

Venture Financing as Support for the Sustainable Model of Post-War Rebuilding in Ukraine

By Iuliia Gernego¹, Mykhailo I. Dyba², Tetiana Shkoda³, Mykhailo V. Dyba⁴

Abstract

Currently, the Ukrainian economy faces a measure of challenges, caused by damages, losses and qualitative impacts. The primary ideas of post-war rebuilding have been conducted and presented at an international conference in Lugano, Switzerland. At this conference, the main primary areas for post-war rebuilding have been divided to be realized within the post-war rebuilding plan for the following ten years. The primary goal of the plan is to provide a unique chance not only to compensate for damage caused by the war but also to accelerate economic growth and improve quality of life in Ukraine. Thereby, there is an urgent need to describe a wide range of possible financial resources to support post-war rebuilding, based on innovative development and criteria of sustainable growth. The current research problem lays in the innovative forms of financial support following key principles of sustainable post-war rebuilding in Ukraine, namely stages of stability, restoration and modernization. The functional directions of post-war rebuilding are defined within the Ukraine recovery conference as of 2022 that are provided as continuation of the previous Ukraine reform conferences. The current research aims to represent the division of functional direction within the stages of stability, restoration and modernization, defining the necessary amounts of resources to be attracted for these stages. The capacity of venture financing is analyzed in the context of sustainable transformations within the post-war rebuilding process. As a result, the business angels are defined as an attractive source of financial support for the stability stage of post-war rebuilding in Ukraine, aiming to overcome the main part of damages and loss, caused by the full-scale war. The restoring stage is connected with long-term support of innovative projects within a sustainable restoring strategy. Venture funds and international organizations are important actors to conduct sustainable financing at micro- and macro-level. The venture capital divisions of specialized corporations and investment banks tend to provide financial and consulting support at the modernization stage of the post-war rebuilding process.

Keywords: innovative development, financial support, sustainable development, venture financing.

1. Introduction

The full-scale Russian invasion of Ukraine still continues and causes a measure of massive destruction of different types of Ukrainian infrastructure, including the energy industry, mobile network, water supply, sanitation, etc (Post-war Reconstruction of Economy 2022). These distractions also define a lot of problems for corporations, small business and start-ups within other industries, causing a decrease production and income, lack of innovative decisions within the production process and high-tech decisions.

¹Associate Professor of Corporate Finance and Controlling Department, Kyiv National Economic University named after V. Hetman, Ukraine.

²Professor of Corporate Finance and Controlling Department, Kyiv National Economic University named after V. Hetman, Ukraine.

³Professor of Department of Business Economics and Entrepreneurship, Kyiv National Economic University named after V. Hetman, Ukraine.

⁴PhD student of Corporate Finance and Controlling Department, Kyiv National Economic University named after V. Hetman, Ukraine.

Moreover, the war negatively influences social responsible initiatives and “green” project realization, providing also new tension for ESG investors. The experts already define the importance of transforming Ukrainian society and economy by modernizing instead of simple recovery within the post-war rebuilding process. The modernization activity tends to be implemented within all key areas of the economy, including agriculture, energy, transportation and logistics, concerning also potential ecological and social influences of their development. According to the Center of Applied Research, the recovery of Ukraine's economy should take into account its unique social and economic potential, including development of the production and service sector, structural reforms within legislative and managerial areas, creation of industrial parks and special economic zones, support of resource potential (Davymuka, etc. 2022). This means the significance of considering activity that aims to achieve economic and social sustainability in post-war society.

Currently, the Government of Ukraine, the European Commission and the World Bank are researching the estimation of potential costs of reconstruction and recovery in the Ukrainian economy. In particular, as of September 2022, the estimated costs of reconstruction and recovery in our country amount to 349 billion EURO (Joint press release 2022). In particular, small and medium businesses have lost nearly 64-85 billion dollars as of 2022. Namely, about half of Ukrainian small and medium business representatives completely or almost completely stopped working (Davymuka, etc. 2022). In addition, this amount continues to grow due to the war's continuation. Thereby, the issue of financial resources searching for post-war recovery in Ukraine has a pivotal role in further research and practical implementation on different levels. In particular, it is important to define all possible sources to finance post-war reconstruction and recovery, including traditional resources and alternative ones.

Post-conflict rebuilding primarily aims to achieve a wide range of changes within different sectors of the economy. The primary need to start these changes is to improve their financial support and sustain investment flows (Addison, etc 2001). According to the State service of statistics in Ukraine, own funds of enterprises were considered the main source of innovative activity financing. State budget funds were taking second place for a rather long time. The percentage of funds of non-resident investors and funds of other sources were also taken into account. At the same time, these funds of other sources mainly contained banking credits (Science, technology and innovation 2022). However, the performance of available financial resources is limited due to the lack of statistical information on grant financing, crowdfunding and venture funds resources. So far, one of the most significant post-war rebuilding needs is consideration of alternative resources and probability of their use in the context of reconstruction. In particular, since the full-scale russian invasion started, the support of the Ukrainian economy from European funds has increased. For instance, as of the end of 2022, the EU has mobilized about 4 bln. EURO to support a wide range of resilience programs, considering different forms of macro-financial assistance, emergency assistance and budget support (EU disbursed ... 2022).

Thereby, there is practical need in considering the potential of venture financing for post-war rebuilding in Ukraine. However, in light of recent trends, it is rather difficult to find appropriate studies that provide an analysis of venture financing impact on reconstruction and its role within the post-war rebuilding process. Thus, the current study tends to

highlight both the issue of sustainability within the post-war rebuilding process in Ukraine and the prospects of venture financing use. At the analytical part of the research, attention is paid to the potential specific role of venture financing in the post-war rebuilding of the Ukrainian economy. The genesis of this thesis is caused by the need to implement post-war rebuilding activities as part of the national economy modernization strategy, supported by appropriate financing.

2. Previous research

It is now well established from a variety of studies that venture financing plays a significant role in innovation support both on macroeconomic and microeconomic levels. However, despite the practical focus of venture financing issues, there is also a urgent need of these issues for constant theoretical research. Therefore, in connection with the actualization of venture financing in practice, research on this topic is spreading in the research of Ukrainian and foreign authors. In particular, the role of venture financing in the process of creating and stimulating the activities of high-tech startups is considered in the scientific research of E. Markopoulos, L. Cacciolatti and others (Markopoulos, *etc.* 2019; Cacciolatti, *etc.* 2020). The authors paid attention to the specifics of innovative activity in the context of limited resources, as well as the decisive role of venture capital for innovative start-up development. Franck and Wylie, as well as Kinash emphasized the role of venture capital in the process of building the social sphere and innovative infrastructure (Franck, *etc.* 2015; Kinash, *etc.* 2019). Global and national prospects for the development of venture financing, theoretical justifications of the essential characteristics of venture financing are present in research of Ukrainian authors, including O. Ulyanytska, H. Piratovskiy, O. Romanishyn and others. The global experience of venture financing as a modern form of investment and the possibilities of its application in Ukraine are considered in research of O. Rozhko, A. Slobozhenyuk and N. Didyk (Didyk 2017; Rozhko 2013; Gernego, *etc.* 2019).

In addition, along with actual theoretical studies of the specifics of venture financing, analytical materials on the relevant topic, substantiated by the efforts of experts of international and national specialized organizations, are becoming more and more important. In particular, in Europe, analytical studies are carried out by experts of the European Private Equity and Venture Capital Association. In the USA, this function is performed by specialists of the National Venture Capital Association. In connection with the actualization of the issue of attracting venture capital for the development of innovative business in our country, the Ukrainian Venture Capital and Private Equity Association was founded. In addition, a rather wide range of research on the development trends of venture financing is present in the analytical reports of consulting companies.

The growth of the role of sustainable development at the global level took place in 2015 that is connected with the Sustainable Development Goals (SDGs) published by the United Nations (UN). UN experts have defined 17 Sustainable Development Goals, which involve a combination of economic, social, management and environmental effects (What are the Sustainable Development Goals 2021). Subsequently, in practice, there was a need to attract resources to achieve and balance the specified priorities. Accordingly, manifestations of sustainable development in modern society and the specifics of its

financing are reflected in the works of analysts from JPMorgan Chase, CFA Institute, Citigroup, LG Energy Solution, OECD, and Goldman Sachs (Environmental, Social & Governance Report 2020; ESG integration in Europe 2019; Environmental, Social and Governance Report 2020).

The post-war rebuilding strategy is considered at the governmental level. In particular, at a conference in Lugano, Switzerland, representatives of Ukraine presented a post-war recovery plan worth more than \$750 billion, which will include 850 projects for the country's reconstruction (Post-war recovery plan for Ukraine 2022). The "Ukraine reconstruction platform" tends to be managed at the international level, led by the co-leaders representing the European Union and Ukrainian government. The work within the platform will consider the issue of financial and capacity support along with technical assistance by the European Union, providing background for different types of financial instruments use (Joint press release 2022; Mayorova etc. 2019).

So far, there is still little published data on particular alternative financial instruments to support the post-war rebuilding of the national economy. The issue is rather complicated and needs detailed and right on time analysis. Thereby, there is a urgent need to support systematic understanding of alternative financial resources, including venture financing, as potential mechanisms of sustainable post-war rebuilding support.

3. Sustainability as a key priority of post-war rebuilding in Ukraine

The primary plan of the Ukrainian economy post-war rebuilding was presented at an international conference in Lugano, Switzerland. The plan is designed for ten years and covers 15 main areas. Its realization is planned during the following ten years. The primary goal of the plan is to provide a unique chance not only to compensate for damage caused by the war but also to accelerate economic growth and improve quality of life in Ukraine (Plan of Ukrainian economy recovery 2022). The realization of the above mentioned goal is planned through implementation of three basic principles (Figure 1).

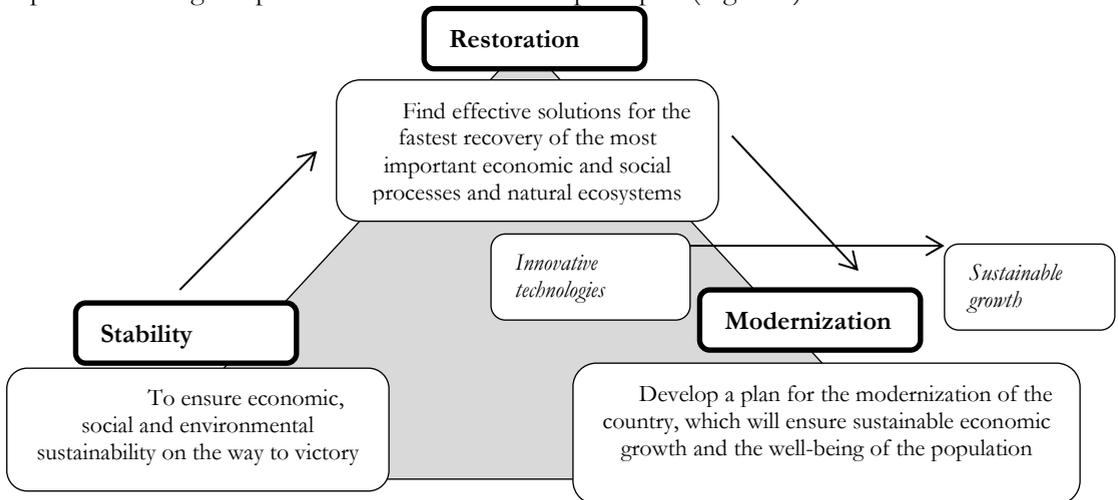


Figure 1. Key principles of sustainable post-war rebuilding in Ukraine

Following the governmental strategy, the first part of the post-war rebuilding plan considers stabilization as a priority within national activities and politics. This means a measure of actions to restore the objects of critical infrastructure. The stabilization plan tends to be realized in one year. In particular, the primary goal of governmental strategy within the “stability” direction is to restore the appropriate infrastructure and provide support for small and medium-sized businesses development, houses and main social infrastructure restoration. The expected amount of investments to be received during the stabilization stage of post-war rebuilding in Ukraine is about 60-65 billion dollars.

The following stage of post-war rebuilding considers the activity, aiming at restoration to implement the plan for the fastest recovery of the most important economic, social processes and natural ecosystems. The expected duration of this stage is about two years. The amount of financial resources to support the activity within the restoration stage is more than 300 billion dollars. The above-mentioned stages aim to restore the main objects of social and business infrastructure, supporting its functionality and providing background for social area and business restoration in the context of post-war rebuilding strategy implementation.

However, stabilization and restoration represent only the primary part of sustainable post-war rebuilding strategy implementation in Ukraine. The main goal of the plan of Ukrainian economy recovery is to modernize the national ecosystem, implementing the leading and the most innovative European practices. Thus, the next stage of post-war rebuilding strategy in Ukraine is the national economy modernization, which is expected to be implemented within five years. The required amount of investments to be attracted is more than 400 billion dollars (Ukraine’s National Recovery Plan 2022).

The post-war rebuilding plan is developed and represented in the context of the Ukraine recovery conference, which is a continuation of the series of Ukraine reform conferences (Figure 2).

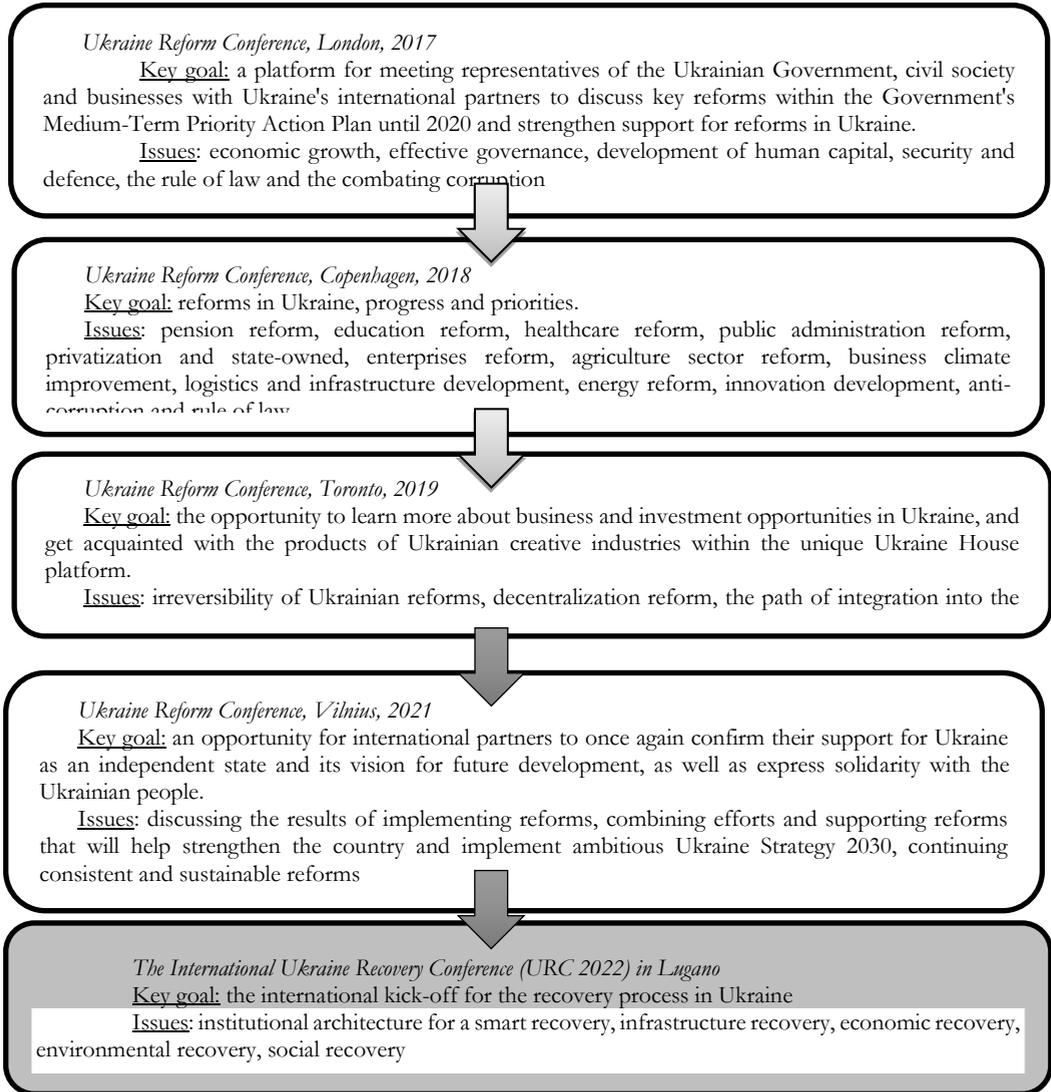


Figure 2. Ukraine recovery conference: evolution and historical aspect

The above-mentioned stages show us the evolution of key issues within recent reforms and plans for future recovery in Ukraine. The goal of the primary meeting in 2017 was to put together the representatives of Ukrainian government, civil society and business, providing a synergetic effect as a result of this type of cooperation. The second Ukrainian reform conference aimed to analyze progress and priorities of previously conducted reforms. This means estimating the realization of a wide range of reforms, namely pension reform, education reform, healthcare reform, public administration reform, privatization

and state-owned enterprises reform, agriculture sector reform, business climate improvement, logistics and infrastructure development, energy reform, innovation development, anti-corruption and rule of law. The Ukraine reform conference of 2019 provided the opportunity to discuss the issue of possible directions of cooperation between business representatives of different industries and their potential investors. In particular, the main attention is paid to criteria of sustainable development in investors' decision making. The results of the following Ukraine reform conference as of 2021 describe the influence of sustainable reforms on the investment attractiveness of the national economy. These previously mentioned reform conferences created the background for development and implementation of sustainable strategy in our country, supporting investors, straightening the national sustainable development system.

The international Ukraine Recovery Conference in Lugano aims to elaborate the national recovery strategy, connecting the activity within the areas of economic, environmental, social and infrastructure recovery from damages and losses caused by the war. In particular, the main methods, priorities and principles of sustainable recovery are defined to mobilize international financial institutions and private investors and attract significant emergency assistance programs to support post-war recovery in Ukraine.

The following Ukraine Recovery Conference will take place in the UK in 2023. The main points of this conference will be based on the principles of the Lugano conference. However, the main conference focus will be removed to the potential of mobilizing international support for Ukraine's economic and social stabilization and recovery from the effects of war. Thereby, there is a need to provide deeper understanding of potential sources to support post-war rebuilding in our country, aiming to implement sustainability principles into a wide range of activities.

4. Potential sources of post-war rebuilding support

The post-war rebuilding is a rather long-lasting and expensive process, whose success depends a lot on the available funding and their sources of attraction. For instance, the post-war rebuilding in Europe after the Second World War was based on sufficient financial support in the context of the Marshall Plan. This plan covered 17 European countries to support both their economic capacity and boost their further development in economic and social context. The total amount of the Marshall Plan support was USD 13 bln in aid (USD 115 bln at the 2021 rate) to cover the programs of industrial and infrastructure recovery support along with the modernization initiatives. As a result of sufficient financial support, from 1948 to 1952, industry grew by 35% and the income level of the mid-1970s— by 20 % (Pylypenko 2022). As the additional result of sufficient resource attraction, the synergetic effect was created, straightening the cooperation between European countries that provided the basis for the European Union creation. Nowadays, the post-war rebuilding in Ukraine also means the need to support national economic development, modernization and growth. In particular, the international experts define the main industries and directions to boost the Ukrainian economy recreation, modernization and growth. The main critical elements of post-war rebuilding are energy transition; the IT services sector, medicine and transport services, reconstruction of houses and infrastructure. However, these changes may be implemented only in case of sufficient

financial support. Currently, a lot of international organizations are assisting Ukrainian society on its way to social and economic recovery. For instance, there is a wide range of projects that are financed by individual UN agencies as well as the EBRD. There is also a measure of tenders, conducted by the World Bank regulation. However, despite these funding possibilities, there is still a need to attract other institutional and private investments from a wide range of sources to satisfy such proceedings in favour of Ukraine (Rebuilding Ukraine in practice – financing sources and investment perspectives 2022). Despite the definition of directions and priorities of post-war rebuilding in Ukraine, the Ukraine Recovery Conference in Lugano defined the amount of resources, aiming to support the post-war rebuilding strategy. Under analytical research, conducted in the context of this conference, the estimated amount of resources needed for recovery is 750 billion dollars with the aim of implementing about 850 projects. The recovery plan will have a long-term nature and is designed to implement socio-economic growth projects during 2023-2032. Thereby, there is a need to define the structure of financing, taking into account different stages and directions of post-war rebuilding in Ukraine (Figure 3).

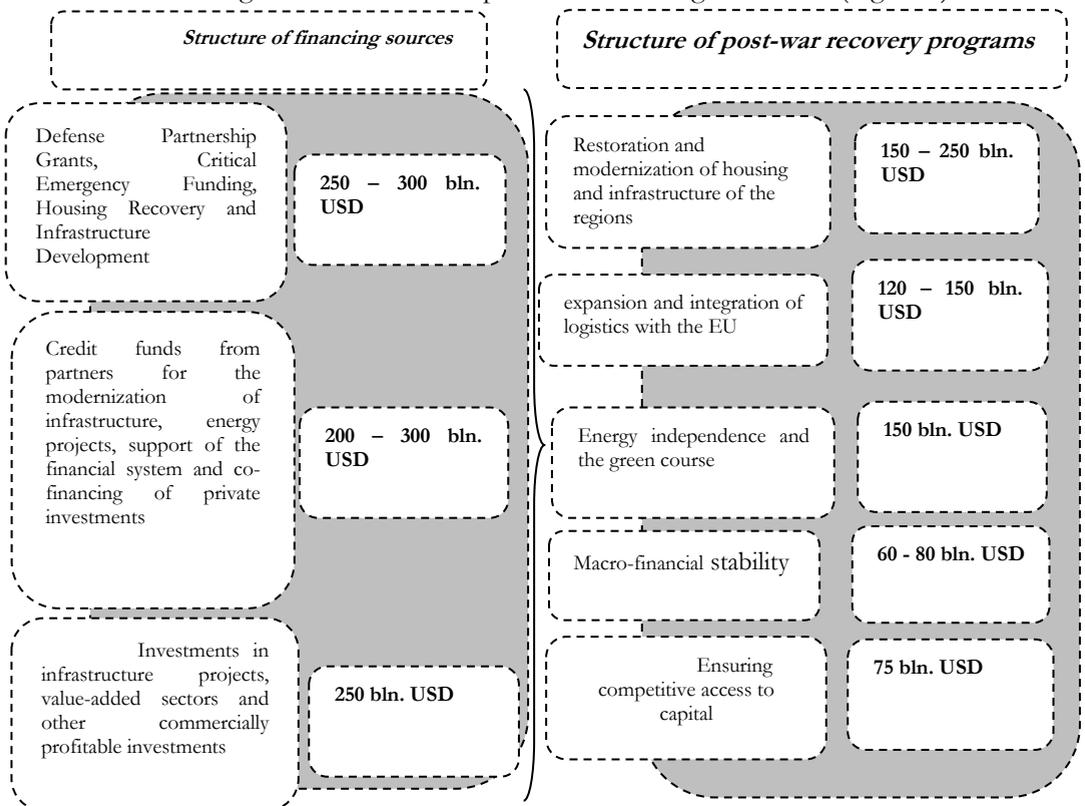


Figure 3. Directions and priorities of post-war rebuilding in Ukraine: financial aspect*
 *Source: (Brenner 2022; Gordijchuk 2022)

Accordingly, the plan for the recovery of Ukraine's economy includes a wide range of investments aimed not only at economic and infrastructural recovery but also at energy

and environmental stability, development of the management system and social responsibility. The given directions are of a long-term nature, namely the expected annual growth rate of the national economy over the next 10 years will be about 7%. Among the sources of financial support, a prominent place is occupied by grants, loans for financial and humanitarian support, as well as international technical assistance programs. In particular, spending on social infrastructure, including medicine, including medicines and special equipment for medical institutions, occupies a prominent place (Duginets 2022). At the same time, sustainable post-war recovery and modernization will be based on innovations. Therefore, it is crucially important to analyze the capacity of venture financing and its potential to support the strategy of sustainable development and growth in the context of the post-war recovery process.

5. Venture financing in the context of sustainable model of post-war recovery and rebuilding in Ukraine

According to the Ukrainian Startup Fund (USF), in the first months of the war, 99 % of companies needed financial support. Only after a certain time, the demand on the market recovered by an average of 40-50%. A slightly better situation was observed in the field of education, where a drop in demand by only 10-20% was recorded. The effects of the war were immediately felt by venture capital funds that had portfolio companies related to logistics, physical goods and movement (Will startup survive 2022).

However, there are many Ukrainian innovative startups and venture businesses already playing an active role in Ukrainian society. For instance, innovative logistics startup Cargofy created the Pomich platform to deliver humanitarian aid and evacuate people from dangerous regions of the country. The Liki24 service moved its entire logistics center and has been delivering tons of humanitarian aid since the beginning of the war. The company also founded the charity fund "Medicines for Ukraine", where Ukrainians can purchase any medication with 50% compensation and free delivery. The team of the startup 3DLOOK, which specializes in the technology of scanning the human body by photo, collected more than \$14 thousand for the purchase of medicines and delivered them to the southern regions of the country.

The strategy of social and economic development and post-war rebuilding, elaborated by the Ministry of economy of Ukraine, is based on venture startup activity support. To attract foreign investors to the Ukrainian economy, a unique electronic platform Advantage Ukraine has already been created, which collects more than 500 investment projects and opportunities in 10 sectors of the economy. Each potential investor, after registering on the platform, will receive comprehensive information about investment opportunities, specific projects and the benefits that he will have from investing in the economy of Ukraine.

The representation of the Ukrainian economy on the international market is also connected with venture capital and innovative startups. For instance, ten Ukrainian startups have been presented on the stand of the TechCrunch Startup Alley, namely:

- eKYC is a solution for verifying business customers in real time;
- Nanit Robotics is an educational robot that has an innovative approach to identifying creative and technical abilities of children;

- QAI is game testing platform based on machine learning;
- Harmix is an intelligent service that automatically selects music for videos.
- Cardiomo is portable medical technology for real-time heart monitoring;
- Shortage is an international marketplace for humanitarian goods for Ukraine.
- Howly is a platform where people can get online advice from various experts 24/7;
- Numo ADHD is an educational application for children with attention deficit hyperactivity disorder;
- Zeeon is a meta universe for public communication and coworking;
- Vanongo is a logistics platform that helps deliver humanitarian aid to Ukraine (At the annual techcrunch... 2022).

Thereby, the Ukrainian economy rebuilding is based on innovation and criteria of sustainability. This means the importance of defining venture financing as a potential source for a sustainable model of post-war recovery and rebuilding in Ukraine development (Figure 4).

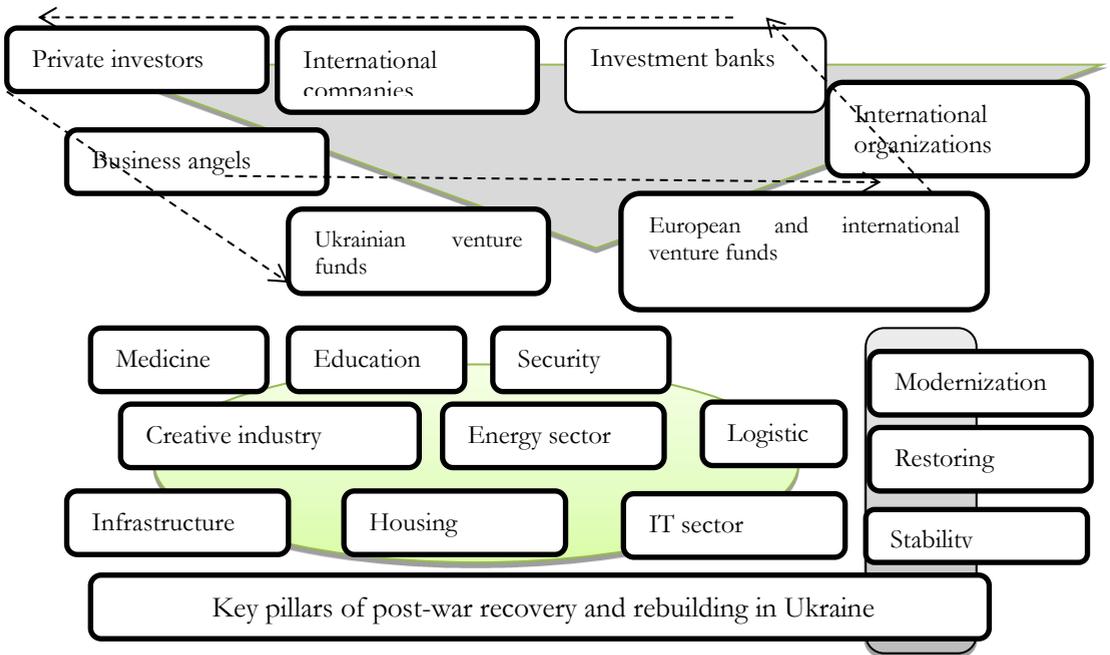


Figure 4. Venture financing as a source for sustainable model of post-war recovery and rebuilding in Ukraine development

* Source: compared by authors

In accordance with the Ukrainian economy post-war recovery and rebuilding plan, discussed within the Lugano conference, a wide range of potential rebuilding directions tends to be covered within three stages. The initial stages aim to provide resources for realization of the principles of stability that means energy system support to start its modernization, social infrastructure and housing rebuilding with innovative instruments assistance. The main issue of attracting financial resources at this stage is to provide

sufficient resources for timely innovative decisions during a rather concise timeframe. Thereby, the main characteristics of preferable sources of financing at this stage are their flexibility, possibility of urgent attraction and comparability of financial instruments with consulting services. In particular, along with specialized funds resources, there is an increasing importance of private venture capital at this stage of post-war rebuilding in Ukraine.

According to KSE research, the total damage to residential, non-residential real estate and social infrastructure is about 127 billion USD. The main part of damages is defined within the residential and non-residential real estate sector (40% or \$50 billion) and infrastructure (28% or \$35 billion). The “stability” stage is highly connected with the sustainability concept, which is based on green logistics principles, ensuring the use of sustainable resources, proper waste management schemes and introducing renewable energy-powered vehicles. Thereby, there is increasing importance to attract private financial resources, contributing modernization and improving of housing and infrastructure in Ukraine that is connected with use of environmentally friendly logistics systems (Importance of private investment for post-war rebuilding of Ukraine 2022). Business angels will be available to provide consulting services within particular areas in addition to financial support.

The restoring stage considers implementation of strategic decisions within the most important economic and social processes and natural ecosystems. Thereby, there is a need to attract long-term financial resources from venture funds and international organizations (Figure 5).

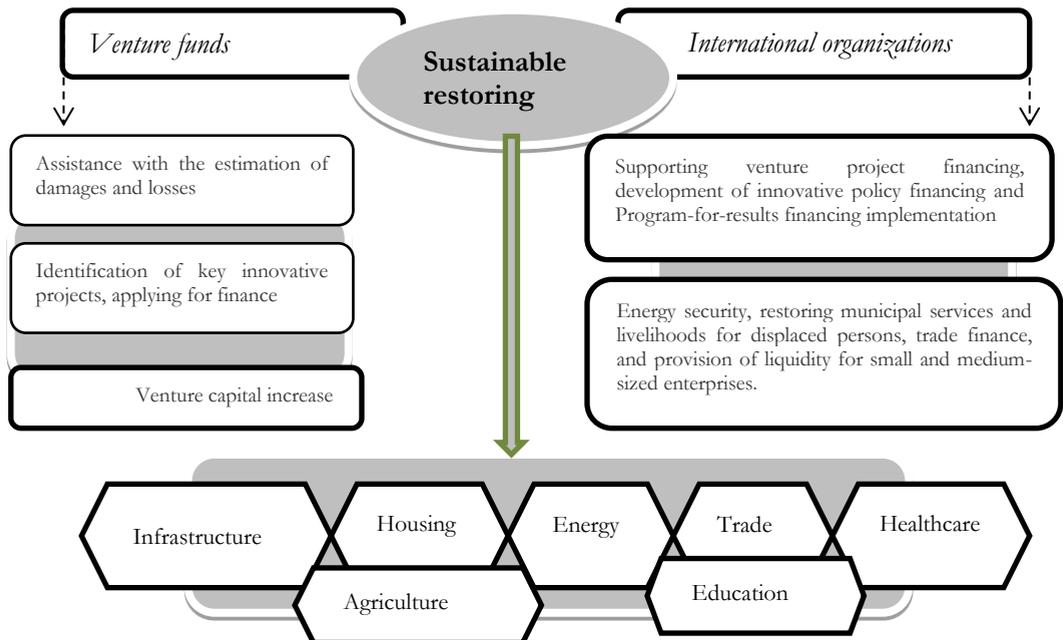


Figure 5. *Venture financing as a source for sustainable restoring in Ukraine*

* Source: (Post-war reconstruction: Case study 2022)

The sustainable restoring support is reasonable to be based on combining venture funds and international organizations capacity. Venture funds can provide financial assistance for long term innovative projects, having significant impact at restoring processes. This means the probability of venture capital increases in our country. Thus, venture funds can provide long-term assistance in the sustainable restoring process at the micro level. At the same time, international organizations have capability to support the implementation of venture financing strategy at the state level, providing assistance of venture finance policy and appropriate programs for result financing implementation.

The third stage of the post-war rebuilding strategy is based on the modernization process. Thereby, there is a need to attract foreign investors with practical experience in particular sectors of the economy. Such functions may be successfully conducted by innovative departments of business representatives and venture financing departments of investment banks. There is a possibility to divide the support of restoring within main branches between the leading companies within the particular branch, deciding to act as venture investors in addition to their primary activity. For instance, Google conducted its venture investment activity within Google Ventures (GV) that is a fund, originally founded by Google in 2009 and currently partnering with Alphabet. GV supported mainly IT solutions, including such investment outcomes as Uber, Nest, Slack, GitLab, Duo Security, Flatiron Health, Verve Therapeutics, and One Medical. Thus, there is a possibility to use progressive international experience of such types of companies to conduct modernization activity in Ukraine.

6. Financial perspective of post-war rebuilding

The post-war reconstruction in Ukraine aims to be focused on the possibility to transform and modernize the national economy, supporting its sustainability, along with the direct rebuilding activity against destruction. In particular, the post-war rebuilding processes should be based on the principles that support climate smart, environmental friendly and inclusive reconstruction, including implementation of technological innovation, nature protection activity, social responsible business and good governance initiatives support. It is important to pay attention to new approach of post-war rebuilding of Ukrainian economy. In particular, the principle of stability should be implemented through a strong participation of civil society, local governance and independent experts in ensuring transparency, inclusiveness and accountability of reconstruction programs (Statement on Sustainable 2022). This will assist the involvement of international organizations and donors to the process of post-war reconstruction in Ukraine. The restoration process aims to support the fastest and the most effective recovery, developing the national economy capacity for innovation and high-tech solutions implementation. This will attract the resources of relevant European and international aid agencies and institution to integrate the most progressive standards and technologies into the post-war rebuilding process along with the participatory budgeting of local restoring projects. Reconstruction efforts tend to be directed toward modernization, leading the decrease in energy consumption and circular approach implementation through the main sectors of economy. The sustainable relaunch of main industries provides a strong background for

sustainable development strategy implementation, attracting a measure of long-term investments, including venture financing.

The sufficient financial support is one of the key pillars of the effective post-war recovery. In particular, the financial perspectives of post-war rebuilding are connected with consideration of different groups of external sources, including:

- international organizations and aid agencies. This will assist in meeting the primary economic needs due to the enormous destructions, including satisfaction of the primary housing needs, addressing the basic infrastructure needs;
- resources from selling Russian assets to support reconstruction. This may address some urgent needs, including restoring of health and educational systems, support to agriculture;
- long-term investments, aiming to modernize the Ukrainian economy and boost its sustainable development. This means the possibility of venture capital attraction to embrace global challenges through driving capacity for innovative development in Ukraine.

7. Conclusion

In conclusion, the current research provides information on venture financing as a part of the general support system for the sustainable model of post-war rebuilding in Ukraine implementation. The primary analytical research is provided in accordance with available scientific background on Ukrainian post-war rebuilding strategy implementation and support. The current research problem is analysed in the context of Lugano conference activity and appropriate results on post-war rebuilding strategy.

Thus, as a result of theoretical background on sustainable development and venture financing analyses, concerning the priorities and primary directions of post-war rebuilding, it is possible to conclude the following aspects and peculiarities of post-war rebuilding in Ukraine, including:

- the post-war rebuilding strategy is based on the previously discovered background of Ukraine reform conferences that have discovered the need of a wide range of reforms implementation, aiming to straighten the national economy by venture sector development and national economy sustainability support;
- the three basic stages of post-war rebuilding have been defined within the Lugano conference, namely stability, restoring and modernization. Thus, there is a need to describe an appropriate measure of sources to finance post-war rebuilding on each of them;
- the stability stage of post-war rebuilding in Ukraine aims to overcome the main damages and losses, caused by the full-scale war. Thereby, the innovative development on this stage is connected with sustainable housing, logistic industry and infrastructure rebuilding. The appropriate form of venture capital attraction is the use of individual investors capacity, including business angels, who are ready to provide consulting services and mentoring support in addition to high-risk investments for reconstruction projects;
- the restoring stage aims to increase the effectiveness and productivity of the national economy along with restoring the social and business infrastructure within a range of primary branches (including, education, agriculture, infrastructure, housing, energy, trade, healthcare, etc.). This means the need for long-term support of innovative projects

within a restoring strategy that may be provided by venture funds (venture sustainable financing at micro level). The realization of national post-war rebuilding strategy will be held using international organizations resources and experience at the restoring stage;

- the modernizing stage is considered the most innovative one that can support the future increase of the national economy's competitiveness within global markets. The main peculiarities of conducting activity within the modernization stage are connected with the possibility of long-term project management in particular branches along with high-risk investments provision. The function of venture investors at this stage may be successfully conducted by venture capital divisions of specialized corporations and investment banks. Such support provides the possibility to manage sustainable development within the particular area, based on previous experience of international investors and consulting activity, concerning previously achieved high qualification.

Such a combination of different venture financing sources within each stage of the post-war recovery process will increase the general capability of available investors, straightening the sustainability of the national economy during the post-war rebuilding process. Due to the practical nature of the chosen topic, there is a need to conduct further research, considering a wide range of financial resources to support innovative development.

References

- Addison, T., Le Billon, P., Murshed, S. M., (2001) *Finance in Conflict and Reconstruction*, Discussion Paper No. 2001/44, World Institute for Development Economics Research of the United Nations University (UNU-WIDER), Helsinki
- At the annual techcrunch disrupt technology conference with the support of the ministry of economics, the Ukrainian pavilion of startups opened for the first time.* (2022). Ministry of Economy of Ukraine. URL: <https://www.me.gov.ua/News/Detail?lang=uk-UA&id=a656794c-0cec-4cc3-b2b0-d2f698fe2fe5&title=NaSchorichniiKonferentsiiTekhnologiiTechcrunchDisruptZaPidtrimkiMinekonomikiVpersheZapratsiuvavUkrainskiiPavilionStartapiv>
- Brenner, J. (2022) *Some ideas for a post-war recovery of Ukrainian cities*, Urban Research & Practice, DOI: 10.1080/17535069.2022.2097646
- Cacciolatti, L., Rosli, A., Ruiz-Alba, J. L., Chang, J. (2020). *Strategic alliances and firm performance in startups with a social mission*. Journal of Business Research. 106. 106-117.
- Davymuka O., Karakuts, A., Shchedrin, Yu. (2022). *Post-war recovery of the economy of Ukraine*. Center of Applied Research. 2022. 30 p.
- Davymuka, O., Karakuts, A., Shchedrin, Yu. (2022). *Post-war recovery of the economy of Ukraine*. Center of Applied Research. 30 p.
- Didyk, N. V. (2017). *World experience of venture financing as a modern form of financing*. Visnyk Mukachivskoho derzhavnoho universytetu, 10, 42 – 47.
- Duginets, G., Nizejko, K. (2022). *International technical assistance in post-war reconstruction of Ukraine*. Scientia Fructuosa. No 3. 36-49. [https://doi.org/10.31617/visnik.knute.2022\(143\)02](https://doi.org/10.31617/visnik.knute.2022(143)02)
- Environmental, Social & Governance Report.* (2020). JP Morgan Chase & Co., 59 p. URL: <https://www.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/documents/jpmc-esg-report-2020.pdf>
- Environmental, Social and Governance Report.* (2020). Citigroup. 177 p. URL: <https://www.citigroup.com/citi/about/esg/download/2020/Global-ESG-Report-2020.pdf?ieNocache=394>
- ESG integration in Europe, the Middle east, and Africa: markets, practices, and data.* (2019). CFA Institute, 220 p. URL: <https://www.cfainstitute.org/-/media/documents/survey/esg-integration-in-emea.pdf>

- EU disburses €600 million in Macro-Financial Assistance to Ukraine. (2022) European Commission. URL: https://ec.europa.eu/commission/presscorner/detail/pl/ip_22_3183
- Franck, S. D., Wylie, L. E. (2015). *Predicting outcomes in investment treaty arbitration*. Duke Law Journal. 2015. Vol. 65. p. p. 459-525.
- Gernego Iu., Dyba O., Petrenko L. (2019). *Determinants of innovative activities concerning socio-economic growth. Financial and credit activities problems – theory and practice*. Vol. 3 (30). 445 – 453. DOI: 10.18371/fcaptop.v3i30.179825
- Gernego, I., Shkoda, T., Savych, O. (2021). *Marketing tools in strategic management of young scientists' human capital*. Baltic Journal of Economic Studies, 7(4), 43-53. <https://doi.org/10.30525/2256-0742/2021-7-4-43-53>
- Gordijchuk, D. (2022). *Ukraine has introduced a \$ 750 billion recovery plan: what a post-war reconstruction will look like*. Ekonomichna pravda. URL: <https://www.ukrinform.ua/rubric-economy/3493522-ak-nam-vidbuduvati-ukrainu-ispisni-svitovi-kejsi-povoennogo-vidnovlennia.html>
- Importance of private investment for post-war rebuilding of Ukraine*. (2022). Ukraine Invest. URL: <https://ukraininvest.gov.ua/news/07-11-22/>
- Joint press release: Ukraine Recovery and Reconstruction Needs Estimated \$349 Billion (€349 Billion)*. (2022). European Commission. Press release. URL: <https://www.worldbank.org/en/news/press-release/2022/09/09/ukraine-recovery-and-reconstruction-needs-estimated-349-billion>
- Kinash, I., Andrusiv, U., Golovnia, O., Popadynets, I. (2019). *Aspects of the formation and development of innovation infrastructure in Ukraine*. Management Science Letters. 9(13). 2403-2414.
- Markopoulos, E., Umar, O., Vanharanta, H. (2019). *Agile Start-up Business Planning and Lean Implementation Management on Democratic Innovation and Creativity*. In International Conference on Human Systems Engineering and Design: Future Trends and Applications. Springer, Cham.
- Mayorova, T., Domžal, Z., Gernego, Iu., Dyba, O. (2019). *High-technology investments as a driver of rural productivity*. Management Theory and Studies for Rural Business and Infrastructure Development. Vol. 41. No. 1. P. 25-32. <https://doi.org/10.15544/mts.2019.03>
- Plan of Ukrainian economy recovery*. (2022). Ukraine recovery conference. URL: <https://ua.urc2022.com/plan-vidnovlennya-ukrayini>
- Post-war Reconstruction of Economy: Case Studies*. (2022). KPMG in Ukraine. 70 p.
- Post-war reconstruction: Case Studies*. (2022). KPMG. URL: <https://kpmg.com/ua/en/home/insights/2022/12/post-war-reconstruction-of-economy-case-studies.html>
- Post-war recovery plan for Ukraine*. (2022). National program. URL: <https://recovery.gov.ua/>
- Pylypenko, Ya. (2022). *Rebuilding everything: how countries recovered from war*. Transparency International Ukraine. URL: <https://ti-ukraine.org/en/blogs/rebuilding-everything-how-countries-recovered-from-war/>
- Rebuilding Ukraine in practice – financing sources and investment perspectives*. (2022). Kochański & Partners. URL: <https://www.kochanski.pl/en/rebuilding-ukraine-in-practice-financing-sources-and-investment-perspectives/>
- Rozhko, O. D., Slobozheniuk, A. S. (2013). *World experience of venture financing as a modern form of investment*. Efektyvna ekonomika, 5. Retrieved from <http://www.economy.nayka.com.ua/?op=1&z=2056>
- Science, technology and innovation*. (2022). Statistical service of Ukraine. URL: https://ukrstat.gov.ua/druk/publicat/kat_u/publnauka_u.htm
- Statement on Sustainable and Transformative. Post war reconstruction in Ukraine June 2022*. (2022). WWF. URL: <https://wwf.ua/en/?6984391/postwar-reconstruction-Ukraine>
- Ukraine's National Recovery Plan*. (2022). National Recovery Council. July 2022. URL: https://uploads-ssl.webflow.com/621f88db25fbf24758792d8/62c166751fcf41105380a733_NRC%20Ukraine%207s%20Recovery%20Plan%20blueprint_ENG.pdf
- What are the Sustainable Development Goals?* (2021). UNDP. URL: <https://www.undp.org/sustainable-development-goals>
- Will startups survive?* (2022). How the Ukrainian venture market works during the war? Business. URL: <https://biz.nv.ua/ukr/experts/ukrajinski-startapi-pid-chas-viyni-shcho-vazhlivo-zrobiti-venchurni-investiciji-50251779.html>