ISSN 2522-9818 (print)
ISSN 2524-2296 (online) *Innovative Technologies and Scientific Solutions for Industries. 2020. No. 3 (13)*

UDC 004.9+364-64.6:070.1(100) DOI: https://doi.org/10.30837/ITSSI.2020.13.034

JU. MALIEIEVA, O. MALYEYEVA, A. DEMCHENKO, L. PIDDUBNA

INFORMATION SUPPORT FOR CROWDFUNDING AND INVESTING PROJECTS

The **subject** of the article is information technology to support the process of investing in real estate projects. Real estate projects need to find sources and forms of investment that would ensure a balance between project costs and financial resources. Crowdfunding is seen as an innovative way of financing. The purpose of this work is to create a crowdfunding platform focused on attracting new investors to support real estate projects. The following **tasks** are solved: research of functional possibilities of existing crowdfunding platforms; development and configuration of expansion modules for the selected framework; development of the interface of the financial manager of the project with real estate. Research **methods**: system analysis, financial management methods, information technologies of site development. The following **results** were obtained: The characteristic features of crowdfunding, which make it an effective way of financing projects, were analyzed. The popular crowdfunding platforms are analyzed today, their advantages and disadvantages are revealed. As a result, the basic requirements for a crowdfunding real estate investment platform have been identified. Based on the conceptual model of the web platform interface, the main functionalities are highlighted, the scenario of user interaction is described and the database is designed. Necessary modules of the internal wallet system and project system have been developed. It should be noted that the internal wallet system allows you to contribute to projects and control profits. Also, in addition to the main modules, a module for blogging and user registration with e-mail confirmation was integrated and configured. **Conclusions**: It is necessary to take into account the interests of stakeholders who provide funds for the project, which forms their motivation to invest. Information support for crowdfunding investment projects increases the efficiency of project portfolio management, allows the financial manager to publish projects and raise funds for financing from registered investors with the subsequent payment of interest on profits.

Keywords: crowdfunding; investment management; system functionality; web platform; real estate projects.

Introduction

The spread of information and communication technologies and changes in the media through social networks has led to the transformation of financial relations and the emergence of new tools that can expand funding opportunities. The spread of the global Internet, in turn, has led to significant changes in public life, which are reflected in new forms of interaction between individuals. Based on the network principle, these forms lead to increased adaptability and efficiency of project communication organizations. Among such forms, special attention is paid to benchmarking, crowdsourcing and crowdfunding [1]. These network communication technologies serve as a basis for the transition to better methods of project management. One example is the rapid development of financial innovation - crowdfunding, which leads to a new segment of the alternative financing market [2, 3].

Analysis of existing publications

Crowdfunding is seen as an innovative way to raise funding. Trends and conceptual bases of transfer on commercialization of scientific and innovative activity in crowdfunding are investigated [4].

The study [5] identified innovative characteristics of crowdfunding, which make it an effective way to finance socio-economic development projects. It is hypothesized that the most effective methods of financing modern innovations are related to the environment in which they operate - the modern information and communication space represented by the Internet and social networks.

In [6] the advantages and types of crowdfunding are highlighted, the classification of forms of investment attraction is offered. A comparative analysis of crowdfunding forms was conducted in order to present the main differences in the motivation of potential investors [7]. A unified model is proposed, which takes into account the advantages of pre-ordering and profit distribution. Management decisions are made at an early stage of project development, when a stakeholder community is created. The influence of uncertainty and asymmetry of information is also taken into account.

With the advent of crowdfunding projects, there is a need to create specialized portals - platforms that allow you to create projects that require funding [8, 9]. Such platforms aim to attract the attention of potential investors, providing the most complete information about the project, possible profits and more. Today, there are many online fundraising platforms for different needs. These platforms help automate the process of investing in projects [10 - 12].

Article [13] describes the crowdfunding sector, taking into account investment platforms, as well as platforms on which sponsors do not receive cash payments. It outlines the key features of this fast-growing sector and explores the economic forces that can explain the design of these platforms. In particular, it developed external effects between groups and within the group and asymmetric information on crowdfunding platforms.

The purpose and objectives of the study

Most of the existing platforms are universal and do not take into account the specifics of projects in a particular industry. Therefore, the purpose of this work is to create a crowdfunding platform focused on attracting new investors to support real estate projects. To achieve this goal it is necessary to solve a number of tasks, namely:

- study of the functionality of existing platforms;
- development and configuration of expansion modules for the selected framework;

ISSN 2522-9818 (print)
Сучасний стан наукових досліджень та технологій в промисловості. 2020. № 3 (13) ISSN 2524-2296 (online)

- development of the interface of the financial manager of the real estate project.

Materials and methods

1. Analysis of forms and risks of crowdfunding in Ukraine

Real estate projects need to find sources and forms of investment that would ensure a balance between project costs and financial resources. The ability of a financial manager to raise enough funds to achieve the project goal affects the speed of market entry. With the development of Internet technology, crowdfunding has become popular as a form of collective collaboration of people who voluntarily pool their money or other resources together, usually through the Internet, to support the efforts of other people or organizations. To begin fundraising, the purpose of the project must be declared, the cost of achieving it determined, and the calculation of future costs and the fundraising process must be available. Social networks play an important role in promoting crowdfunding. They allow to create content, distribute it and discuss.

We can identify the characteristics of crowdfunding, which make it an effective way to finance projects [14]:

- the results of funding on the crowdfunding platform are an indicator of project development;
- the use of crowdfunding technologies allows to achieve not only commercial but also public goals;
- transaction costs for the organization of project financing are reduced, as a result the number of intermediaries is reduced;
- collective methods of project financing expand existing methods of traditional investment;
- there are almost no restrictions on traditional methods of financing.

In Ukraine, there are three main types of crowdfunding:

1) charitable crowdfunding, which raises funds for targeted assistance or for various needs;

2) crowdfunding, which is aimed at community development; these can be projects aimed at city and infrastructure development, educational projects or information exchange, public broadcasting, etc.;

3) crowdfunding platforms with a non-financial reward, which offers participants the option of pre-ordering, and project authors - financing startups.

In the world through crowdfunding real estate attracts 2.5-3 billion dollars, and these figures are growing [15]. But in Ukraine, crowdfunding in real estate projects is still a new area of investment. Therefore, there is a need to develop a specialized platform for crowdfunding real estate.

The main advantage of crowdfunding for investors is the opportunity to participate in promising projects without special transaction costs. The disadvantage of crowdfunding is weak control over the implementation of projects and, as a consequence, – cases of fraud.

It should also be borne in mind that the effectiveness of the process of fundraising through crowdfunding is significantly influenced by the territorial characteristics of the population where the fundraising takes place. Thus, as part of any project, crowdfunding is associated with risk [16]. The risk of crowdfunding is the inability to raise sufficient funds to implement a particular project at a given time or in the growth of the required financial resources. Cash flow in terms of crowdfunding is difficult to predict. To ensure investor confidence and motivation in project financing, managers need to be careful about the adequacy, quality, persuasiveness and clarity of the submission, the ability to verify the accuracy and clarification of project information, the convenience and transparency of fundraising. These issues should be addressed when using or developing crowdfunding platforms.

It is necessary to take into account the interests of stakeholders (stakeholders) who provide funds for the project, which also increases their motivation to invest. It is necessary to approach carefully to planning of the project, its realization, to motivate process of its performance. Project implementation involves the use of financial resources, the need for which may be assessed inaccurately or require adjustment during project implementation. If there is a need to collect additional sources of project funding – there will be delays in its implementation. The reason for the increase in funding needs may be external factors: economic or political instability of the country, changing priorities of state regulation.

2. Study the functionality of existing crowdfunding platforms

The most popular crowdfunding platforms specializing in real estate were selected for analysis: Estateguru, Crowdestate, Reinvest24 [17 - 19]. EstateGuru is an international platform that provides peer-to-peer loans. EstateGuru's mission is to offer developers and entrepreneurs easy and flexible financing. Crowdestate allows you to set up automatic investment in projects according to specified criteria. Reinvest24 specializes in reducing risk and costs for maximum profit.

The results of the analysis are presented in table 1.

Thus, among the disadvantages of existing platforms are some design problems and inconveniences in finding the right project. Therefore, when developing this platform, special attention was paid to its functionality.

The functionality of the project can be divided into three main components:

- user system;
- system of projects;
- internal account system.

User functionality includes registration of new investors, account verification, filling in personal information and the ability to invest in projects for verified users.

The project system allows the manager to create new projects by filling in the necessary information, set the required amount of investment and possible calculation of the interest rate to be paid.

An internal account system is required to track and regulate all transactions related to the input, output and investment of funds on the platform.

ISSN 2522-9818 (print)
ISSN 2524-2296 (online) Innovative Technologies and Scientific Solutions for Industries. 2020. No. 3 (13)

Table 1. *Comparative table of existing crowdfunding platforms*

Evaluation criteria	Estateguru	Crowdestate	Reinvest24
Appearance			
Does the UI match the design?	+/-	+	+
Does UX fit the design?	+/-	+	+/-
Does it follow the rules of typography?	+	+	+/-
Is the color scheme of the site balanced?	+	+	+
Is the purpose of the platform clear?	+	+	+
Structure and navigation			
Is the location of the links in the site header on all pages correct?	+	+	+
Does the navigation have the right links?	+	+	+
Easy to use navigation?	+/-	+	+
Does navigation allow you to return to previous sublevels?	+	+	+
Content			
Availability of projects	+	+	+
The required amount of investment	+	+	+
Detailed project information	+	+	+
Current investment scale	+	+	+
Usability			
Are the components of the site functioning correctly?	+	+	+
Adaptive design	+	+	+/-
Cross-browser of the site	+	+	+
Is the right project quickly found?	+/-	+/-	+/-

3. System modeling

Creating a platform must have client-server architecture and perform a number of project data processing tasks: entering, adding, editing, and deleting objects in the database.

To model the system you need:

- clearly separate the system from its environment;
- to determine the actors (actors), their interaction with the system and the expected functionality of the system.

The option diagram shows the relationship between the user and the system. In this system, we can distinguish two groups of actors (actors): the financial manager of the project and the investor, as well as the opportunities they have (fig. 1).

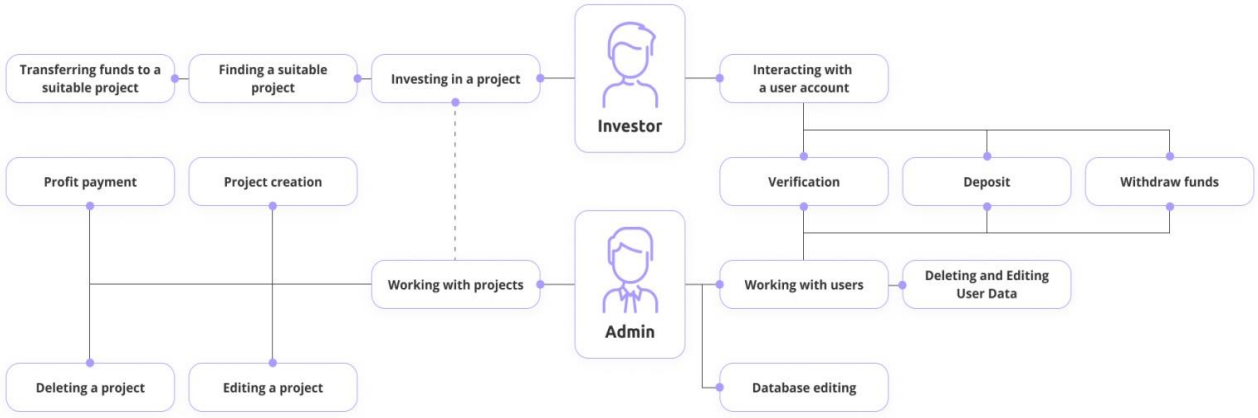

Fig. 1. User interaction scenario

The database for real estate crowdfunding platform contains all the necessary information about the project, photos, descriptions, documents, user data and their operations. There are five main data entities:

- User - contains detailed information about the user;
- User_wallet - user's wallet;
- User_verification - documents provided by users to verify their own profile;
- Project_investors - a list of projects in which the user has invested;
- User_wallet_log - list of user's money transactions: account replenishment, withdrawal of funds, investments in projects, etc.

There is also the essence of "Projects"; it stores all the necessary information about the created projects on the crowdfunding platform. But it interacts with other database tables only through individual modules.

The web platform is built on the basis of client-server architecture.

Fig. 2 shows the interaction between the investor and the main modules of the platform.

Сучасний стан наукових досліджень та технологій в промисловості. 2020. № 3 (13)
ISSN 2522-9818 (print)
ISSN 2524-2296 (online)

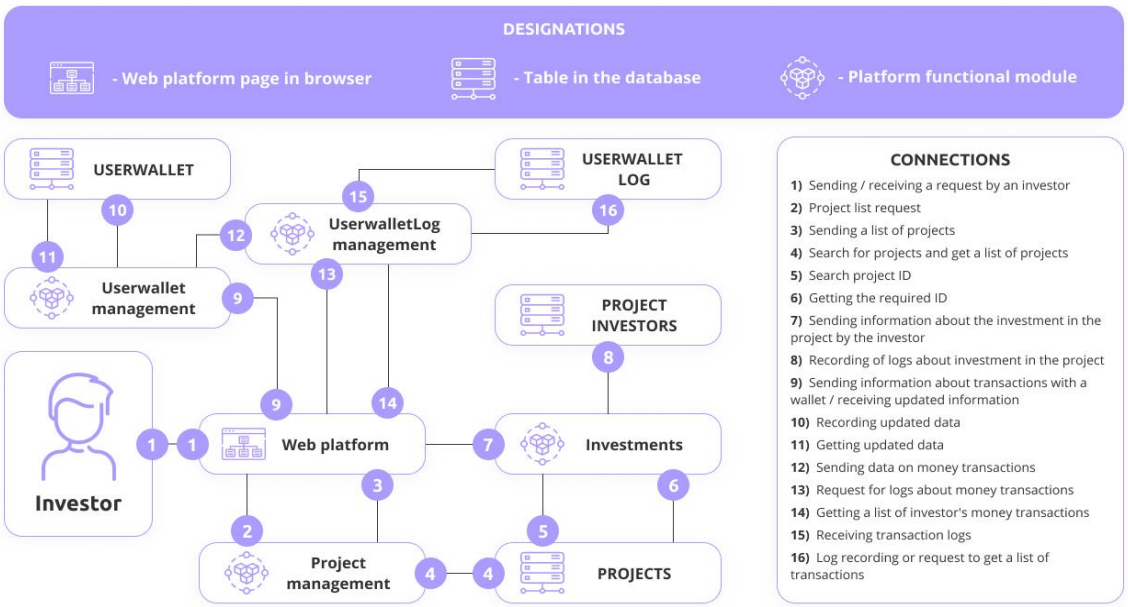

Fig. 2. Diagram of interaction of application modules

All modules perform separate functions and sometimes interact with each other. They also allow you to interact with the database and transfer the necessary data for rendering at the request of the user. For example, linking the "Projects" module to the "Projects" database table allows you to create a list of all projects and display them on the "Properties" page, or a separate page of a specific project. The module "Investments" receives on request the ID of the project on which the investment is made, and enters the transaction data in the table "Projects_Investors".

Modules "Userwallet" and "Userwalletlog" interact with each other. When making money transactions (deposit, withdrawal of funds, etc.), the module "Userwallet" edits the current balance of the user in the table "User_wallet", and then sends the transaction data to the module "Userwalletlog", which enters this information in the table "User_wallet_log". The Userwalletlog module also acts as an intermediary to display a list of user transactions on the user's own page.

Description of results

Based on the analyzed platforms of competitors, the main elements and pages that need to be used on your own platform are identified [20].

Figma is used as a prototyping program. The service has the ability to integrate with the corporate Slack messenger and tools for creating high-level prototypes.

The crowdfunding platform contains the following pages in its interface:

- Home page;
- project catalog pages;
- project card;
- contact Information;
- information about the company;
- blog;
- page of a separate post;
- user registration page;
- FAQs page.

It is important for a crowdfunding platform to be able to fill the site with new projects. To start working with the project directory, you need to log in to the admin panel and go to the "Project Manager" section (fig. 3).

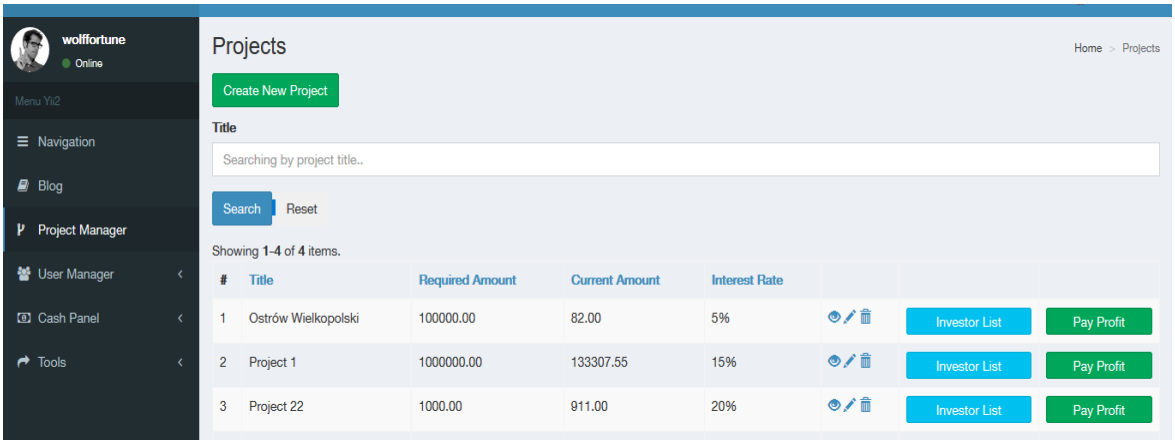

Fig. 3. Project Manager section of the admin panel

ISSN 2522-9818 (print)
ISSN 2524-2296 (online) Innovative Technologies and Scientific Solutions for Industries. 2020. No. 3 (13)

The page also has the ability to download images and documents that need to be displayed on the page of this project (fig. 4).

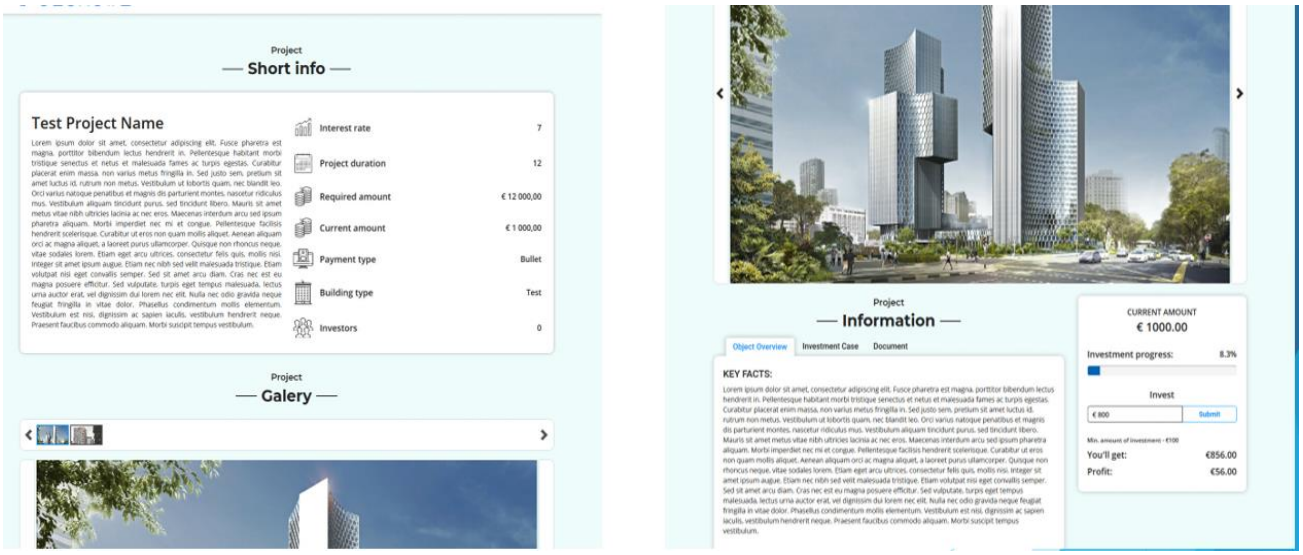

Fig. 4. Project description page

For some functionalities of the system uses its own table in the database to store and use information. With the help of the phpMyAdmin panel it is possible to view and edit the information on the hosting in the created database of the crowdfunding platform (fig. 5).

id	slug	title	description	content	address	object_overview	investment_case	project_duration	required_amount	current_amount	interest_ra
1	ostrow-wielkopolski2	Ostrów Wielkopolski	123	Lorem ipsum dolor sit amet, consectetur adipisc...	Aleja Prymasa Tysiąclecia	Existing cash flow with a 6,03% net renta...	The property for investment with the address V...	12 Mesjacev	100000.00	82.00	5%
5	project-1	Project 1	213213	content text	Ukraina Alexandria	objeck overview text	text 	12 MONTHS	1000000.00	133307.55	15%
6	project-2	Project 22	NULL	12	NULL	2112	21	dsadsa	1000.00	911.00	20%

Fig. 5. Entering data on created projects in the table "Projects"

Let's consider the operation of the module for tracking monetary transactions. The main task of this module is to enter information about operations into the database, after which they can also be retrieved and displayed on the desired pages of the platform. The module is required for writing to the database of operations to ensure the display of the required information in the user profile and the admin panel. It has a number of similar functions that are responsible for entering the necessary information about transactions (investment, deposit, withdrawal, etc.) in the database (fig. 6).

54	4	22.00	Investition	success	NULL	2019-07-01 17:44:32
55	4	111.00	Investition	success	NULL	2019-07-01 22:03:24
56	4	222.00	Withdrawal	in processing	NULL	2019-07-01 22:04:42
57	25	300.00	Deposit	success	NULL	2019-07-15 18:42:51
58	25	200.00	Investition	success	NULL	2020-05-15 12:40:39
59	25	10.00	Investition	success	NULL	2020-05-15 12:44:04

Fig. 6. Records of the user_wallet_log table

There are four types of operations and three statuses. Types of operations include:

1) deposit;
2) withdrawal of funds;
3) investment in the project;
4) return on investment.

The main module responsible for the ability to create projects that require investment is PropertiesController.php. It is used to render both pages for individual projects and pages with a list of projects.

On the "Project Manager" page, the administrator has the opportunity to create the required project after filling in the required fields. After creation, the project should be displayed to the user and give him the opportunity to invest in it (fig. 7).

ISSN 2522-9818 (print)
Сучасний стан наукових досліджень та технологій в промисловості. 2020. № 3 (13) ISSN 2524-2296 (online)

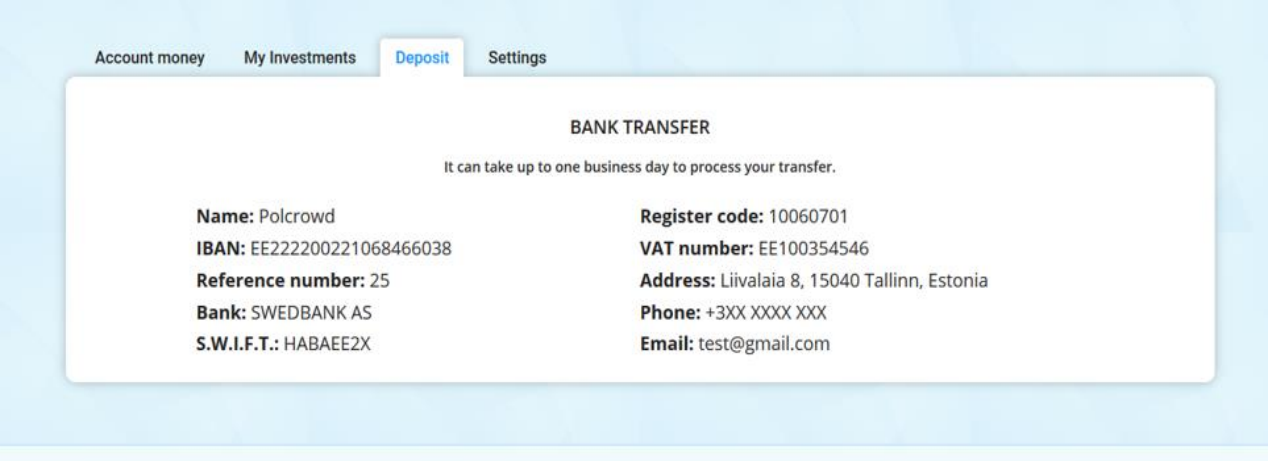

Fig. 7. Deposit page

After initialization of variables it is necessary to adjust the form of investment in the project. Then the amount invested is deducted from the user's balance sheet and enters investment information into the database. Finally, the torrent_amount information for the project in which the investment is made is updated and the user's investment page is automatically converted. After setting up the form, the page is rendered:

When a user makes an investment, the current amount of investment changes and he appears in the list of investors in this project. Investors are not limited to one investment in the project, so also by clicking on the "Full List" it is possible to view detailed information about all investments made from this acanthus (fig. 8).

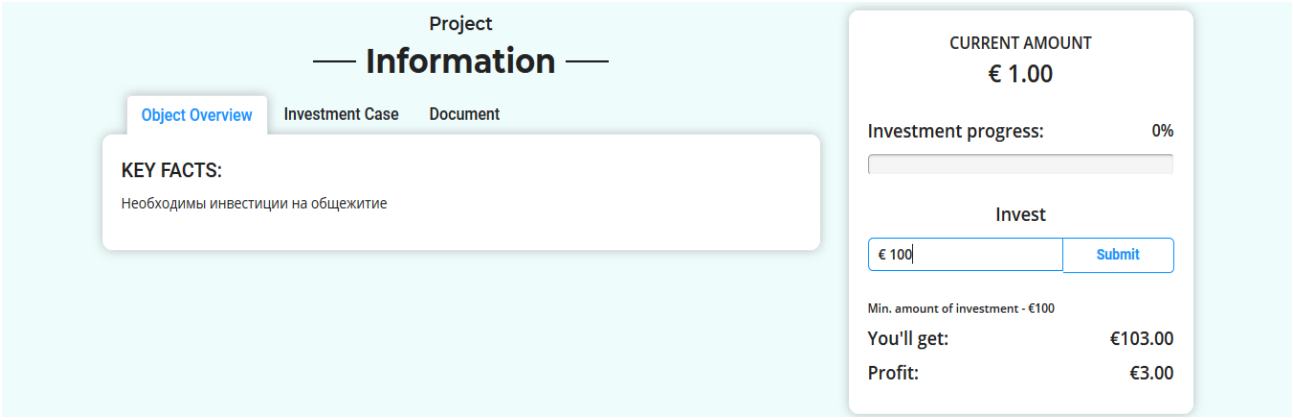

Fig. 8. Investing in a project

After receiving the profit, the administration has the opportunity to pay part to investors. The page for payments to project investors contains a form for calculating the amount that must be credited to each of the users (fig. 9). After payment, the funds are automatically credited to the investors' account.

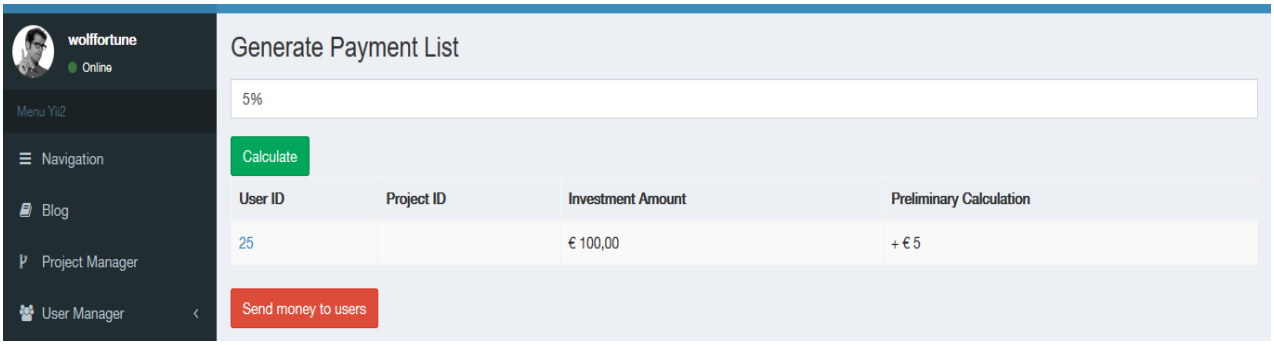

Fig. 9. Profit payout page

The user has the opportunity to create a withdrawal request. To do this, send the form on the page "Account money" (fig. 10). This application is sent for moderation, where the administrator processes it and provides the appropriate status.

ISSN 2522-9818 (print)
ISSN 2524-2296 (online) Innovative Technologies and Scientific Solutions for Industries. 2020. No. 3 (13)

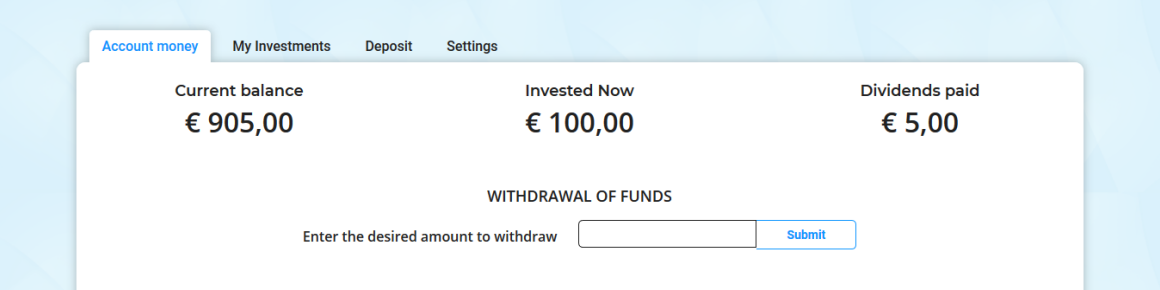

Fig. 10. "Account money" page

Conclusions

An analysis of today's popular crowdfunding platforms has revealed their advantages and disadvantages. As a result, the basic requirements for a crowdfunding real estate investment platform have been identified.

Based on the conceptual model of the web platform interface, the main functionalities are highlighted, the scenario of user interaction is described and databases are designed.

Necessary modules of the internal wallet system and project system have been developed. It should be noted that the internal wallet system allows you to contribute to projects and control profits. Also, in addition to the main modules, a module for blogging and user registration with e-mail confirmation was integrated and configured.

The crowdfunding platform for investing in real estate projects is hosted and ready for use. The practical significance of the results is the ability of the financial manager to publish projects and raise funds for financing from registered investors with the subsequent payment of interest on profits.

References

1. Dushina, M. O. (2014), "Methods of network communication in a digital society: benchmarking, crowdsourcing, crowdfunding" ["Metody setevoy kommunikatsii v digital'nom obshchestve: benchmarking, kraudsorsing, kraudfanding"], *Sociology of Science and Technology*, Vol. 5, No. 1, P. 105–114.
2. Iastremska, O., Strokovych, H. (2019), "Main trends of investment and innovative activity of business entities in the conditions of European integration", *Innovative technologies and scientific solutions for industries*, No. 1 (7), P. 130–142. DOI: https://doi.org/10.30837/2522-9818.2019.7.130
3. Kuznetsov, V. A. (2017), "Crowdfunding: topical issues of regulation" ["Kraudfanding: aktual'nyye voprosy regulirovaniya"], *Money and credit*, No. 1, P. 65–73.
4. Balykhin, M. G., Generalova, A. V. (2015), "Crowdfunding platform for support of scientific developments" ["Kraudfanding-platforma podderzhki nauchnykh razrabotok"], *Sociological research*, No. 9, P. 57–61.
5. Petrushenko, Yu. M., Dudkin, O. V. (2014), "Crowdfunding as an innovative tool for financing socio-economic development projects" ["Kraudfandynh yak innovatsiynyy instrument finansuvannya proektiv sotsial′no-ekonomichnoho rozvytku"], *Marketing and Management Innovation*, No. 1, P. 172–182.
6. Rukavishnikov, S. V. (2017), "Crowdfunding in the system of entrepreneurship, its types and technologies used" ["Kraudfanding v sisteme predprinimatel'stva, yego vidy i ispol'zuyemyye tekhnologii"], *Bulletin of the University*, No. 2, P. 189–193.
7. Ahlers G. K. C. et al. (2015), "Signaling in equity crowdfunding", *Entrepreneurship theory and practice*, Vol. 39, No. 4, P. 955–980. DOI: https://doi.org/10.1111/etap.12157
8. Fedorenko, V. Gh. (2013), "Investment financing in the corporate sector" ["Finansuvannja investycij v korporatyvnomu sektori ekonomiky Ukrajiny"], *Investments: practice and experience*, No. 8, P. 35–39.
9. Mertens, A. (2011), "5 tools to develop your business model" ["5 ynstrumentov dlja razvytyja vashej byznes–modely"], available at: http://ekmair.ukma.edu.ua/bitstream/handle/123456789/1482/Mertens_5%20instrumentov%20dlja%20razvitija%20vashej%20biznes-modeli.pdf (last accessed 22.09.2020).
10. Muzychenko, T. O. (2014), "Investment and investment activities: conceptual framework" ["Investyciji ta investycijna dijaljnistj: ponjatijnyj apparat"], *Sustainable development of economy*, No. 3 (25), P. 161–167.
11. Malyarets, L., Iastremska O. (2019), "Scientific and practical proposals on the choice and application of strategic controlling instruments and the modern conditions", *Innovative technologies and scientific solutions for industries*, No. 2 (8), P. 72–79, DOI: https://doi.org/10.30837/2522-9818.2019.8.072
12. Rossi, A., Vismara, S. (2018), "What do crowdfunding platforms do? A comparison between investment-based platforms in Europe", *Eurasian Business Review*, Vol. 8, No. 1, P. 93–118. DOI: https://doi.org/ 10.1007/s40821-017-0092-6
13. Belleflamme, P., Omrani, N., Peitz, M. (2018), "The economics of crowdfunding platforms", *Information Economics and Policy*, Vol. 33, P. 11–28, DOI: https://doi.org/10.1016/j.infoecopol.2015.08.003
14. Vasiliev, O. V., Matyushchenko, S. S. (2016), "Crowdfunding - a modern tool for financing the development of intellectual capital" ["Kraudfandynh – suchasnyy instrument finansuvannya rozvytku intelektual′noho kapitalu"], *Investments: practice and experience*, No. 18, P. 36–40.
15. Rau, P. R. (2020), *Law, trust, and the development of crowdfunding*, University of Cambridge, 60 p.
16. Logvinova, O. P. (2018), "Crowdfinding risk factors" ["Chynnyky ryzyku Kraudfandynhu"], *In: Actual problems of functioning of the economic system of Ukraine. Proceedings of the II International Scientific and Practical Conference (Khmelnytsky, March 16-17, 2018)*, Kherson: Young Scientist Publishing House, P. 92–96.

ISSN 2522-9818 (print)
Сучасний стан наукових досліджень та технологій в промисловості. 2020. № 3 (13) *ISSN 2524-2296 (online)*

17. "Overcoming Real Estate Barriers" ["Preodoleniye bar'yerov nedvizhimosti"], available at: https://estateguru.co/ru/
18. "Crowdestate review: the most financially stable real estate platform", available at: https://www.thewealthyfinn.com/p/crowdestate-review.html
19. "Reinvest24 Review", available at: https://p2pempire.com/en/review/reinvest24
20. Ellman, M., Hurkens, S. (2019), "Optimal crowdfunding design, Journal of Economic Theory", *Journal of Economic Theory*, Vol. 184, DOI: https://doi.org/10.1016/j.jet.2019.104939.

Received 28.08.2020

Відомості про авторів / Сведения об авторах / About the Authors

Малєєва Юлія Анатоліївна – кандидат технічних наук, доцент, Національний аерокосмічний університет імені М. Є. Жуковського "ХАІ", доцент кафедри комп'ютерних наук та інформаційних технологій, Харків, Україна; email: juliabelokon84@gmail.com; ORCID: http://orcid.org/0000-0003-3553-9156.

Малеева Юлия Анатольевна – кандидат технических наук, доцент, Национальный аэрокосмический университет имени Н. Е. Жуковского "ХАИ", доцент кафедры компьютерных наук и информационных технологий, Харьков, Украина.

Malieieva Julia – PhD (Engineering Sciences), Associate Professor, National Aerospace University "Kharkiv Aviation Institute", Associate Professor of the Department of Computer Sciences and Information Technologies, Kharkiv, Ukraine.

Малєєва Ольга Володимирівна – доктор технічних наук, професор, Національний аерокосмічний університет імені М. Є. Жуковського "ХАІ", професор кафедри комп'ютерних наук та інформаційних технологій, Харків, Україна; email: o.maleyeva@khai.edu; ORCID: http://orcid.org/0000-0002-9336-4182.

Малеева Ольга Владимировна – доктор технических наук, профессор, Национальный аэрокосмический университет имени Н. Е. Жуковского "ХАИ", профессор кафедры компьютерных наук и информационных технологий, Харьков, Украина.

Malyeyeva Olga – Doctor of Sciences (Engineering Sciences), Professor, National Aerospace University "Kharkiv Aviation Institute", Professor of the Department of Computer Science and Information Technologies, Kharkiv, Ukraine.

Демченко Анатолій Валентинович – Національний аерокосмічний університет імені М. Є. Жуковського "ХАІ", студент кафедри комп'ютерних наук та інформаційних технологій, Харків, Україна; email: wolffortune@gmail.com; ORCID: http://orcid.org//0000-0001-9643-4441.

Демченко Анатолий Валентинович – Национальный аэрокосмический университет имени Н.Е. Жуковского "ХАИ", студент кафедры компьютерных наук и информационных технологий, Харьков, Украина.

Demchenko Anatolii – National Aerospace University "Kharkiv Aviation Institute", Student of the Department of Computer Sciences and Information Technologies, Kharkiv, Ukraine.

Піддубна Лідія Валеріївна – кандидат філософських наук, доцент, Харківський національний університет міського господарства імені О. М. Бекетова, доцент кафедри економіко-математичних методів та інформаційних технологій, Харків, Україна; email: lidapoddubna@gmail.com; ORCID: http://orcid.org/0000-0002-4225-1612.

Поддубная Лидия Валерьевна – кандидат философских наук, доцент, Харьковский национальный университет городского хозяйства имени А. М. Бекетова, доцент кафедры экономико-математических методов и информационных технологий, Харьков, Украина.

Piddubna Lidiia – PhD (Philosophical Sciences), Associate Professor, O. M. Beketov Kharkiv National University of Urban Economy, Associate Professor of the Department of Economic and Mathematical Methods and Information Technologies, Kharkiv, Ukraine.

ІНФОРМАЦІЙНА ПІДТРИМКА КРАУДФАНДИНГ-ІНВЕСТУВАННЯ ПРОЄКТІВ

Предметом дослідження статті є інформаційні технології підтримки процесів інвестування проєктів нерухомості. Проєкти з нерухомості потребують пошука джерел і форм інвестування, які б забезпечили баланс між витратами проєкту та фінансовими ресурсами. Краудфандинг розглядається як інноваційний спосіб фінансування. **Метою** даної роботи є створення платформи краудфандингу, що орієнтована на залучення нових інвесторів для підтримки проєктів в сфері нерухомості. Вирішуються наступні **завдання**: дослідження функціональних можливостей існуючих платформ краудфандингу; розробка та налаштування модулів розширення для обраного фреймворку; розробка інтерфейсу фінансового менеджера проєкту з нерухомістю. **Методи** дослідження: системний аналіз, методи фінансового менеджменту, інформаційні технології розробки сайтів. Отримано такі **результати**: Виділено характерні риси краудфандингу, які роблять його ефективним способом фінансування проєктів Проведено аналіз популярних на сьогоднішній день платформ краудфандингу, виявлено їх переваги та недоліки. В результаті визначено основні вимоги до краудфандингової платформи інвестування в нерухомість. На основі концептуальної моделі інтерфейсу веб-платформи виділено основні функціональні можливості, описано сценарій взаємодії користувачів та спроектовано базу даних. Розроблені необхідні модулі системи внутрішнього гаманця та системи проєктів. Слід відзначити, що система внутрішнього гаманця дозволяє робити внески в проєкти та контролювати отримання прибутку. Також, окрім основних модулів було інтегровано та налаштовано модуль для блогу і реєстрації користувачів з підтвердженням електронної скриньки. **Висновки**: Необхідне врахування інтересів зацікавлених сторін, які надають кошти для здійснення проєкту, що формує їх мотивацію до інвестування. Інформаційна підтримка краудфандингових проєктів інвестування підвищує ефективність управління портфелем проєктів, надає змогу фінансовому менеджеру публікувати проєкти та збирати кошти на фінансування від зареєстрованих інвесторів з подальшою виплатою відсотку від прибутку.

Ключові слова: краудфандинг; управління інвестуванням; функціонал системи; веб-платформа; проєкти з нерухомості.

ISSN 2522-9818 (print)
ISSN 2524-2296 (online) *Innovative Technologies and Scientific Solutions for Industries. 2020. No. 3 (13)*

ИНФОРМАЦИОННАЯ ПОДДЕРЖКА КРАУДФАНДИНГ-ИНВЕСТИРОВАНИЯ ПРОЕКТОВ

Предметом исследования статьи являются информационные технологии поддержки процессов инвестирования проектов недвижимости. Проекты по недвижимости требуют поиска источников и форм инвестирования, которые бы обеспечили баланс между затратами проекта и финансовыми ресурсами. Краудфандинг рассматривается как инновационный способ финансирования. **Целью** данной работы является создание платформы краудфандинга, ориентированная на привлечение новых инвесторов для поддержки проектов в сфере недвижимости. Решаются следующие задачи: исследование функциональных возможностей существующих платформ краудфандинга; разработка и настройка модулей расширения для выбранного фреймворка; разработка интерфейса финансового менеджера проекта с недвижимостью. **Методы** исследования: системный анализ, методы финансового менеджмента, информационные технологии разработки сайтов. Получены следующие **результаты:** Выделены характерные черты краудфандинга, которые делают его эффективным способом финансирования проектов. Проведен анализ популярных на сегодняшний день платформ краудфандинга, выявлены их преимущества и недостатки. В результате определены основные требования к краудфандинговой платформе инвестирования в недвижимость. На основе концептуальной модели интерфейса веб-платформы выделены основные функциональные возможности, описано сценарий взаимодействия пользователей и спроектировано базу данных. Разработаны необходимые модули системы внутреннего кошелька и системы проектов. Следует отметить, что система внутреннего кошелька позволяет делать взносы в проекты и контролировать получение прибыли. Также, помимо основных модулей был интегрирован и настроен модуль для блога и регистрации пользователей с подтверждением электронной почты. **Выводы**: Необходим учет интересов и формирование мотивации к инвестированию стейкхолдеров, которые предоставляют средства для осуществления проекта. Информационная поддержка краудфандинг-инвестирования повышает эффективность управления портфелем проектов, дает возможность финансовому менеджеру публиковать проекты и собирать средства на финансирование от зарегистрированных инвесторов с последующей выплатой процента прибыли.

Ключевые слова: краудфандинг; управление инвестированием; функционал системы; веб-платформа; проекты недвижимости.

Бібліографічні описи / Bibliographic descriptions

Малєєва Ю. А., Малєєва О. В., Демченко А. В., Піддубна Л. В. Інформаційна підтримка краудфандинг-інвестування проєктів. *Сучасний стан наукових досліджень та технологій в промисловості*. 2020. № 3 (13). С. 34–42. DOI: https://doi.org/10.30837/ITSSI.2020.13.034.

Malieieva, Ju., Malyeyeva, O., Demchenko, A., Piddubna, L. (2020), "Information support for crowdfunding and investing projects", *Innovative Technologies and Scientific Solutions for Industries*, No. 3 (13), P. 34–42. DOI: https://doi.org/10.30837/ITSSI.2020.13.034.