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CIRCULAR BUSINESS MODELS AS A COMPONENT OF UKRAINE'S INTEGRATION INTO THE EUROPEAN ECONOMIC SPACE

Ukraine's integration into the EU internal market can no longer be reduced mainly to customs access, tariff quotas or formal legislative approximation. At enterprise level, it increasingly changes how value is created. The OECD identifies five main circular business models: circular supply, resource recovery, product life extension, asset sharing and product-service systems [1]. In the Ukrainian case, this typology has practical significance because it moves the circular economy from an environmental slogan to the level of business decisions: the choice of raw materials, organization of production, repair, service support, return of materials to production and confirmation of product compliance with EU market requirements.

European SMEs are already shaping a competitive environment in which resource efficiency has become a routine management practice. According to Flash Eurobarometer 2024, 93% of EU SMEs implement at least one resource-efficiency measure; the most common are energy saving and waste minimization, each applied by 66% of SMEs, material saving by 57%, water saving by 49% and in-company recycling by 48% [2]. Ukrainian enterprises are entering not a neutral competitive environment, but a market where resource efficiency is already a widespread management norm. Access to European partners, participation in supply

chains or sales to the EU will increasingly require evidence of price and quality as well as resource discipline, material traceability and environmental product characteristics.

Ukraine's starting position is significantly weaker than that of the EU not because individual entrepreneurial initiatives are absent, but because the market for secondary resources remains underdeveloped. According to the National Waste Management Plan until 2033, more than 462.4 million tonnes of waste were generated in Ukraine in 2020, of which 85% came from mining, 11% from manufacturing and 1.3% from household waste. Waste generation per person amounted to 11.1 tonnes, more than twice the EU level of 4.8 tonnes [3]. This has direct economic implications for business models. The largest material flows are concentrated not in the household sector, but in industry, mining, construction, demolition, metallurgy and manufacturing.

Regulation (EU) 2024/1781 on ecodesign for sustainable products reinforces the shift from voluntary circular practices to market requirements that directly affect Ukrainian manufacturers. Digital confirmation of product characteristics gains particular importance. The Regulation provides that reliable, accurate and reproducible methods may be used to verify compliance with ecodesign requirements, while economic operators and supply-chain actors must provide information on materials, chemical composition, production processes or service provision conditions [4]. Ukrainian business thus faces a shift in management culture: product data should be generated throughout the production cycle, not assembled only before export. SMEs without digital material accounting, batch control, internal documentation, supplier verification procedures and technical information for consumers will hold weaker positions in European supply chains even when their prices are competitive.

The move from a raw-material role to added-value creation has to be linked to specific sectors and material flows. In construction and reconstruction, the most suitable model is resource recovery, involving the sorting, cleaning, crushing and reuse of concrete, brick, metal and wood. In packaging, circular supply becomes the priority model through stable flows of glass, paper, cardboard, polymers and metals with predictable fraction quality. In agricultural processing, resource recovery models for biowaste are promising for compost, bioenergy, feed or technological products. In mechanical engineering and electronics, the extension of the product life cycle, repair, restoration of components, reuse of parts, collection of batteries and waste electrical and electronic equipment are of

the greatest importance. Added value arises not from the mere availability of waste, but from its transformation into a standardized resource or service solution suitable for repeated industrial use, repair, modernization or a longer product life cycle.

The financial market also shifts circular solutions from environmental responsibility to investment assessment. In 2020-2024, the European Investment Bank financed 153 circular projects worth EUR 5.1 billion, linking such investments to resource conservation, lower climate impact, job creation and stronger security of critical-material supply [5]. The signal for Ukrainian enterprises is significant: circularity is no longer a decorative component of corporate social responsibility, but a field open to banking, grant and investment assessment.

European circularity remains limited, which gives Ukraine both a gap to close and a market niche. The EU's demand for secondary materials, repair services, products with a smaller material footprint and traceable supply chains will grow [6]. Ukrainian business can use this dynamic if it does not remain confined to the role of a cheap raw-material supplier. The decisive shift is toward higher added value: processed materials instead of untreated waste, restored components instead of written-off products, service maintenance instead of one-time sales, and documented environmental quality instead of declarative sustainability.

National regulation already provides part of the framework for these models. The Law of Ukraine On Waste Management lays down the legal basis for waste prevention, recovery, recycling and extended producer responsibility [7]. The crucial shift for enterprises is that waste is gradually losing the status of a residue and becoming a regulated material resource. Ukraine's economic integration with the EU is already creating a market basis for the practical implementation of circular business models. In 2024, trade in goods between the EU and Ukraine reached EUR 67.2 billion; the EU was Ukraine's largest trading partner, accounting for more than 50% of Ukraine's trade in goods [8]. Circular business models work as a practical mechanism for deepening production integration. They allow Ukrainian enterprises to move from exporting raw materials or low-value-added products to participating in European chains where traceability, resource efficiency, environmental compliance, service support and the ability to work with longer product life cycles matter.

In Ukraine, the greatest potential lies not in universal circular solutions, but in sectoral business models linked to significant material flows and the need to reduce resource losses: construction, reconstruction of damaged infrastructure, agricultural processing, mechanical engineering,

woodworking, packaging, electronics, municipal services and logistics. Their role in European integration is to change both the environmental behaviour of enterprises and their market position. A company able to reduce material costs, document product composition, organize repair, control the origin of materials and return part of resources to production becomes better prepared to operate in the European economic space. A circular business model is a way of adapting Ukrainian entrepreneurship to the new structure of competition in the EU market.

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