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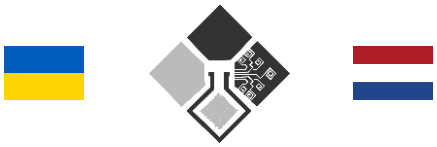
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SCIENCE OF XXI CENTURY: DEVELOPMENT, MAIN THEORIES AND ACHIEVEMENTS

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SECTION 23.
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SOCIO-ECONOMIC DEVELOPMENT OF VINNYTSIA REGION (UKRAINE)

Vinnytsia region (Vinnytsia oblast) is a central Ukrainian province characterized by fertile plains and strategic transport links. Its administrative centre is the city of Vinnytsia, and the oblast has roughly 1.5 million inhabitants. The region is geographically well-connected, lying at the crossroads of European highways E50 and E583 and served by rail lines linking it to Black Sea and Azov Sea ports [4, p. 196]. According to local analysis, Vinnytsia's economy is "developing dynamically" with "long industrial traditions" and "developed engineering and transport infrastructure" [4, p. 194]. The region's innovative potential is also bolstered by a strong educational base, including universities and research institutes in fields like information technology, engineering and medicine.

Vinnytsia's strategic development has been guided by recent government planning. In 2021 the oblast adopted a Balanced Regional Development Strategy (to 2027) aligned with national laws and UN Sustainable Development Goals [7]. Its main strategic priorities include fostering a competitive, innovative economy; ensuring effective and accountable governance; promoting humanitarian development (e.g., education and culture); empowering local communities; and maintaining a safe environment [7]. As part of this approach, the region identified two smart specializations on which to focus investment: medical/health tourism and technology-enhanced agriculture. These choices leverage Vinnytsia's spa-resort facilities (e.g., radon mineral springs) and its large agrarian sector, aiming to create

high-value industries from existing assets.

Vinnytsia oblast covers approximately 26,500 km² of central Ukraine, much of which is rich agricultural land. According to official sources, about 19,600 km² are farmland, of which roughly 16,940 km² are arable. This ample cropland, combined with a moderate continental climate, makes the region a prime area for cereal grains, sunflower, sugar beets and other crops. The oblast also contains significant mineral deposits – notably large lignite (brown coal) and high-quality granite reserves – although these are less developed than the agricultural sector.

Transport infrastructure is a key asset. Vinnytsia sits along major highways and is linked by rail to Odesa, Kyiv and Lviv directions. As Lopatiuk (2022) notes, the oblast's "transport infrastructure" is highly developed, including road and rail networks that connect it to the Black and Azov Sea ports [p. 203]. Three major oil/gas pipelines also cross the region (Urengoi–Pomary–Uzhgorod, Soyuz, Dashava–Kyiv), underscoring its connectivity. These links facilitate trade and mobility: for example, Vinnytsia region has good access to both eastern and western European markets via E50 (east-west) and E583 (south-north) corridors.

With a population of about 1.5 million, Vinnytsia oblast has a fairly balanced urban–rural mix. The city of Vinnytsia accounts for around 380,000 people, and several smaller towns (e.g., Haisyn, Mohyliv-Podilskyi, Tulchyn) serve as local centers. The population is predominantly ethnically Ukrainian and Ukrainian-speaking; minorities (mostly Russians and others) comprise only a few percent. The age structure is typical of Ukraine (roughly 15% under age 15, 17% over 65) and has been slowly aging in recent decades.

Socio-economic data indicate that living standards in Vinnytsia are near national averages. In 2021 the per capita GDP of the oblast was approximately US$3,000 (current rates), which ranks it mid-range among regions of Ukraine. Remuneration differs by industry: factory and construction workers are remunerated well above regional average, while teachers, medical and retail workers are remunerated significantly below [8]. For example, in early 2020 an agricultural average salary was UAH 10,524/month – some 6% above oblast average. Nonetheless, average wage increases have been modest, rising approximately 5–12% annually in most sectors before 2022 (reflecting broader national trends).

Vinnytsia unemployment has generally been lower than the Ukrainian average. Registered unemployment averaged 6–8% before 2022. Agriculture and private farming are significant rural employment: individual peasant farms alone employed 74.5% of rural workers in 2020 [5, p. 861]. In fact, analyses of rural Vinnytsia highlight that "personal farms are the predominant form of rural employment" (though much of this is informal in nature). This agrarian base supports countryside

incomes, but also exposes rural livelihoods to harvests and global prices.

Agriculture is one of the key sectors of Vinnytsia's economy. As one paper highlights, "the agriculture of the Vinnytsia region plays an important role in the economy of this region, ensuring food security, employment stability and socio-economic development" [1, p. 24]. The sector is facilitated by the oblast's fertile soils and broad pastures. The most significant crops include grains (wheat, barley), sunflower, sugar beets and corn, with livestock (dairy and poultry especially) also being very significant. In 2022, agricultural enterprises in Vinnytsia produced a large share of Ukraine's output in certain categories (for example, the oblast produces over 10% of the country's sugar beet and milk).

Recent trends in Vinnytsia agriculture reflect broader national challenges. A 2024 analysis finds that crop production declined between 2018 and 2022, due in part to weather and market disruptions after 2020, whereas animal product output has grown modestly [1, p. 26]. Farmers face shrinking profitability on many crop lines, leading to consolidation: the number of large agricultural enterprises actually increased between 2018–2022, stabilizing the region's overall share of national agricultural production. Personal and family farms remain prevalent: most rural residents work on such farms, which are often unregistered businesses [5, p. 863]. Strengthening this sector (e.g., through technology, irrigation, and crop diversification) is a stated priority in regional development plans.

Vinnytsia has a multisectoral industrial complex. Traditional industries include food and beverage processing (flour mills, sugar refineries, dairy and meat processing), machine-building (agricultural and industrial machinery, precision tools, automotive components), and light industry (textiles, garments). The region also has chemical plants (fertilizers, petrochemicals) and a growing pharmaceutical manufacturing cluster near Vinnytsia city.

Local experts note Vinnytsia's "long industrial traditions" and a well-developed engineering sector [4, p. 196]. For example, dozens of engineering firms produce metal-cutting tools, pumps, bearings, and electronic devices. Agriculture-related manufacturing is prominent: farm tractors, harvesters, and irrigation equipment are made by local machine builders. The food industry remains dominant by output: as of the mid-2010s, food processing (including sugar, dairy and bread) accounted for roughly 57% of industrial production in the oblast. However, detailed updated statistics are hard to find; anecdotal reports suggest that, like much of Ukraine, Vinnytsia's industry was hit by recent crises (COVID-19, supply-chain disruptions, and war-related uncertainty), causing some factories to cut production in 2020–22.

Despite challenges, industrial wages and output remain key for the region.

Official data for 2020 show the industrial sector's average salary (UAH 12,132) was 22% above the oblast average [8], reflecting the relative strength of industry jobs. Moreover, an econometric study found that in Vinnytsia, industrial output and construction were among the most important sectors supporting Gross Regional Product [Lopatiuk]. Notably, that study analysed several regions and observed that construction and salaries had the greatest stabilizing effect on GRP overall.

Service sector – retail trade, finance, health care, and tourism – has become more important. Vinnytsia city is the oblast's commercial centre, and shopping malls, markets and business services are drawing rural consumers. In recent years the oblast has been actively developing tourism. Vinnytsia city itself is renowned for riverboats, embankment, and cultural events, whereas in the rural areas spa resorts (i.e., in Khmilnyk) are to be found, historic and ecotourist objects (e.g., Busha Historic Reserve, Potocki Palace in Tulchyn).

Not gone unnoticed by planners is that Vinnytsia city government (with the support of NGOs) launched a "Hospitality Standard" program and a Tourism Development Strategy until 2030 [4, p. 195]. While tourism currently contributes a modest share of GDP, it has rebounded quickly after the worst of the pandemic. The region's strategic plan explicitly supports medical and wellness tourism (leveraging the radon springs of Khmilnyk and spas in Shpola) and gastronomic tourism (promoting local wines and cuisine) as growth niches.

Over the last few years Vinnytsia's economy has basically followed Ukrainian macro trends. Regional GDP grew at a moderate pace (around 3–5% per annum) prior to 2022, since the national economy was recovering, with temporary slowdowns during periods of crises. Vinnytsia's per-capita GRP was close to the Ukrainian average. Shevchenko et al. (2025) have found in an analysis that of several development determinants, levels of wages have the greatest impact on regional GRP in all six regions considered, including Vinnytsia [p. 27]. In Vinnytsia as well, indicators like goods exports, wages and personal income showed very high correlation (0.98–0.99) with GRP [6, p. 10]. This arrives at the conclusion that disposable incomes and export sectors are key drivers for local growth.

The Vinnytsia Regional Development Agency reports that the region's economic output is fairly diversified: while agriculture and food processing contribute heavily to exports, engineering products and IT services are emerging sectors. In 2019–2021 Vinnytsia's share of national industrial output hovered around 2–3%. Its GRP per capita (~UAH 130–140k, or ~$3,000) placed it in the upper-middle group of Ukrainian regions. Inclusive development metrics (which combine income, employment and social equity) have historically been relatively high in Vinnytsia: one pre-war study ranked it among the top regions for inclusive

growth [2, p. 301].

Governance has been a strength. Because Vinnytsia was away from active combat zones, local authorities and civil institutions have remained intact even during wartime. A 2025 study of wartime governance found that "in Vinnytsia (as in Lutsk), municipal authorities remain central to governance" during the Russian invasion [3, p. 5]. This continuity means regional development programs could largely proceed without the disruption seen in frontline areas. The civilian administration has focused on maintaining investment attraction, processing food and industrial production, and accommodating displaced people. For example, Vinnytsia city hall approved an active marketing strategy in 2021 to brand the region and promote tourism, trade and investment [4, p. 193].

At the same time, challenges persist. War-related economic shocks (supply chain breaks, labour emigration, inflation) have slowed growth, though not as severely as in eastern Ukraine. Rural communities face population decline and aging. Infrastructure maintenance (roads, utilities) requires ongoing investment. And while strategic plans cite innovative agriculture and tourism, actual investment flows into these areas need support. Nevertheless, the region's economic fundamentals – diversified industries, strong agrarian base, good human capital – provide a solid foundation for recovery.

Its future strategy is the modernization of agriculture, high-tech production, and expansion of the services sector. The smart specialization concept is guiding in this way: e.g., the region is developing precision agriculture (drones, data analysis) and research agri-food, as well as positioning Vinnytsia as a health-tourism center. Local universities (e.g., Vinnytsia National Technical and Agrarian universities) are participating as partners, bridging academic R&D with business needs.

There is demand for developing machine-building (with the use of existing workshops) and IT outsourcing, taking into account the high educational level among the local workers. The business climate is being improved: the Vinnytsia Regional Development Agency provides consulting to entrepreneurs, and small- and medium-sized enterprises have grants for innovation. Energy (renewables) is another area: Vinnytsia has modest hydro and solar potential, and small wind installations are starting to appear.

On the social side, improving quality of life remains a goal. The strategy's "humanitarian development" pillar includes better healthcare facilities, modern schools, and cultural projects (museums, festivals). Investments in urban infrastructure (public transit in Vinnytsia city, utilities upgrades in towns) are also planned. Importantly, local planning involves many stakeholders: during 2020–2022 some 200 representatives of government, business and academia helped define

the region's smart specialization priorities [7]. This participatory process builds ownership of development goals.

Conclusion. Briefly, the socio-economic development of Vinnytsia region relies on its agricultural base, its multi-industry potential, and upgraded human capital. External shocks (pandemic, war) have been challenging, however, and the diversified economy of the oblast and planning work have mitigated the blows. With its governmental infrastructure remaining and with further emphasis on innovation and competitiveness, Vinnytsia is positioned to achieve steady progress. As analysts note, the tourism and hospitality industries alone can inject new value and quality employment into the regional economy to supplement the existing industries. Subsequent years will test the quality of the region's execution of its strategic priorities, but the interplay of resources and institutional commitment promises well for long-term growth.

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