

МАТЕМАТИЧНІ МЕТОДИ, МОДЕЛІ ТА ІНФОРМАЦІЙНІ ТЕХНОЛОГІЇ В ЕКОНОМІЦІ

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IT-CONSULTING AS A MAIN FACTOR OF THE STRATEGIC DEVELOPMENT OF INTERNATIONAL COMPANIES

The article is devoted to defining the role of using IT consulting in the activities of international companies as the main strategic factor in improving business processes. The main reasons for which organizations resort to IT consulting are determined. The relevance of the use of cloud technologies, as an optimal technological solution, which makes it possible to obtain a complex infrastructure of the company, has been proved. The developed diagnostic algorithm for consulting projects for international industries. The introduction of the «Smart IT-consulting» platform, which is an IT consulting service exchange and a decentralized labor exchange based on blockchain technology, is proposed. The main proposed exchanges are cloud technologies. The main advantages that a company can use in using the exchange of IT consulting services have been determined. The given calculation of the cash flow of users of the project «Smart IT-consulting».

Keywords: IT-consult, international companies, strategic development, information technologies.

JEL classification: O14, O33

ІТ-КОНСАЛТИНГ ЯК ОСНОВНИЙ ЧИННИК СТРАТЕГІЧНОГО РОЗВИТКУ МІЖНАРОДНИХ КОМПАНІЙ

Дана стаття присвячена визначенню ролі використанню ІТ-консалтингу в діяльності міжнародних компаній як основного стратегічного чинника вдосконалення бізнес-процесів. Визначені основні причини через які організації вдаються до ІТ-консалтингу. Представлені концептуальні засади діагностування консалтингових проектів для підприємств, які представляють собою сукупність суджень щодо теоретико-методологічної бази та інструментарію у цій сфері та формують певний механізм дій при здійсненні діагностування. Доведено актуальність застосування хмарних технологій, як оптимального технологічного рішення, яке дає можливість отримати комплексну інфраструктуру компанії. Розроблені основні етапи ІТ-консалтингу компанії. Визначені основні етапи життєвого циклу розробки та підтримки програмного продукту компанії. Розроблений алгоритм діагностування консалтингових проектів для міжнародних підприємств. Доведено, що успішність бізнесу залежить від грамотного використання інформаційних технологій, які забезпечують ефективну підтримку бізнес-процесів. Запропоновано впровадження платформи «Smart IT-consulting» яка представляє собою біржу послуг ІТ-консалтингу та децентралізовану біржу праці, заснована на технології блокчейн. В основні запропонованої біржи лежать хмарні технології. Хмарні обчислення будують на базі серверного та мережевого обладнання. Устаткування об'єднано програмним рішенням «Smart IT-consulting» належать: можливість створення групових контрактів; послідовна оплата робіт; чати для спілкування; безкоштовні транзакції. Визначені основні переваги, які отримує компанія від використання біржи послуг ІТ-консалтингу, до яких належить: децентралізація, безпека, низькі комісії. Наведений розрахунок грошового потоку від користувачів проекту «Smart IT-consulting». Для розрахунку грошового потоку в Unit-економіці використовується модель кратного зростання, яку можна використати для прогнозованого розрахунку грошового потоку для ІТ-проекту «Smart IT-consulting».

Ключові слова: ІТ-консалтинг, міжнародні компанії, стратегічний розвиток, інформаційні технології.

Formulation of the problem. The dynamic development of enterprises shows that today no enterprise can function effectively with the appropriate software. Each enterprise has an Information Management System (IMS), which at different enterprises differs in the degree of development, relevance and efficiency. But, unfortunately, today there are not enough statistics on the use of IT, or the results of the work of enterprises to create information management systems, which is one of the main problems of the domestic IT-market. In addition, the issue of identifying specific industry solutions or approaches to building an IMS becomes relevant.

In recent years, the role of IT has changed radically, in individual industries it has evolved from auxiliary to decisive, strategic. In modern conditions, it is impossible to maintain and improve competitive positions, the operational efficiency of management and production processes without the use of IT, therefore IT is considered as a source of formation and provision of competitive advantages. They are used in solving various problems, the composition of which is unique for each organization and is determined by the general macroenvironment, regulatory framework, industry affiliation, type of production, scale of business, place of operation, management position, business strategy and business tasks, level of informatization, IT-budget. IT allows using the tools used and improving business processes based on them to make the transition to doing business at a new technological level.

At the same time, despite the efforts made, IT is not always used effectively and efficiently, and IT-projects are assessed as successful and bring the expected results. This leads to the need to assist organizations in solving a set of problems associated with the use of IT, as well as to promote business development by supporting the achievement of long-term goals and solving operational tasks of the business through the implementation and use of information systems (IS) and IT that ensure the achievement of competitive advantages and economic benefits.

Analysis of recent research and publications. A large number of scientific works are devoted to the issues of providing services in the field of IT-consulting. Such Ukrainian researchers as A.E. Batyuk [2], N.M. Gurzhiy [7], D.P. Domanchuk [8], N.L. Zaitsev [9], N.N. Nikulina [11], S.A. Popov [13] are worked on this issue, and foreign authors such as I. Ansoff [1], D.F. Wood [14], J.S. Johnson [14], P.R. Murphy [14], L.N. Mamaeva [10]. But insufficiently substantiated approaches to the choice of tactical mechanisms and means of improving IT-consulting support of business entities.

Goals of the article. This article is devoted to the study of problems and IT-consulting of international companies and the development of proposals for the development of appropriate recommendations for companies engaged in IT consulting in the field of economics and enterprise management, in turn, makes them attractive from the point of view of effective functioning and strategic development of companies.

Presentation of the main material. In the practice of industrialized countries, consulting services in the field of economics and enterprise management are an important factor in the effective functioning and development of business entities. Complications of economic processes have led to the formation of national and international markets for consulting services, performing the function of distributing advanced technologies for solving problems.

The position of international economic relations and their development primarily refers to the effectiveness of the functioning of consulting services in the environment of the economy, in which the market infrastructure is a key element. Consulting activity, which is one of the important components of the management infrastructure, as well as the role of international consulting on the development of the world economy and the international market for consulting activities.

The international consulting market for services is being transformed under the influence of the dynamics of global business trends, which is accompanied by the use of new information and consulting technologies, which are the basis for the development of the quality of modern business consulting services, the transformation of TNK business processes and the diversification of the structure of consulting activities and products due to the innovative component.

Analysis of a number of literary sources [4; 5; 11] made it possible to highlight the following main reasons why organizations resort to IT consulting:

- the need for an objective and impartial assessment of the state of IT, identification of existing problems and obtaining qualified assistance to solve them;
- the need to attract additional resources;
- the need for the implementation of changes in the IT field associated with the expansion / change of the range of activities of the organization or contribute to the establishment of the organization's position in the market, increasing competitiveness.

- As a rule, IT-consulting services are provided in a project form. The generalized goal of such projects is to achieve certain business goals of the client organization by developing and supporting the implementation (if necessary) in the practice of methodological, technological and even strategic.

The potential of national economies is closely dependent on the resource provision of countries, the degree of their integration into world economic relations and the quality of management, based on the activation of the acquisition, use and transfer of knowledge. The place and tasks of consulting services at various levels of management are presented in Figure 1.

Features of consulting services by type and subjects of regulation and implementation of foreign economic activity. Note that the demand for consulting services is most of all used by business entities, and the role of consulting is important in all processes of the enterprise.

So, business entities or, perhaps, their associations are implementing specific entrepreneurial projects within the framework of foreign economic activity, and therefore, they need advice on using the advantages and capabilities of infrastructure entities, support at all technological stages of the process of foreign economic activity (from the search for an entrepreneurial idea to the completion of implementation entrepreneurial project).

Unlike an audit, where an expert checks for compliance with standards and existing IS policies, the task of consulting is a deep study of the causes of existing problems and the development of the necessary effective actions and measures that will help in solving them and bring the existing information security mechanisms in accordance with the requirements for information security presented to the organization.

IT consulting, carried out in organizations, helps in solving the following tasks, presented in Figure 2.

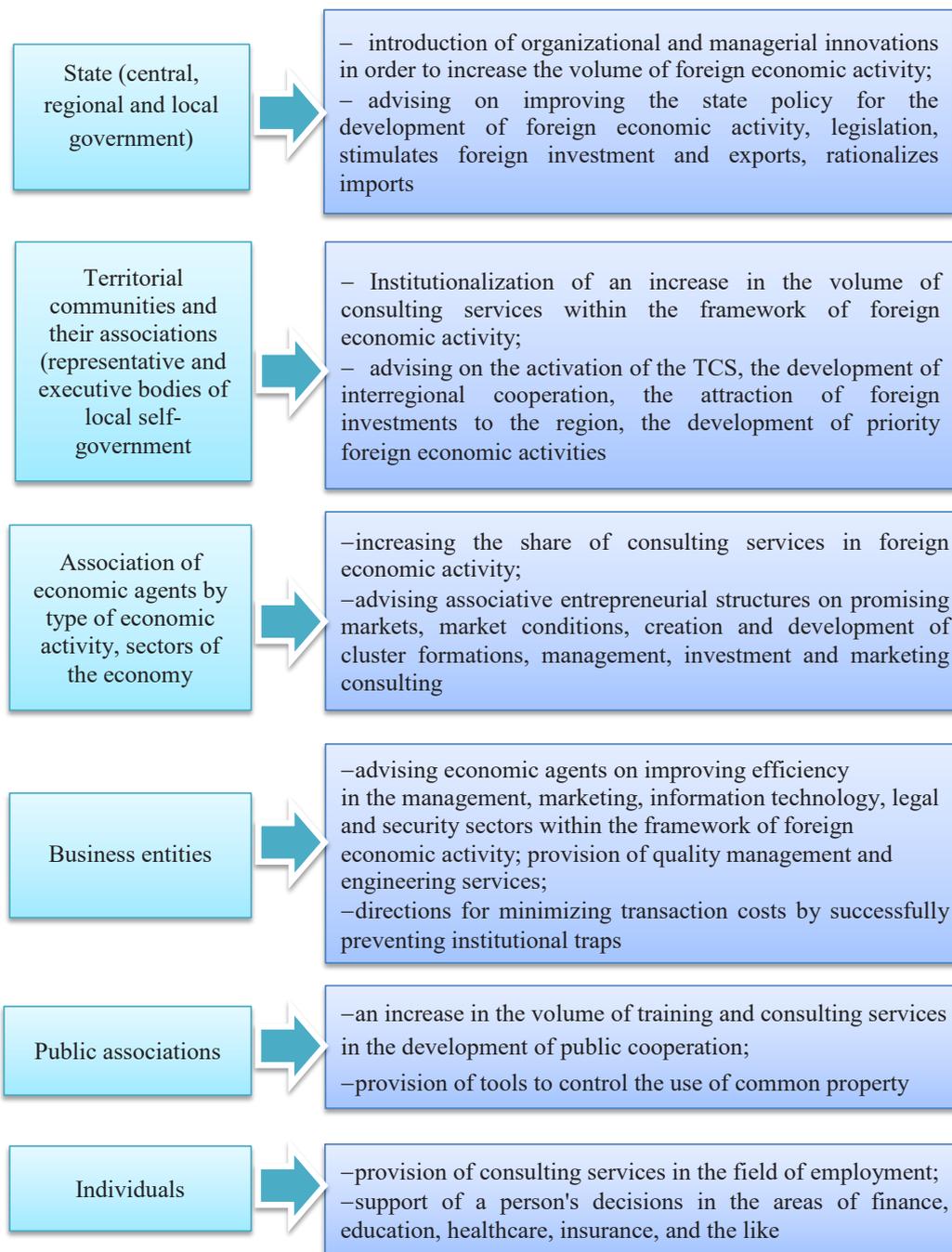


Figure 1. Place and tasks of consulting services at different levels of management

Source: developed by the author

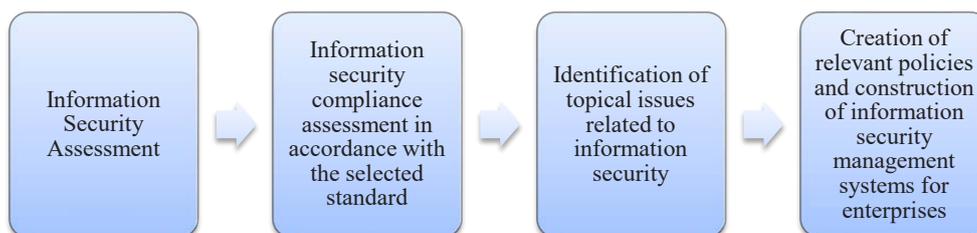


Figure 2. IT consulting in ensuring information security of an enterprise

Source: developed by the author

Within the framework of IT-consulting, not only organizational and administrative documents on information security are considered, but also the actual IT infrastructure and recommendations are written to ensure and increase the level of security of automated systems in an organization.

In order to assess in more detail the current state of information security of an automated system, it is also recommended to undergo a technological audit – a penetration test, which will assess the degree of security of an automated system and the presence of exploited vulnerabilities.

Product IT consulting is focused on providing support for various types of enterprise activities by automating relevant business processes using software applications (ERP, CRM, EAM, SCM, electronic document management systems, etc.) and is required when implementing any licensed IT-solutions.

Integration IT consulting considers the issue of determining the method and technologies for integrating individual components of an organization's information system into a single whole in order to ensure the adaptation of the IT-infrastructure to the organization's business needs.

Operational IT-consulting is involved in the area of optimization of internal processes of IT-management by the organization and nutrition of the organization of effective IT-service robots.

Technical IT-consulting in the area of renewal of technical nutrition and problems related to the safety of the necessary level of reliability and productivity of IT infrastructure.

When carrying out the automation of business processes in organizing, establishing and modifying and developing the IC, modernizing and updating IT-infrastructure, bringing the vision of IT-consulting and management consulting in the last halls. There is a need to determine and manage the strategy of strategic development, including the IT sphere, and also to organize and manage projects, included before the warehouse of the strategy of organizing.

In the spheres of promotion and marketing: integrated marketing of ICO; letting in mobile supplements; complex robots for SMM; complex SEO robots; content marketing; marketing advice, analytics.

It is conceivable to conceptually ambush the diagnostics of consulting projects for enterprises (Figure 3).

The conceptual foundations of diagnosing consulting projects for enterprises cover a set of judgments regarding the theoretical and methodological base and tools in this area, which form a certain mechanism of action in the implementation of diagnostics. The presented model helps to improve the efficiency of assessment procedures, to ensure a high level of completeness and reliability of the results. In modern conditions, effective diagnostics should become part of the systems of economic activity management in order to facilitate obtaining objective and timely information, which is necessary for making effective management decisions.

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The classical form of organizing IT infrastructure has long ceased to be the only way to organize a company's IT space. Cloud solutions are increasingly replacing the famil-

iar technologies, which allows you to get a complex infrastructure without much effort. There are many reasons for that, but for clarity, let's look at the problems associated with the classic form of infrastructure and how these problems are solved by the combined infrastructure in the cloud.

The main stages of the company's IT consulting (Figure 4):

1. Audit of the company's IT infrastructure for relevance, efficiency and compliance with business processes.
2. Audit of the company's business processes for compliance with the objectives and goals of the company.
3. Recommendations for optimizing the IT infrastructure in accordance with the business processes and the wishes of the customer.
4. Consulting on working with software, administration, distribution of access rights.
5. Training and recertification of company personnel in order to optimize work with IT systems.

With the help of IT consulting, it is possible to establish the effectiveness of the use of the company's IT sphere.

IT consulting offers to solve the following issues:

1. Determine the level of computer maintenance and its effectiveness.
2. Optimize the cost of updating the IT company.
3. Improve manageability, ensure the transparency of the company at all levels by creating an IT structure.
4. Increase the productivity of the company.
5. Determine the degree of data protection and the costs associated with this process.
6. Check the state of the company's communications, identify options for increasing their efficiency.
7. Assess the level of work of the company's IT specialists.
8. Determine the possibilities for software licensing.
9. Assess the efficiency of the existing software equipment and provide information on the possibility of its modernization.

The success of a business largely depends on the competent use of information technologies that provide effective support for business processes. That is why IT consulting is so important nowadays.

Recently, users of IT consulting services began to look for customers using forums, special communities and sites, and all obligations between contractors and customers remained at the level of agreements. After that, special sites for freelancers appeared, where a large number of employees and offers were concentrated.

Thus, for the company, it is possible to create an IT consulting services exchange (called "Smart IT-consulting") to make the life of customers and users easier. The integration of blockchain and smart contracts will make cooperation transparent, secure both parties to the agreement, as well as implement phased secure payment functions and much more. Such functionality will be attractive for both freelancers and employers.

Smart IT-consulting is an IT consulting service exchange and a decentralized labor exchange based on blockchain technology. A multifunctional platform for finding a job and employees, implementing projects, creating work groups and getting an online education. The system "Smart IT-consulting" will operate digital passports of participants, whose data is also stored in the blockchain, as well as unique "flexible" smart contracts Agile Smart Contract, ensuring the security of transactions.

The proposed IT consulting services exchange will have a number of advantages:

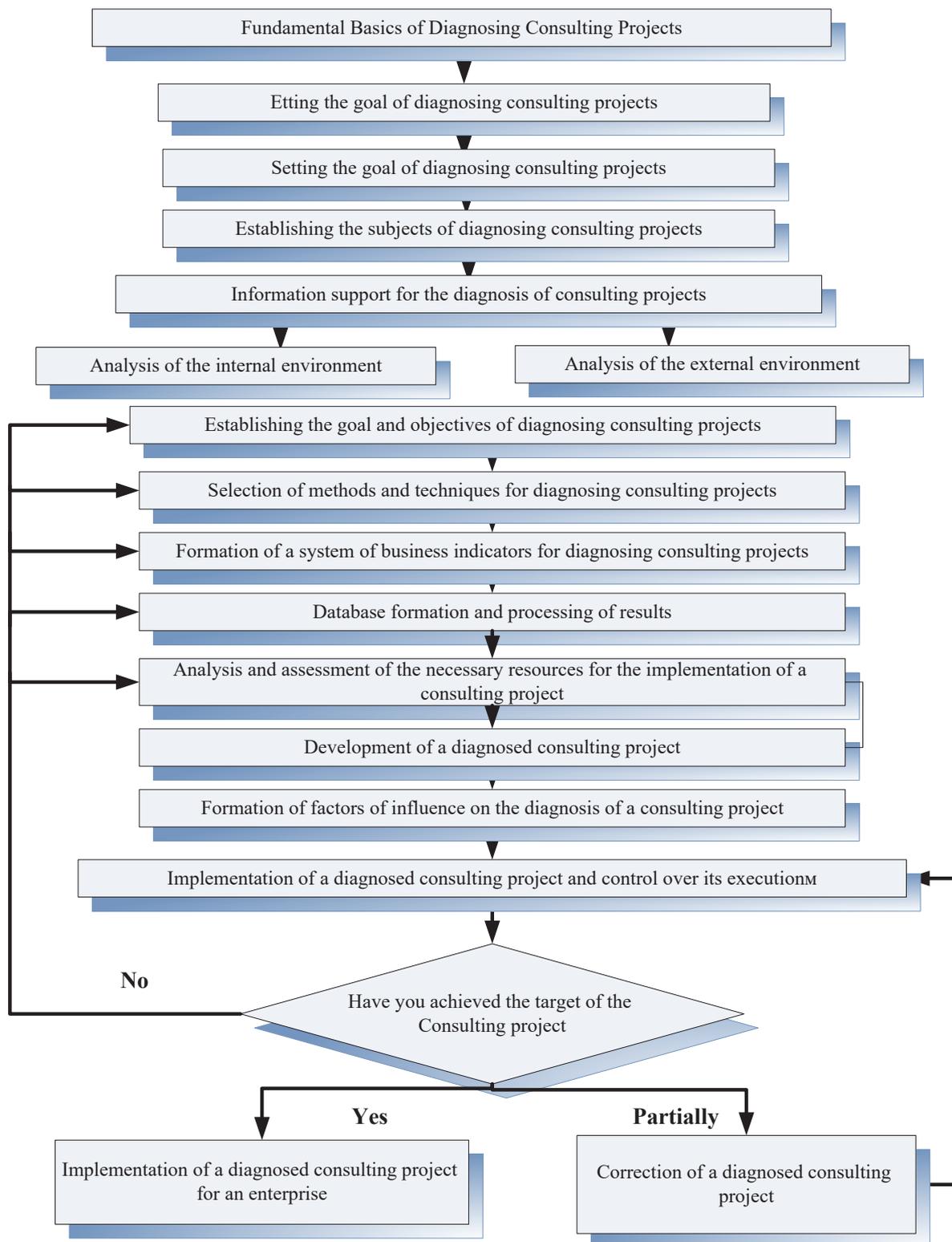


Figure 3. Algorithm for diagnosing consulting projects for enterprises

Source: developed by the author

1. Decentralization – users often face incomprehensible blocking of profiles by the administration, constant price increases for additional services on the exchange. But thanks to the blockchain, all information about transactions and transfers between the executing client will be available and completely transparent.

2. Security – all user data is stored encrypted in the blockchain. In this case, access to the profile can be obtained using a private key and a special password specified during registration. Only the owner of the key can access the Smart IT-consulting Wallet and manage funds.

3. Low commissions – no hidden fees from freelancers or clients. The platform charges 1% of the transaction in total.

In order to cover a large number of clients and a flexible settlement system for different types of currencies, we offer the use of both traditional and special digital currencies. The latter is a copy of assets on the Smart IT-consulting blockchain with the provision of value through the user's account. This will greatly simplify settlements between users, since there are no hidden fees.

Features of the Smart IT-consulting platform:

1. Ability to create group contracts. Clients will be able to create special requests for the work of several specialists at once, as well as separately accept the work done and pay for the actual promotion.

2. Consistent payment for work is one of the main advantages of the platform and smart contracts. The client prescribes the budget for the work, terms, features of receiving the final work and payment. Changes to the current contract are made solely by agreement of the two parties.

3. Chat rooms for communication – many modern platforms for freelancers suffer from the lack of adequate communication mechanism between customers and employees. The project provides for the development of its own chat with the integration of AI-powered Google translator. "Smart IT-consulting" erases the language barrier between users!

4. Free transactions – since the project uses the EOS blockchain, the cost of transactions can be considered zero.

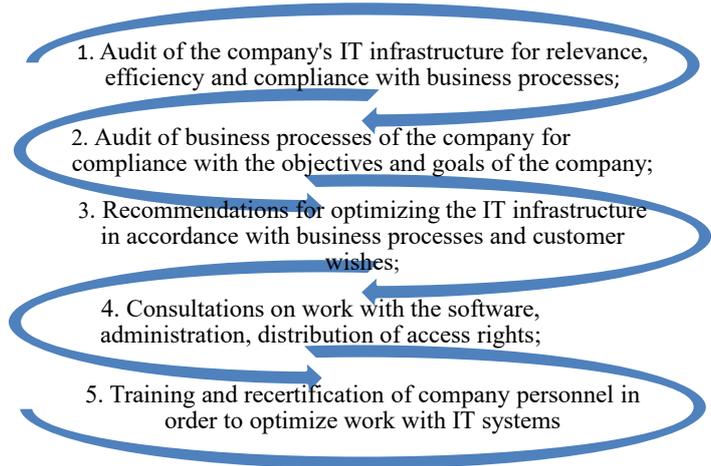


Figure 4. Stages of providing IT consulting services to the company

Source: developed by the author

A feature of EOS is the absence of a Miner, and block validators receive rewards from the network itself.

The main proposed exchanges are cloud technologies. Cloud computing is a resource that a user receives in the form of a service and works with it remotely. This means that to do calculations and process information, you do not use the power of your computer, but outsiders.

A feature of evaluating IT projects is the assessment of the cash flow received from the users of the project. To calculate the cash flow in the Unit-economy, a multiple growth model is used, shown in Figure 5.

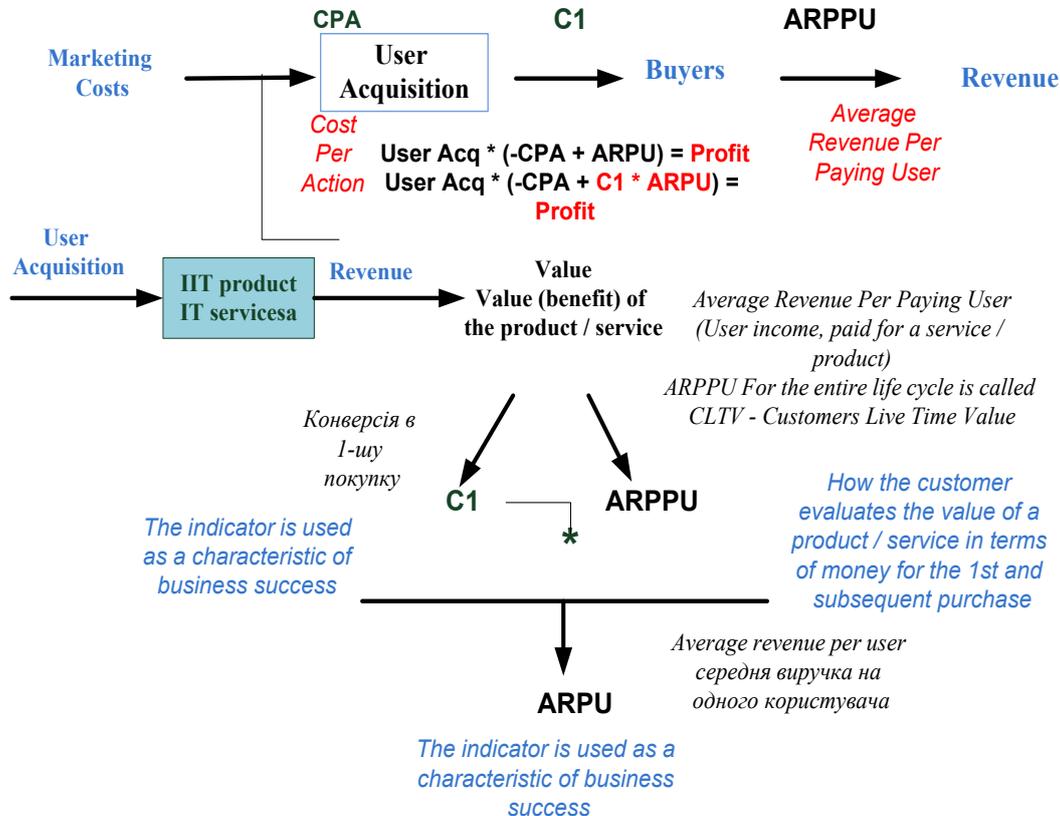


Figure 5. Interpretation of multiple growth for calculating the cash flow of users of the "Smart IT-consulting" project

Source: developed by the author

Any product has a User Acq flow with a CPA acquisition cost. Users who come to the product convert to C1 buyers with an average check. Using these metrics, we calculate the average income from an attracted AMPU user.

Conclusions. Analyzing consulting as a separate important aspect of the problem under study, it should be noted that when providing consulting services in the activities of international companies, they must be considered in two aspects:

1) as a service provided within the framework of the activities of international companies;

2) as an important tool for increasing the efficiency of management of international companies, it is implemented by minimizing transaction costs and improving the business processes of subjects of foreign economic activity.

It has been proven that the task of consulting services is more ambitious for applying traditional consulting to business entities that carry it out, since:

first, the list of users of consulting services is increasing (citizens and individuals – entrepreneurs, legal entities,

associative business and public structures, territorial communities and local governments, government bodies);

secondly, the range of consulting services is not limited only to economic issues, but also to information, scientific, sociological, cultural, mental, infrastructural, labor, institutional and other issues;

thirdly, consulting services here perform a number of new important functions – knowledge accumulation, transmission, transactional and transformational, marketing, disturbing, countering quasi-consulting, the formation of new institutions and institutions, ethical and environmental. These features should be taken into account in the formation of methodological support for the management of consulting services in the activities of international companies.

The platform of the company presented by us will increase revenues by receiving additional income from the commissions of agreements, which will be carried out on the Smart IT-consulting exchange.

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