SUSTAINABLE PRODUCTION AND CONSUMPTION STRATEGIES IN THE CONTEXT OF EUROPEAN INTEGRATION PROCESSES IN UKRAINE

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Summary

Modern requirements for companies and consumers include the stability of financial performance amid increasing environmental attractiveness. Companies need to cover such seemingly diverse interests as profitability for owners, concern for staff, interest for partners and consumers, actions for environmental protection. It is essential to consider the growing role of conscious consumption, which is a direct regulator of production activity. The aim is to formulate a strategy and recommendations for combining sustainable initiatives in production and consumption in the context of European integration processes in Ukraine.

The research object is sustainability in production and consumption. The article proposes a strategy that combines sustainable production and sustainable consumption into one cluster. It will allow sustainable initiatives are focused on systemic changes and essential areas of production and consumption. The practical value of the approach is in a strategy that includes measures stimulating environmental and socio-economic policy of production. It will allow moving from relative disunity of actions to technological standards. The proposed strategy can be implemented in recommendations for improving programs on changing behaviour from a gradual transition from individual consumers to broader initiatives to change the entire system – production and consumption. Today, this is especially important, including for Ukraine, considering its transition to sustainability and the implementation of sustainable development goals in the sphere of sustainable production and consumption. Also, we outlined directions for further research in the policy of sustainable production and consumption in the context of European integration processes in Ukraine.

Keywords: environmental accounting and reporting, sustainability, environmental aspects, conscious consumption.

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1. Introduction

In the conditions of limited natural resources and the loss of the planet's ability to self-recover, the current environmental footprint of humanity cannot be called sustainable. A comprehensive assessment of land, water, energy, material and other resources taking into account their delivery, storage, processing and disposal, has primary importance for understanding sustainability and efficiency from the producers and consumers point of view.

Today, the efforts are aimed at analysing current environmental problems and their correlation with the most sustainable levels of society development. Thus, we recognise a multisystem approach that combines measures: to study the anthropogenic impact; to assess trade-offs between environmental protection and human activity; to improve computational methods; to assess maximum sustainable levels of the ecological footprint; comparative analysis of resource use efficiency. Ultimately, transformational changes emerge in the global economy to reduce humankind impact on the environment to a sustainable level. At the same time, investors, clients, regulators, the media are increasingly paying attention to the companies' efforts in sustainable development.

But we must not forget about consumers. They are another powerful resource that allows not only to control production but also to stimulate, direct and develop its new qualitative characteristics. It is necessary to combine production and consumption to create a powerful lever to control and encourage environmental protection. Today, sustainable consumption through eco-conscious behaviour is crucial to future business success. However, the fundamental issue is how to assess the sustainability of production and consumption.

By focusing on the company's shareholders, business partners, suppliers, employees, customers, and the requirements and recommendations for environmental protection and society well-being as a whole (present and future generations), companies strive to maximise their value while ensuring stable financial results.

However, the approaches and preferences for the formation values in the mentioned groups can be different and take on a wide variety of forms. Sustainable production and consumption can stabilise and streamline a diversity of values and reduce them to one common denominator – the criteria for financial prosperity without harming the environment and public health.

2. Literature review

Over the past 30 years, the issue of sustainability in business has arisen repeatedly. Many approaches and conceptual solutions to the issue were formulated. However, there is still a long way to complete clarity. Growing environmental concerns are a tracer of the lack of initiative by businesses and consumers.

Perhaps, the first step towards sustainability is refusal from individual responsibility; and the recognition of collective responsibility for sustainability issues. In other words, there is a shared responsibility for environmental problems and joint actions to eliminate them and prevent the emergence of new ones. Today, there are almost no environmental issues, which can be considered concerning to one company or industry. Long-term development and economic growth depend not only on the production and consumption of goods and services but also on the eco-friendliness of all production components. It requires more efficient and eco-safety management of the entire production process, including the whole production cycle, consumption and disposal *(Söderholm, P., 2020)*.

The reporting practice in sustainable development began in 1989 with the first report on the social and environmental assessment of the current ecological situation.

Following the first debate on the human right to a pollution-free, healthy and sustainable environment in the 1990s at the UN Human Rights Council, it has become common to call on companies to report their impact on human health and the natural environment. Since 1999, these activities have resulted in sustainable development reports provided by many large companies *(Van Zanten, J. A., et al, 2021)*.

With the creation of the first reporting mechanism to ensure that companies adhere to the principles of responsible environmental behaviour, in 2000, the independent international organization Global Reporting Initiative began to publish its recommendations for reporting in sustainable development.

Today, many large European companies offer and implement corporate sustainability responsibility reports in compliance with environmental, social and corporate performance standards. Independent companies publish ratings and indices of stability of enterprises, keep records of their corporate responsibility. For instance, EU rules on non-financial reporting currently apply to large companies with more than 500 employees. In doing so, approximately 11,700 large companies and groups throughout the EU are covered, that is roughly 96% of European companies.

The Institute for Governance and Accountability (G&A), the leading environmental, social and corporate governance organisation in the United States, has released sustainability study results for 2021. The study recorded continued growth in sustainability reporting for the S&P 500 (companies with the largest capitalisation). Thus, corporate sustainability reporting is used as a best practice in 92% of the largest public companies in the United States.

Corporate responsibility reporting is carried out according to several standards selected by companies. They include:

– reporting forms of the Global Reporting Initiative (GRI, since 1997);

– Integrated reporting standards of the International Integrated Reporting Council (IIRC, since 2010);

– standards of Sustainability Accounting Standards Board (SASB since 2011).

The standards are divided into environmental, social and economic categories; they depend on the industry field and include quantitative and, in some cases, qualitative indicators; they are used for reporting and are targeted at providers of financial capital. These reporting standards are comparable among themselves, but they are often not commensurate with the internal activity of the enterprise. Often, the suitable standard choice presents difficulties for enterprises with mandatory reporting *(Mähönen, J., 2020)*.

Along with reporting, ratings and sustainability indices have been used to measure business sustainability since 1990 *(Pham, D. C., et al, 2021)*. They include assessments of all kinds of risks and data on economic, environmental and social indicators (Table 1-2).

Since the early 1990s, the essential method for assessing the sustainability of a business was to take into account the sustainable development of a company (Gray, R.H. 1994). Currently, there are various methods of accounting for sustainability. They compile traditional financial statements supplemented by external factors that positively or negatively affect aspects of production activity from profitability or loss-ratio to social and environmental impact on the environment, economy and society.

Unfortunately, methods for assessing sustainability do not differ in the universality of criteria for estimation an external effect taking into account industrial sectors and the diversity of regions *(Villamagna, A. M., et al, 2013)*. However, sustainability accounting methods are often criticized because of their complex adaptation to modern technologies or new products. If sustainable accounting can be relatively easy to use for large companies, its usage in setting priorities for enterprise development is challenging.

The aim is to formulate a strategy and recommendations for combining sustainable initiatives in the field of production and consumption in the context of European integration processes in Ukraine.

Table 1

Indicators of sustainability indices

Sustainability index	Indicators
Dow Jones Sustainability Indices (DJSI)	It represents 10% of the 2,500 largest global sustainability leaders identified by S&P Global in the Corporate Sustainability Assessment (CSA). It takes into account long-term economic, environmental and social criteria.
FTSE4Good (Emerging; ASEAN 5; IBEX; Developed Minimum Variance; Bursa Malaysi; Taiwan ESG)	It measures the results of environmental, social and governance (ESG) activities of companies. It's used to create and evaluate sustainable investment products.
Euronext Vigeo Eiris	Companies with top-ranked as measured by ESG.
STOXX ESG-X; ESG от Sustainalytics	European companies that use an eco-responsible policy. It helps reduce reputational and idiosyncratic risks. The software allows companies to focus on essential ESG indicators enabling efficiency and focus on resource use.
Thomson Reuters / S-Network	Companies with socially responsible investment and corporate responsibility.
Kirchhoff Consult Good	Sustainable Development Communication
Corporate Knights	Research and financial information products to promote a sustainable economic system that includes social, economic, environmental costs and benefits.
MSCI KLD 400	Information for investors on comparing social and environmental factors for investment.

Table 2

Sustainability Rating Indicators

Sustainability Rating	Indicators
Annual List A CDP	List of 300 companies that achieved maximum sustainability in their operations.
Carbon Risk Rating	Rating of companies for investors based on the analysis of risks associated with CO2 emissions.
Newsweek Green Ranking	It measures the environmental performance of 500 large well-known companies. Eight key indicators of efficiency are used for analysis.
Corporate Human Rights Benchmark	It analyses the corporate behaviour of the largest companies in the field of human rights.
Workforce Disclosure Initiative (WDI)	They accumulate data on the methods of working with personnel. They contribute to the development of practical proposals for solving personnel problems and improving the social climate in the production.
Bloomberg Gender-Equality Index (GEI)	Access to social data and strategy in the area of gender equality policy.
Thomson Reuters Diversity and Inclusion	It analyses data on the racial and ethnic diversity of employees in the largest companies around the world. Equality in education and justice.

3. Results and discussion

Today, business sustainability assessment does not cover all environmental, social and economic factors that affect positive and negative impacts of production. There are also problems with a lack of coherence between eco-initiatives and production structures. In turn, these problems affect the promotion and implementation of specific environmental technologies and investment decisions. There is no universality in the reporting standards for the sustainable development of enterprises. There is no information on sustainable consumption. Sustainability indicators provide information on environmental, social and economic policies but cannot compare and contrast these factors *(Buchholz, H., et al, 2020)*.

There is a need to develop a method for assessing sustainability in business. The procedure should be understandable, universal, uniform, flexible, and analyse as many indicators as possible. It will allow realising the comparisons that cover all aspects of both production and consumption.

It is necessary to provide a holistic view of the enterprise's activity and consumption issues to adjust their impact on the economy and all stakeholders in the sustainable operation of the enterprise: partner companies, investors, suppliers, employees, customers, consumers; without overlooking the environment and social aspects.

Sustainability of production can be determined by indicators – a set of rates and assessments along the entire chain of creating a company's value. Rates of a company's sustainability also include the impact of its technological processes, products and services. It provides a multi-vector perspective of their impact (Fig. 1).

It is important to note that the sustainability of production and consumption is based on two principles: climate neutrality and inclusive growth.

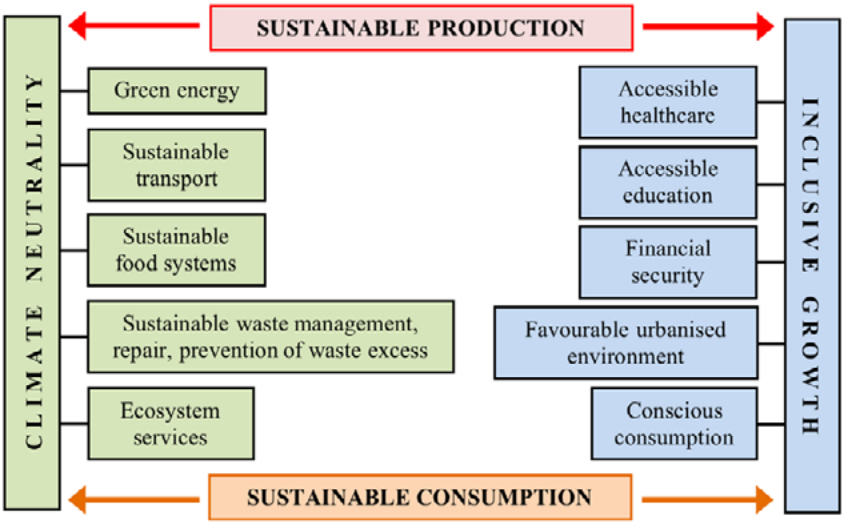

Fig. 1. Basic sustainability indicators

The first group of indicators is related to the climate neutrality of production and consumption. Climate change threatens ecosystems and biodiversity, affects the distribution of freshwater resources, the functioning of urban areas, and the number and extent of extreme

weather events. It has severe consequences for agricultural production, human well-being, socio-economic activity, green growth and sustainable development.

The green energy indicator denies burning any fuel type. It is valued at the price of electricity produced, greenhouse gas emissions at all stages of the technological cycle, availability of renewable sources, energy conversion efficiency, land and water requirements, and social impacts. The cost of electricity, greenhouse gas emissions and power generation efficiency vary widely for each facility, mainly due to differences in process technology and geographic latitude. The social impacts of implementing green energy projects are assessed by individual effects, including health, conservation of the natural environment, etc. According to this, wind energy is the most sustainable. Next comes small hydropower and photovoltaic energy. Geothermal energy is in the last place *(Evans, A., et al, 2009)*.

The importance of the "transport sustainability" indicator is caused by the fact that it is the primary source of pollution in urban areas, greenhouse gas emissions and creates significant problems due to congestion, noise, and accidents. In addition, transport is vital to the national and international economy and generates substantial profits for individual companies and private individuals, for instance, influences on employment, prices and economic growth *(Toth-Szabo, Z., et al, 2012)*. Today, the following categories are additionally classified as transport sustainability: proximity to public transport, accessibility of opportunities, and characteristics of an urbanized area. In other words: how long do we spend time in transport, how many jobs are available within one route, and how compact is the settlement organized. Undoubtedly, the sustainability of transport plays an essential role in achieving integrated sustainability.

Sustainable food systems are the world's largest employer. They form an essential part of the national gross domestic product (GDP), provide food security, solve health problems associated with malnutrition or obesity and affect the well-being of the natural environment. Most of the United Nations Sustainable Development Goals (SDGs) for the period up to 2030 are related to the efficiency of global food systems. At the same time, the global food system is the largest consumer of freshwater, is responsible for a third of total greenhouse gas emissions and covers about half of the earth's surface. Sustainable food systems will bring humanity closer to the norms of healthy nutrition, and agricultural production will be sustainable and climate-neutral *(Ivashura, A., et al, 2021)*.

An economy linked to sustainability allows us to preserve the value of resources by minimising waste generation, turning them into resources that can be reused in production processes. Sustainable waste management is a critical issue for most countries concerning climate change and greenhouse gas emissions. *(Quartey, E. T., et al, 2015)*. To solve it, it is necessary to massively implement the reuse of materials, their processing and repair, and the prevention of waste excess. Moreover, prevention is the essential step in this chain of events. For this, it is necessary to consider not only the environmental perspective but also economic and social indicators. These include conservation of value, change in value and durability *(Haupt, M., et al, 2019)*. The basis of all activities is the responsibility of the manufacturer and the consumer.

The concept of ecosystem services shows a steadily growing appeal to managers. Ecosystem services are used as indicators in human-economy-environment systems and represent variables that combine several elements into a single whole. They are chosen to support specific management goals with cumulative value, explaining qualities, quantities, states or interactions that are difficult to estimate. Ecosystem services are sets of indicators, including descriptive and evaluative aspects *(Müller, F., et al, 2012)*. The assessment of ecosystems and their services are addressed as a crucial action to achieve climate, agriculture, regional planning and other purposes.

The second group of indicators is related to inclusive growth. Inclusive growth means human development and combines economic, social and environmental dimensions, making it difficult to measure and monitor. No single indicator is enough to track progress, and there is hardly a standardized, one-size-fits-all solution. Thus, countries can choose different measurement approaches and indicators depending on their priorities and capabilities. Today the world has achieved substantial reductions in poverty, but many countries are facing growing disparities in income and access to services between the rich and the poor people. This situation poses a threat to sustainable growth. Inclusive growth is increasingly on the development agenda at the national and international levels.

These indicators show the relationship between production, consumption, economy and environment. It is possible to form a strategy for sustainable production and consumption in Ukraine, taking into account mentioned indicators (Fig. 2).

We analysed the ecological and economic situation in Ukraine and the fulfilment of commitments on SDG 12 *(Ivashura, A., et al, 2021)*. As a result, we supposed that a strategy for sustainable production and consumption gets to include six directions. These are carbon neutrality, sustainable decisions in the financing, increasing the share of eco-innovation, fair assessment of non-eco-friendly goods and resources, the introduction of sustainable education and international cooperation in environmental policy.

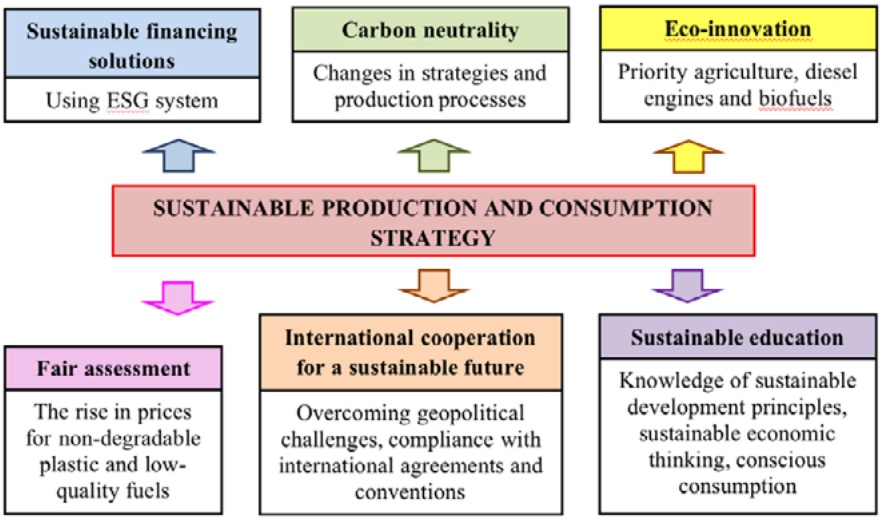

Fig. 2. Strategy for sustainable production and consumption in Ukraine

Thus, there is a clear link between production, consumption, sustainability and financial performance *(Protasenko, O. F., et al, 2016; Protasenko, O. F., et al, 2018; Protasenko, O.F., 2018)*. Therefore, we can offer economic indicators of business sustainability for Ukraine, taking into account the principles of the European Economic Community.

These indicators include:

1. **Economic value.** It covers individual income (company profit), social income (taxes), non-direct income (increasing labour productivity, reducing general production costs).

2. **Customer value.** It contains the positive advantages of the product or their ratio (for instance, the ratio of price and quality, practical and aesthetic satisfaction).

3. **Ethical value.** It covers marketing, industry standards, business transparency.

4. **Environmental value.** It defines energy efficiency, resource-saving, the possibility of recycling or waste disposal.

5. **Social value.** It includes decent working conditions (microclimatic, environmental, medical, educational, etc.), the well-being of employees and a positive impact on society as a whole.

6. **Management value.** It covers team morale, employee motivation practices, fair corporate policies.

For example, while expanding sustainable activity, a company introduced changes in the process and quality of nutrition. The sustainable food program guarantees quality and good nutrition at affordable prices, taking into account its impact on the environment *(Borysenko, O., et al, 2021; Borysenko, O.M., et al, 2021)*.

The organisation of high-grade, sustainable nutrition at the enterprise is a part of a comprehensive program to improve employee health, accounting for the current requirements for sustainable development of personality and production. (Fig. 3).

Fig. 3. Economic indicators of enterprise sustainability as a result of the introduction of nutrition-ergonomic indicators

In this example, the economic parameters of sustainable development are in the following:

1. **Economic value** is achieved through indirect income (increased labour productivity, reduced production costs, reduced sick leave payments, etc.).

2. **Customer value.** If the product is manufactured at the enterprise with sustainable programs for employees, it is more attractive to purchase, and the enterprise itself is more interesting for investors.

3. **Ethical value.** A human spends most of the time at work. Consequently, the workplace is ideal for implementing effective health and wellbeing measures that will help reduce the financial losses associated with reduced productivity.

4. **Environmental value.** Usage of locally sourced food helps to stimulate the region's economy, support local producers. Also, this contributes to reducing greenhouse gas emissions because of transporting food.

5. **Social value.** The company contributes to sustainable behavioural and social strategies among its employees via influencing their awareness, providing information support, etc. Both individuals and groups of people can participate in such events.

6. **Management value.** Changes in enterprise policy can include simplified access to healthy food (for example, by changing food offerings in public nutrition places). The enterprise may offer additional services to employees, such as health insurance, benefits for health club members, etc.

Often, the estimation of enterprise sustainability is difficult to understand for potential investors. Therefore, a financial justification is required to incorporate sustainability into the company's strategy. The economic rationale shows the impact of various enterprise variables on mitigating adverse environmental effects from product releases and identifies levers to maximise sustainability. In doing this, the enterprise must understand, which way shareholders will use such estimation as an opportunity for their actions or a condition for their activities.

Discussion. Any production has a variety of environmental, social, economic and other impacts, which can be both positive and negative. Minimising the negative consequences of influences aggregate is called sustainability. Sustainability can be high or low. Today, we can measure the value of products, technologies, production due to the sustainability mechanisms. In addition, sustainability allows us to predict the result from the introduction of new technologies or products, to assess ones that are on the market already. Such an assessment will provide new opportunities for both the output and the business in attracting investments, new partners and consumers. For now, conscious consumers are the control link that determines the profitability and expedience of greening business and production.

Companies can demonstrate sustainability by presenting the benefits of products compared to similar products through own or partner information and education programs. We should not forget about the indirect benefits of sustainable indicators that can be "activated" with the help of other independent organisations. For example, the Ministry of Health of Ukraine can support the manufacturer via confirming the health benefits of the eco-friendly properties of a product or technology, etc. It is also possible to turn to the ideas of a sustainable compromise. In this case, we solve the dilemma of comparing the value of the application results of a specific technological process in different conditions. For instance:

− compare the funds invested in reducing emissions with the cost-effectiveness of the results for human health;

− to compare the efficiency of using eco-friendly packaging of goods with not eco-friendly ones in terms of the cost of their disposal and recycling.

Sustainability is suitable for companies of various scales. However, if the end link of the product is the other company, then the companies control values by themselves. And only after that, the consumer supervises values because of the mandatory mechanisms of the production process transparency inherent in a sustainable business. Investors can use sustainability to compare companies from different industries, setting cut-off values of environmental indicators for themselves. According to this, investors will develop sustainable investment strategies. Sustainability indicators can be a part of tax adjustments to encourage sustainable industries as their business model already includes environmental and health costs. The promotion of such a policy will undoubtedly affect the European integration processes in Ukraine. Moreover, the EU is implementing an Action Plan on environmental technologies, for which sustainable consumption and production is a priority.

Thus, this aspect should become basis for future studies bearing in mind the European integration processes in Ukraine.

4. Conclusions

Today, producers and consumers are aware of environmental problems and are worried about their consequences. Unfortunately, just worrying isn't enough today. Everyone must act at their level. It is necessary to avoid inertia and take responsibility for sustainability, rethink the corporate goals of the company and the role of business in society. Increase responsibility for sustainable development via external and internal actions that benefit people and the environment; and are profitable.

There is enthusiasm for the expected macroeconomic implications of European integration. However, the possibilities of integrating production and investing in environmental protection and sustainable environmental policy are still low. The projected increase in production will cause even more damage to the environment, while the prospects to prevent waste flows and emissions are not yet clear.

Today the concept of sustainability is widely underestimated and underutilized in business and political circles in Ukraine. Sustainability reporting, while practical, is still not necessary. Obviously, without a regulatory framework, the prospects for widespread business reporting are unlikely.

Ukraine needs to use sustainability strategies to analyse environmental policy activities in production and consumption based on the actual data. These activities will bring Ukraine closer to European integration.

It is needed to combine sustainable production and sustainable consumption into one cluster. It will allow sustainable initiatives are focused on systemic changes and essential areas of production and consumption – energy, transport, housing, agriculture, food. The practical value of the approach is in a strategy that includes measures stimulating environmental and socio-economic policy of production. It will allow moving from relative disunity of actions to technological standards. The proposed strategy can be implemented in recommendations for improving programs directed on changing behaviour with the gradual transition from individual consumers to broader initiatives to change the whole system of production and consumption.

Possibly, focusing on technology (rather than entire companies) and increasing consumer awareness can help identify business opportunities, increase differentiation and create a competitive advantage.

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