newly created IS requires the presence of two more systems. The first is the test system, which is designed to provide a wide variety of tests:

* the entire system as a whole, its individual subsystems, individual types of security, interaction of subsystems and security, etc.;

* demonstration, certification, control, etc.;

* on the consequences of accidents, in order to find a non-standard solution, reliability, etc.;

* acceptance and other.

Of course, all these tests must be provided technologically and organizationally, which requires additional costs for the operation of the IS. The second is the *support system*, which can be considered an extension of the support system. It includes a set of tools for experimental operation. Further, these tools can be used to make changes to the product, restore it after an accident, eliminate errors detected by the developer, and expand capabilities. In principle, the support

service is designed to protect the interests of the consumer by providing additional assistance and implementing the developer – user relationship.

In the process of creation and subsequent operation of IS, a special place is occupied by the service system. These are special tools that are designed and manufactured in conjunction with the IS, agreed with it and solve the problem of ensuring its performance. The complex of these tools includes various tests of current control and diagnostics, means of ensuring the work of personnel, devices for maintenance of elements, guidance and guidance. In addition, there must be specially trained personnel to perform maintenance work.

It is clear that the creation and maintenance of the service system requires significant costs. In this case, the maintenance staff, as a rule, cannot be fully loaded. Hence, it is expedient to organize the maintenance of the implemented is by the manufacturer's company or with the involvement of specialized service centers.

The most important issue in the creation and development of the field of enterprise informatization is the establishment of a rational relationship between the acquisition of ready-made IS, an order for the individual development of IS by a specialized company and / or the manufacture of IS on its own.

It seems correct that individually it is necessary to manufacture competitive IS and their elements, which may themselves be of interest as products. In all other cases, standard tools should be used whenever possible. This gives an additional advantage also because the maintenance of such standard means of informatization can be outsourced to specialists.

In addition, decisions must also be made on approaches to creating IS. On the one hand, this could be the creation of a new IS, for example, in the form of a traditional automated control system (ACS) based on some typical project from a development company. In this case, evolution from some already used prototype is possible. On the other hand, the creation and development of IS in enterprises of a certain type can be partially transferred to the user.