Chapter I

ECONOMIC OVERVIEW

General overview

Ukraine is a lower-middle-income economy in Eastern Europe, neighbouring the Republic of Moldova, Romania, Hungary, Slovakia, Belarus and the Russian Federation. The country has faced significant turmoil in recent years: the Maidan Revolution, continuous protests, political upheaval and conflict. With its fertile soil and large, arable fields earning it the nickname “Breadbasket of Europe”, Ukraine is one of the continent’s largest producers of agricultural goods, such as wheat and sunflower oil and seeds (box I.1). Recently, lower prices for steel, one of its largest export products, and lower investment levels overall, both foreign and domestic, have led to a contraction in industrial output, including manufacturing. Ukraine enjoys great potential for innovation, with a well-educated labour force, a long tradition of science and technology resources, natural endowments, market access, a large and successful diaspora, and a nascent but successful ICT sector. At the same time, despite significant reform momentum over the past years, political and economic instability, corruption and the low quality of institutions and overall governance continue to constrain Ukraine’s ability to enable and promote the broad experimentation with ideas and technology – or innovation – needed for the country to put its economy on a solid, diversified and well-integrated foundation for long-term sustainable development.

Reform process

Ukraine’s political environment has been volatile since its independence from the Soviet Union in 1991. From being a rentier state under Kuchma in 1994 through the Orange Revolution in 2004, Ukraine has gradually, albeit in fits and turns, liberalized its economy. Emerging from the economic decline and sharp drop of its currency following the Maidan uprising and territorial conflicts, Ukraine has struggled with numerous challenges, including a sudden and sharp drop in the value of the hryvnia, and the subsequent rise in inflation and decline in consumer spending. In addition to efforts to stabilize inflation, the Government has undertaken several reforms to improve institutional transparency, ease business regulation and constrain corruption. In the World Bank’s Doing Business report, Ukraine’s ranking has consistently improved, climbing from 152nd among 190 economies in 2011 to 64th in 2019, but it is the lowest ranked country in the EESC sub-region (World Bank, 2020a). In other areas, however, substantial structural reforms remain that likely inhibit innovative activities in particular. They include a strong legacy of inefficient SOEs, subsidies for which constituted
as much as 8.5 per cent of GDP in 2014 – both direct and indirect (IMF, 2016), as well as low levels of market competition, a private sector with low absorption capacities, insufficient protection of intellectual capital and investors, and cumbersome legacy regulations of product and labour markets.

**GDP growth**

GDP growth in Ukraine has been highly volatile over the past 30 years. After substantial economic decline following independence, Ukraine clocked up higher, albeit volatile, rates of growth in the years leading up to the 2008 global financial crisis. The subsequent rebound in growth was interrupted by the Crimean crisis, leading to a GDP growth rate of almost –10 per cent in 2015 (World Bank, 2020b). Since 2016, however, growth has again turned positive, although below the average for the lower-middle-income group (figure I.1). GDP per capita (in current US dollars) grew from $2,125 in 2015 to $3,660 in 2019, while GDP per capita based on purchasing power parity in current international US dollars increased from $10,164 (in 2015) to $13,341 (in 2019). In 2019, GDP growth reached 3.2 per cent, driven by growth in household consumption; an increase in real wages, production and exports in the agriculture sector; and a significant amounts of remittances.

Stagnating reform efforts, lack of investment and structural inefficiencies continue to inhibit productivity. Furthermore, gross capital formation in 2019 amounted to 12.6 per cent of GDP, more than...
15 per cent lower than the average for the lower-middle-income group. Remittances have grown in importance, from 5.5 per cent of GDP in 2014 to 10.4 per cent in 2019 – the fourth highest in the sub-region but slightly above the EESC average (9.2 per cent). This trend has improved the welfare of Ukrainian households by stimulating consumption, but outmigration has also reduced the supply of labour on the domestic market (Pieńkowski, 2020).

Government spending has risen recently, to 20.8 per cent of GDP in 2018 from 18.6 per cent in 2016, but fell below 20 per cent in 2019. An increase in social spending will be necessary to mitigate the negative effects of pandemic-related restrictions, such as the decline in both consumption and the commodity prices on which the country is reliant for exports (World Bank, 2020c). The current account deficit was at –0.86 per cent of GDP in 2019.

Ukrainian banks reported a non-performing loan (NPL) ratio of 48.4 per cent of gross loans in 2019 – 75 per cent of that accounted for by State-owned banks such as PrivatBank (with 45 per cent of NPLs). The majority of NPLs resulted from the expansion of credit before the 2014 crisis, mainly due to low solvency assessment standards, insufficient protection of lenders’ rights and related-party lending, while the resulting financial instability was then further amplified by the crisis as several State-owned banks were unable to service their debts and defaulted (IMF, 2016; NBU, 2018). Although the National Bank of Ukraine (NBU) has made efforts to reduce the high ratio of NPLs and improve macroeconomic stability (EBRD, 2019), the systemic misallocation of capital towards State-owned banks and SOEs continues to constrain the banking sector, while cronyism and anticompetitive practices inhibit the growth of the private sector (World Bank, 2018).

---

**Foreign direct investment**

Foreign direct investment (FDI) inflows in Ukraine decreased substantially after the financial crisis of 2008 and fell even more significantly between 2012 and 2014. In 2016, following the Crimean crisis, inflows recovered to 3.6 per cent of GDP, but in 2019 they declined to almost 2 per cent of GDP, the second lowest share of FDI in the EESC sub-region (World Bank, 2020b). Foreign investment is mostly market- and resource-seeking, given the country’s agricultural strength, energy resources and geographic positioning – the bulk of FDI inflows go to mining, real estate, electricity and gas, finance and ICT (UNCTAD, 2020). Nonetheless, efficiency-seeking investment in high value added and export-oriented industries, such as manufacturing, is inhibited by the country’s political instability, slow reform process and macroeconomic vulnerability (World Bank, 2018).

---

**Sectoral decomposition**

The focus on commodities with low levels of sophistication, the low levels of productivity and the lack of competitiveness due to the dominance of SOEs, especially in the industrial sector, impedes Ukraine’s economic growth. Services have constituted 50–55 per cent of GDP since 2008 and employed about 60 per cent of the labour force between 2015 and 2019. Further growth of the sector’s value added is impeded by restrictive regulations. Industry (including construction, manufacturing and mining) more recently has
contracted due to declining steel prices,\(^4\) accounting for 22–23 per cent of GDP between 2013 and 2019 and more than 24 per cent of employment in 2019 (World Bank, 2020b), while manufacturing has declined slightly, from 12 per cent in 2016 to 10.8 per cent in 2019. Specifically, the focus on more traditional industries, such as machine-building and steel and chemical production, and the lack of technological modernization (OECD, 2015) inhibits the industrial productivity of the economy. Agriculture represented 9 per cent of GDP in 2019 and employed 14.5 per cent of the labour force. Despite the large quantities of arable land and a sustained tradition of capital-intensive, productive agriculture, several factors hamper the growth of productivity in the agriculture sector: constraints and inefficiencies in the investment climate, especially in property rights, and the lack of protection of small landowners (World Bank, 2019a; 2019d).

---

### Demographics

Low fertility rates along with outmigration driven by domestic instability and the dearth of good employment opportunities have led to a slow but consistent decline in population, in particular the working-age population. Over the past two decades, the population has declined at rates between –0.2 and –1 per cent annually. Outmigration, although lower in 2019 than in 2018, remains higher than the number recorded in 2014\(^5\) (Ukrstat, 2020). The main destination of emigrants (and thus the main source of remittances) has shifted from the Russian Federation to countries of the European Union (EU), such as Poland (Pieńkowski, 2020). In 2019 the unemployment rate was 8.9 per cent (modelled estimate from the International Labour Organization (ILO)) (World Bank, 2020b). Although, on a global scale, a substantial share of Ukraine's labour force is educated, labour productivity is low, largely because of the insufficient quality of higher education, insufficient capital investment and missing institutional mechanisms (EU and ILO, 2018).

---

### External position

Following its accession to the World Trade Organization (WTO) in 2008 and the Association Agreement with the EU, including the Deep and Comprehensive Free Trade Area, in 2014, Ukraine has slowly opened up its economy. The sum of exports and imports (as a percentage of GDP) declined from 107.8 per cent in 2015 to 99 per cent in 2018 (World Bank, 2019b). The EU (28) accounted for approximately 42 per cent of total merchandise exports in 2018; other significant trading partners were the Russian Federation (7.7 per cent), China (4.7 per cent) and Turkey (5 per cent) (WTO, 2018).

Although most of Ukraine's exports in 2018 consisted of agricultural products and metals, their level of complexity was modest. The value of 0.14 for the index of merchandise concentration of exports – in which values closer to zero signify higher diversification – indicates that Ukraine's export basket is the most diversified in the EESC sub-region, followed by those of Belarus (0.18) and the Republic of Moldova (0.19) (UNCTADstat, 2020a). Nonetheless, in 2018, seed oils (8.06 per cent), semi-finished iron (7.83 per cent), corn (6.87 per cent), wheat (6.06 per cent) and iron ore (5.64 per cent) were among the most exported products (OEC, 2020). The remaining exports were mainly machines,
chemicals, food stuffs and wood products. Similarly, most of Ukraine’s revealed comparative advantages (RCAs)\(6\) are in food and live animals, manufactured goods and crude materials, whereas the strongest RCAs in the three-digit group are in wheat, maize, barley, pig iron, ingots, fuelwood, aluminium and iron ore, and vegetable fats and oils (UNCTADstat, 2020b). By increasing the complexity of goods and diversifying exports, Ukraine could enhance its economic growth by shifting the focus of the economy’s production structure towards the creation of a more balanced trade portfolio (CID, 2020).

In the 2020 Competitive Industrial Performance (CIP) index, Ukraine ranked 69th out of 152 economies, the second highest in the region after Belarus (47th) (UNIDO, 2020), indicating reasonable levels of industrial production. This performance is slightly distorted by the size of the economy, and on the 2019 Global Competitiveness Index, Ukraine ranked less well – 85th out of 141 economies – and would have ranked lower had it not been for its good performance on indicators such as market size and skills (WEF, 2019).

### Institutional quality

The quality of governance, including the rule of law, control of corruption and institutional efficiency, is a central binding constraint on sustainable development in Ukraine. Specifically, on institutional quality assessed as an average of the World Governance Indicators (Kaufmann and Kraay, 2020) of rule of law, government effectiveness, voice and accountability, and control of corruption, Ukraine scored –0.5, lower than the regional average (–0.3). This indicates that governance in the country is weak (WEF, 2018).

### Sustainable development

Although the poverty headcount ratio in Ukraine is slightly higher than 1 per cent at national poverty lines in 2019 – the lowest in the EESC sub-region (World Bank, 2020b; Ukrstat, 2020), approximately 23 per cent of the population lives below the actual subsistence income level (Ukrstat, 2020). Poverty remains a challenge for the economy, in both absolute and relative terms: substantial interregional differences persist, such as the relative levels of education in rural areas compared with urban areas.

Ukraine, like other countries in Eastern Europe and the South Caucasus (EESC), still faces systemic and institutional challenges to gender equality, deepened by the political and economic crises. This is not indicated by women’s educational achievement levels: in 2014 more women (88.8 per cent gross) were enrolled in tertiary education than men (76.8 per cent) (World Bank, 2020b). Yet although the labour participation rates for both men and women have been declining since the crisis in 2014, in 2019 men still participated at higher levels than women (63 per cent versus 46.7 per cent) (modelled ILO estimate) (World Bank, 2020b) and, as elsewhere, women are particularly underrepresented among innovative entrepreneurs.

In order to ensure sustained economic growth, the Ukrainian Government should focus on improving the environmental sustainability of its activities. According to the 2019 GII, Ukraine ranks fairly low – 115th out of 129 economies – on GDP per unit of
energy use (Cornwell University, INSEAD and WIPO, 2019). The Strategy of the National Ecological Policy of Ukraine until 2020 (Ukraine MENR, 2017) noted the significant harm from environmental – air, water, and soil – pollution caused by the mining, chemical, fuel and energy industries, which is shortening life expectancy in the country. The main drivers of pollution are the economy’s inherited resource- and energy-intensive industries, the unsustainable and inefficient use of resources, and the lack of environmental regulation. Improving the environmental sustainability of the economy to ensure further economic growth requires investing in innovation.

### Synthesis

This table presents the main achievements and challenges for the economic development of Ukraine, based on the findings described in this chapter.

<table>
<thead>
<tr>
<th>Progress made so far</th>
<th>Challenges ahead</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Enhanced ease of doing business in the past decade.</td>
<td>• Strengthen institutional efficiency and address issues of corruption.</td>
</tr>
<tr>
<td>• Stable economic growth due to agricultural exports; increase in household consumption and remittances.</td>
<td>• Diversify production structure, especially in tradeables, to build resilience and sustain macroeconomic stability, improving the competitiveness of Ukrainian products in foreign markets.</td>
</tr>
<tr>
<td>• Highly educated labour force.</td>
<td>• Modernize industrial production processes to stimulate labour productivity.</td>
</tr>
<tr>
<td>• Strong potential for diversification and upgrading in the production structure, such as in agriculture, engineering and professional services.</td>
<td>• Attract efficiency-seeking FDI to support private sector development and enhance market competition.</td>
</tr>
<tr>
<td></td>
<td>• Increase protection of property rights and efficiencies in the investment climate in the agriculture sector.</td>
</tr>
<tr>
<td></td>
<td>• Reform institutional governance of SOEs by regulating the distribution of capital allocation.</td>
</tr>
<tr>
<td></td>
<td>• Regulate energy-intensive industries to decrease their negative environmental impact and increase sustainability.</td>
</tr>
</tbody>
</table>

**Source:** UNECE.

### Notes

5 These values exclude the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and a part of temporarily occupied territories in the Donetsk and Luhansk regions (Ukrstat, 2020).
6 The revealed comparative advantage (RCA) database, created by UNCTADstat, measures trade patterns between countries based on their relative productivity. It does not take into account national trade measures, such as subsidies and (non-)tariff regulations.
Bibliography


Website

Chapter II

INNOVATION PERFORMANCE OVERVIEW

Innovation climate

Despite socioeconomic challenges that slow progress, innovation in Ukraine is growing steadily. The country’s innovative strength lies, most significantly, in its human capital. Yet regulatory and institutional restrictions stemming from the volatile political and economic environment of its recent past hinder its competitiveness and the efficient translation of these capabilities into stronger innovative performance. The business sector’s low involvement in research and development (R&D), the modest share of high-tech exports and the weak ability to commercialize innovative ideas all impede the transition to a knowledge-based economy, obstructing Ukraine from efficiently and effectively capitalizing on its innovation output capacities.

Innovation outcomes

In the 2019 Global Innovation Index (GII) (Cornell University, INSEAD and WIPO, 2019), Ukraine ranked 47th out of 129 economies in terms of innovation performance. It has been classified as an innovation achiever for the past six years, exceeding expectations for its level of development. Figure II.1 on the following page depicts the country’s innovation performance on selected output indicators, as ranked in the 2019 GII.

The economy performs relatively well on innovation outputs compared with the average for the EESC sub-region. For both creative outputs and intellectual property receipts, Ukraine ranks among the top 50 economies globally. Among the EESC countries, for creative outputs it ranks the highest (42nd), followed by Armenia (48th), the Republic of Moldova (49th) and Georgia (58th). Intellectual property receipts constitute 0.2 per cent of total trade, as compared with the EESC average of 0.07 per cent. Most notably, Ukraine is a global leader in exports of information and communication technology (ICT) services, making up 4.5 per cent of total trade – the highest among the EESC countries. In contrast, Ukraine’s shares of high-tech and medium-high-tech manufacturing in total manufacturing (approximately 20 per cent) are low, compared with those of its peers. High-tech exports, which accounted for 8.5 per cent of total manufacturing exports in 2015, had decreased to 5.4 per cent of such exports in 2018 (World Bank, 2020). Although this share was less than that of Armenia (7 per cent), it still exceeded those of Belarus (4 per cent), Georgia (3.3 per cent), Azerbaijan (4 per cent) and the Republic of Moldova (2.5 per cent). Moreover, the number of quality certificates from the International Standards Organization (ISO)
(3.5 per $1 billion in purchasing power parity (PPP) of GDP) showed only modest performance in technology upgrading, which is essential if Ukrainian firms are to move up in global value chains. In intellectual property types, however, the country ranks first in the number of utility models by origin (per $1 billion PPP GDP), while maintaining leading positions in several other types, including trademarks (6th), industrial designs (8th) and patents (17th). That said, few innovative ideas are commercialized, reflecting the lack of demand for innovation on the Ukrainian market – a significant gap that needs addressing.

In collaboration with the National Statistics Agency of Ukraine (Ukrstat), the Kyiv National Economic University (KNEU) provides a wide range of indicators on firm innovation activity across regions within the country. The share of industrial enterprises that introduce innovations, whether in products and or in technological processes, was 13.8 per cent in 2019, while the volume of innovative production as a share of the total volume of realized production of goods and services of industrial enterprises was 1.3 per cent (Ukrstat, 2020).

A strength of Ukraine is the rapidly growing ICT sector (World Bank, 2019), which had an estimated value of $4 billion in 2019 (World Bank, 2019). It holds the potential to significantly enhance productivity across all sectors. The country’s rankings in the 2019 GII for ICT access (65th) and ICT service exports (11th) reflect the significant ICT capacities

Figure II.1 · Innovation performance by selected GII indicators, 2019 ranks

ISO 9001 quality certificates (per $ billion PPP GDP)
High- and medium-high-tech manufacturing, share of total manufacturing (%)
Creative outputs, aggregate rank
ICT services exports, share in total trade (%)
Net high-tech exports, share in total trade (%)

Source: Cornell University, INSEAD and WIPO (2019).
Note: Lower values indicate stronger performance.
it has developed in recent years (Cornell University, INSEAD and WIPO, 2019). Yet, the use of ICT in creating business models remains quite low (ranked 109/129). Furthermore, although the number of broadband subscriptions (12.8 per 100 people in 2018) is growing, it is still significantly lower than in the other EESC countries, with the exception of Armenia (11.8 per 100 in 2018) (World Bank, 2020). According to the World Bank (2019), one of the main factors inhibiting the full exploitation of the ICT sector is the lack of interlinkages with other industries in the economy.

### Innovation activity – channels, strengths and weaknesses

Since 2010 the business sector has consisted almost entirely of micro and small enterprises, whose engagement in innovation is growing but remains inwardly focused. In 2017, micro enterprises made up 82.2 per cent and small enterprises 13.2 per cent of all businesses. That year, almost 70 per cent of innovations (both products and services) were developed for use by enterprises rather than for the market (KNEU, 2020). Although the number of innovative firms increased in 2018, concentrated in the regions of Kharkiv and Kyiv, the type of innovation remained mainly technological – purchase of machinery, equipment and software.

### International knowledge transfer

Despite Ukraine’s good capacity for generating innovative output, institutional and political instabilities still deter foreign investment and commercialization efforts. Between 2012 and 2014, FDI inflows fell from 4.6 per cent to 0.6 per cent of GDP, and although inflows managed to recover to 3.7 per cent in 2016, the trend sank again in 2018 to 1.9 per cent, the lowest share in the sub-region (World Bank, 2020). Yet high-tech imports to Ukraine constituted 8.8 per cent of GDP, the highest share among EESC countries, closely followed by those in Georgia (7.5 per cent) and the Republic of Moldova (7.4 per cent) (Cornell University, INSEAD and WIPO, 2019). Overall, the country ranked 73/129 for knowledge absorption.

In the 2019 GCI, Ukraine scored highest on the sub-indices for skills (70/100) and infrastructure (70/100) and lowest on the sub-index for innovation capabilities (40/100), the latter mainly because of a decline in R&D investment.

### Investment in R&D

Overall enterprise expenditure on innovation rose during 2017–2019, especially in the regions of Dnipropetrovsk and Zaporizhia (Ukrstat, 2020). Disparities between regions underscore the need to provide more support for private sector development and engagement in innovation to improve the competitiveness of firms and build synergies between them.

The share of R&D expenditure in GDP in 2018 (0.47 per cent) was higher than the sub-regional average (0.34 per cent), surpassing Georgia (0.3 per cent) and the Republic of Moldova (0.25 per cent) but lagging behind Belarus (0.61 per cent) (World Bank, 2020).
Of greater concern is the gradual decline in the share of GDP allocated to R&D up to 2017, with only a slight increase in 2018.

According to the 2019 GII, nearly a third of R&D investment originated from abroad. Ukraine ranked 15th (out of 129 economies) in gross expenditure on R&D from abroad; at 24.4 per cent, this is not only the highest in the EESC sub-region but approximately 10 per cent higher than in Belarus (14.1 per cent) and Georgia (14.7 per cent) (Cornell University, INSEAD and WIPO, 2019). When it comes to university–industry collaboration, though, Ukraine displays moderate performance (64th) for the sub-region, scoring higher than Georgia (98th) and Armenia (89th) but lower than Azerbaijan (32nd) (Cornell University, INSEAD and WIPO, 2019).

Private domestic spending on R&D was less prevalent, with the country ranked 59th (Cornell University, INSEAD and WIPO, 2019). Using data collected by Ukrstat and provided by KNEU (2020), a breakdown of internal expenditure on R&D (Hrv 16 billion) reveals that in 2018 more than half (56.3 per cent) went to scientific and technical (experimental) development, while 22.7 per cent went to basic scientific research and 21 per cent to applied scientific research. The spending is concentrated in Kharkiv, Dnipropetrovsk and Zaporizhia (Hrv 1–3 billion each) and Kyiv (Hrv 7.5 billion), where the country’s main research institutions are located; Ukraine employs approximately 988 researchers per million citizens.

International co-publications in 2013 constituted approximately 33 per cent of the country’s total publication output, of which over 60 per cent concentrated in natural sciences, slightly over 20 per cent in applied sciences and almost 11 per cent in health sciences (Schuch et al., 2016).

**Skills development**

Educational quality is one of the core strengths of the economy, not only in comparison with sub-regional levels but also on a global scale. In the 2019 GII, the country ranked 14th in tertiary enrolment, with 83.4 per cent of the eligible population studying at that level. More impressively, it ranks 2nd in employment of women with advanced degrees (almost 30 per cent of all employed). This is also reflected in the Quacquarelli Symonds university ranking in 2019, which put Ukraine 46th out of 129 countries, indicating a strength relative to the income group. In addition, in 2019 the country performed well on three GCI dimensions – skill set of graduates (ranked 54th of 141) and ease of finding skilled employees (53rd), as well as research institution prominence (44th) – although on the dimension of state of cluster development, it ranked less favourably (96th) (WEF, 2019).

Furthermore, approximately 33 per cent of the labour force was employed in knowledge-intensive jobs in 2019. Although that share is higher than in Belarus (27 per cent), it lags the shares in the rest of the countries of the sub-region. In addition, the number of researchers as a share of employees engaged in R&D had fallen to 65 per cent in 2019, compared with almost 75 per cent in 2014 (Ukrstat, 2020).
## Synthesis

This table presents the main achievements of and challenges to R&D and innovation (RDI) in Ukraine, based on the findings described in this chapter.

<table>
<thead>
<tr>
<th>Progress made so far</th>
<th>Challenges ahead</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Relatively strong performance in technology and creative outputs.</td>
<td>• Increase the share of high-tech and medium-high-tech goods in total manufacturing.</td>
</tr>
<tr>
<td>• Significant enrolment in tertiary education, contributing to the country’s large pool of talent.</td>
<td>• Increase public and private investment in R&amp;D, strengthen industry-science linkages and encourage technology upgrading.</td>
</tr>
<tr>
<td>• Substantial growth of the ICT sector in recent years, with high shares in total trade of ICT service and high-tech exports.</td>
<td>• Commercialize more innovative ideas by stimulating demand in the domestic market.</td>
</tr>
<tr>
<td>• Satisfactory performance on intellectual property revenue from abroad.</td>
<td></td>
</tr>
</tbody>
</table>

Source: UNECE.
Bibliography


Chapter III

PILLAR I: INNOVATION POLICY GOVERNANCE

The first pillar of the IPO reviews the overarching strategic, institutional and legal framework for innovation policy, as well as the competences of and coordination among government bodies involved in innovation policy. This review assesses the extent to which innovation policy governance is sound, well-structured, efficient and flexible.

National innovation policy governance – strengths and weaknesses

Figure III.1 · Scoring of sub-pillars: innovation policy governance

Source: UNECE

Note: Each indicator is assessed using a score from 3 to 0. The highest score (3) is given to fully fledged policy initiatives and mechanisms that can provide mutual learning opportunities for the ESC region. A score of 2 is assigned if a policy initiative is operational. An indicator receives 1 point if an initiative is under development. The lowest score (0) is given if a country does not have a specific policy mechanism, strategic document or policy initiative. The indicators are based on an extensive questionnaire answered by national government agencies and external consultants. The questionnaire consists of open, binary and multiple-choice questions. Additional statistical data supplement the formal assessment framework by informing on key socioeconomic trends and context conditions. Statistical data are not directly integrated into qualitative indicators but are used to guide scoring decisions. For more information, please refer to Methodology and Process.
Ukraine faces three major barriers to developing innovation policy: (1) regulations that are inadequate, contradictory and at times poorly enforced; (2) the absence of certain institutions and (3) the rather low capabilities of policymakers to successfully formulate and implement policy initiatives. Many strategic documents related to supporting innovation are in development. Some, such as the SME Development Strategy, have been officially adopted but are not operational for lack of funding. The limited coordination among government institutions and limited alignment of related and overlapping policy areas result in a fragmented policy landscape and consequently a less effective and efficient innovation policy.

The system of science and innovation in the country is in transition. New funding instruments, innovation policy tools and strategic documents have been introduced since 2015; however, these efforts have not been systematic or well coordinated. The positive externalities of science and innovation policy initiatives have often been offset by interruptions in funding and changes in policy priorities. Government authorities responsible for science and innovation do not have the expertise, knowledge and funding required to succeed in both enforcing laws and implementing innovation support programmes. In July 2019, Ukraine adopted a national innovation strategy that defines national priorities and foresees concerted measures to accelerate development in science, technology and innovation (STI) (chapter II). In addition to proposing measures to support high-technology sectors, Ukraine has launched initiatives aimed at developing low-technology sectors and creative industries. Although the country has strong linkages with international partners, policymakers still need to learn how to leverage them to advance innovation for sustainable development.

Table III.1 Overview of sub-pillars and indicators for innovation policy governance

<table>
<thead>
<tr>
<th>Sub-pillar I: Innovation Policy Frameworks</th>
<th>Sub-pillar II: Innovation Policy Coordination</th>
</tr>
</thead>
<tbody>
<tr>
<td>National innovation strategy</td>
<td>International cooperation</td>
</tr>
<tr>
<td>Complementarities with other policy areas</td>
<td>Innovation policy coordination within the central government and between national and subnational authorities</td>
</tr>
<tr>
<td>Institutional frameworks</td>
<td></td>
</tr>
<tr>
<td>Legal frameworks</td>
<td></td>
</tr>
</tbody>
</table>

Source: UNECE
Sub-pillar I: Innovation policy frameworks

Given the many government levels involved in the design and implementation of innovation policy, it is vital to have a strategic document containing the Government’s overarching vision.

National innovation strategy

To enable and actively promote scientific research and the transformation of innovative ideas into commercial solutions more broadly, Ukraine developed the comprehensive National Innovation Strategy 2030, which includes an action plan. The strategy aims to address gaps in legal frameworks, improve education and fortify an entrepreneurial culture, and strengthen the national innovation infrastructure. Other objectives are to promote private R&D and boost demand for innovation. Ukraine’s skilled workers and islands of research excellence have attracted foreign companies to establish about 100 R&D centres (Schuch et al., 2016). Yet the demand for innovation among domestic enterprises remains very low. With the exception of the food industry, the business sector is not actively involved in commercializing research and not yet able to become a significant force supporting research in Ukraine.

Implementing the national innovation strategy requires addressing several challenges. Ongoing structural changes in the economy may have negative effects on the demand for research outputs. Before independence, the share of the manufacturing sector in GDP was near 29 per cent; more recently, it accounted for only 6 per cent (Cheney et al., 2017). A recent shift in exports away from the Commonwealth of Independent States towards EU member states, where demand for Ukrainian R&D-intensive products is low, poses the risks of shrinking the number of innovative enterprises in Ukraine and further hindering the commercialization of domestic research. Moreover, Ukrainian companies have not fully tapped the potential of process innovations to boost their productivity and performance. Another structural problem is low competition in the domestic market and the presence of large monopolies. Stimulation of RDI activities in the private sector requires adjusting underlying market conditions and establishing policy mechanisms that support innovation.

Complementarities with other policy areas

Reforms of innovation policy in recent years paralleled overarching strategic changes in other policy areas. In 2014, the Government launched a decentralization reform that fundamentally reshaped relations between the central and subnational authorities (OECD, 2018). It made subnational authorities more prominent actors also in innovation policy. Under proposed changes in legislation, subnational government authorities will play larger roles in funding RDI activities. Using the support of the Joint Research Centre of the European Commission, Ukraine launched a national Smart Specialization Initiative in 2019, which seeks to identify competitive advantages of regions and foster research and investment in competitive areas.

In 2015, the President launched the Strategy for Sustainable Development, "Ukraine 2020", to improve socioeconomic conditions and bring the country closer to the level
of leading nations in research, innovation and favourability of business conditions. Owing to changing policy priorities, however, this strategy never became fully operational. Another strategic document that supports economic development and innovation in the private sector is the SME Development Strategy 2020. Launched in 2014, it set out three objectives for 2020: (1) an increase in the share of innovative enterprises to 20 per cent, from 14.6 per cent; (2) an increase of the share of R&D expenditures by enterprises as a share of GDP from 0.42 per cent to 0.426 per cent; and (3) improvement in the access of small and medium enterprises (SMEs) to finance. These objectives have not been completely achieved. Despite its ambitious vision, the SME Development Strategy has not become fully operational because of both government changes and limited funding.

Ukraine remains one of the few countries in Europe with a weakly developed system of innovation support. The few innovative activities in the private sector are funded by the sector itself. Other forms of capital are not easily accessible. Indirect support instruments are especially weakly developed. Access to debt financing is limited for innovative projects due to their inherent risks, with most debt finance having to be backed by collateral rather than cash flow and incurring substantial real interest rates. Some private equity firms and venture funds invest in information technology (IT) start-ups, but their participation in funding RDI is not sufficient to support the development of the national innovation ecosystem.

The State Education Strategy 2013–2022 has not been updated and is not operational. In the absence of a fully fledged education framework, educational reforms are carried out in an isolated manner. Instead education policy is shaped by two strategic documents: the Concept of State Policy on Secondary Education Reforms “New Ukrainian School” and the Concept of State Policy “Modern Vocational Education”. These policy documents are not aligned with innovation policy needs. Ukraine does not have a dedicated strategy on higher education and lifelong learning either.

The educational system does not produce enough professionals with the skills and competences demanded by business and industry. According to the Programme for International Student Assessment (PISA) of the Organization for Economic Cooperation and Development (OECD), Ukrainian 15-year-olds show below-average results on school education in mathematics, science and reading (Schleicher, 2019). In 2018, the National Agency for Education Evaluation was established to improve education equality and align Ukraine closer with best international practices. The Government envisions several structural changes in national education. One priority is to increase the quality of education and its relevance for business sector needs. Another is to increase the socioeconomic impacts of higher education institutions (HEIs) through organizational restructuring, development of innovation infrastructure and changes in incentives. To support research commercialization, the Ministry of Education and Science (MoES) has established a position of vice rector for innovation in each HEI.

Despite the considerable number of policy mechanisms, many science and innovation policy initiatives and strategic documents are neither fully and sustainably funded, nor implemented to their full extent. The National Digital Strategy of Ukraine 2017–2020 was designed to help the IT sector develop and to promote smart manufacturing using advanced digital technologies, but has not been fully implemented because of a lack of funding and changing government priorities. In several instances, as in the case of the national space strategy, the adoption of strategies has continually been delayed.
Another challenge is the limited alignment of innovation-related strategies with science and innovation policy initiatives. The national innovation strategy is linked with sections on promoting innovation activities in the strategies for sustainable development, SME development and exports. Owing to the lack of a strategic vision and coordination mechanisms among responsible agencies, however, efforts to achieve national priorities and objectives for the growth of innovation activities are carried out in a fragmented manner. The low synergistic effects among national strategies ultimately result in a less efficient and effective innovation policy.

**Institutional frameworks**

Innovation policy is implemented by a variety of ministries and government agencies, with the MoES and the Academy of Sciences taking leading roles. The MoES is responsible for supporting innovation and education. The Ministry for Development of Economy, Trade and Agriculture is also active in steering and implementing the national innovation policy by strengthening frameworks for commercializing research. In 2019, the Ministry launched the Innovation Ecosystem of Ukraine project to improve funding of innovation activities in the business sector and to better support the protection of intellectual property. The Ministry of Finance also helps formulate and implement innovation policy through many initiatives, including the Ukrainian Start-up Fund and co-financing mechanisms for technology companies.

An important milestone in innovation policymaking in Ukraine was the transition of the chief role of ministries from public service providers to policy hubs. This change was enacted by the Order of the Cabinet of Ministers of Ukraine No. 1013-p in 2017. New policy directorates were introduced in ministries to improve their capabilities to formulate, design and implement policy initiatives.

The National Science Foundation, which replaced the discontinued State Fund for Fundamental Research in 2019, aims to reshape public research. With an annual budget of $21.2 million in 2020, it awards competitive research grants, supports international research mobility and facilitates research commercialization. The Foundation has a supervisory board of domestic and foreign experts, ensuring a high quality of governance and accountability for funding decisions. It plans to launch public-private grant calls to increase the availability of funding and provide more incentives to commercialize research. The Government has also launched several other initiatives for funding innovation in the business sector, such as the Presidential Fund and the Ukrainian Start-up Fund. In 2016, the Cabinet of Ministers founded the Investment Promotion Office of Ukraine (UkraineInvest), an independent advisory body with a mandate to attract FDI to the country. It is the main organization responsible for fostering business linkages with international partners. To support contacts between academia and business, the MoES has partnered with the Enterprise Europe Network to launch the All-Ukrainian Innovation Festival.

**Legal frameworks**

Innovation in Ukraine is governed by a variety of legislative acts that are often not well aligned. Government authorities and institutions have rather limited capacities to effectively implement and enforce regulations on RDI and limited expertise in innovation policy.
Thus they are not always able to formulate complementary legislative acts that support the implementation of overarching policy frameworks. Restrictions on business and research activities, and excessive reporting and monitoring arrangements significantly constrain the innovative potential of firms.

Limited protection of intellectual property rights (IPRs) has negative effects on the attraction of FDI and on innovation activities in general. Government institutions with responsibilities for IPRs have overlapping mandates, leading to less efficiency in policy initiatives. As protection of IPRs is not a high priority for Government authorities, implementation of the IPR reform initiated in 2016 has been sluggish.

Although the country achieved some progress in improving its legislative base for business formation in 2016, gaps in tax and insolvency regulations continue to impede business development (chapter II). The regulatory system poses serious barriers to the development of private enterprises. A lack of legislation on spin-offs constrains the growth of companies and hinders research commercialization. Ukraine does not use public procurement as a mechanism to support innovation, although procurement policies can improve the delivery of public services and create demand for innovation. Making innovation procurement an effective tool for supporting innovation activities will require three steps: establishing an action plan to support procurement for innovation, collecting data on innovation performance and providing professional guidance to participants in the procurement process.

In addition to regulatory gaps and inconsistencies, there are some instances of overregulation and unnecessary bureaucratization of RDI. According to new regulations, institutes of the Academy of Sciences, like any public body, must get permission for purchases of any type of electronic equipment, including computer keyboards, from the Ministry of Digital Transformation. Such procedures considerably slow down research and lead to ineffective use of human and financial resources. State regulation prevents the National Academy of Sciences from leading research projects funded by the European Commission. Upon receiving funding from the EU, the Academy cannot distribute those resources among foreign partners for research purposes.

As the system of certifications and national standards has not undergone comprehensive reform, it is still largely structured to meet the needs of the pre-independence economy (Gupta and Vnukova, 2014). This considerably circumscribes the possibilities for Ukrainian enterprises to export and to tap into the opportunities of global value chains. The Government is working on aligning the national system of certifications with EU standards.
### Achievements

- The Government has introduced a comprehensive national innovation strategy.
- The Government has made a strong, strategic commitment to supporting innovation.
- Government action has managed to retain a critical mass of R&D activity.
- The country has a long-standing scientific culture and centres of research excellence.
- Ministries now play the role of policy hubs to design and monitor policy.
- The Government has developed policy mechanisms and strategies to support innovations in low-tech industrial sectors.

### Area for improvement

<table>
<thead>
<tr>
<th>Area for improvement</th>
<th>Recommendation</th>
<th>Time frame</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The innovation strategy lacks a concerted action plan and dedicated, sustainable funding.</td>
<td>✗ Develop the tools and mechanisms needed to put the strategy into practice.</td>
<td>Medium- to long-term</td>
<td>Government</td>
</tr>
<tr>
<td></td>
<td>✗ Develop the first three-year action plan, with concrete objectives, milestones and budgets.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✗ Secure sustainable funding for these activities, allocated to the budget lines.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✗ Include actions to develop appropriate capacities and mechanisms for monitoring and evaluation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Central policies and strategies lack alignment, with a tendency towards overlap, duplication and lack of clarity.</td>
<td>✗ Focus the first review of the innovation strategy on a concerted analysis of complementarities, overlaps and the need for clarity, aiming both to adapt the strategy and related action plans and to mainstream innovation into related policy areas, such as SMEs, education and industrial development.</td>
<td>Medium-term</td>
<td>Government</td>
</tr>
<tr>
<td>• There is a lack of clear mechanisms for supervising the implementation of the innovation strategy and for the exact role of the NCUST in this context.</td>
<td>✗ Review the terms of reference of the NCUST in view of international good practices with the aim of reformulating its mandate to strengthen its role as a lead coordinating body for the innovation strategy and for mainstreaming innovation across a broader range of policy areas.</td>
<td>Short-term</td>
<td>NCUST</td>
</tr>
<tr>
<td>• Government authorities with responsibilities for science and innovation policy are in their infancy and often lack capabilities to successfully design and implement science and innovation policy initiatives.</td>
<td>✗ Conduct a needs assessment of implementing bodies to identify the capacities lacking and the means needed for the first action plan under the innovation strategy.</td>
<td>Short-term</td>
<td>MoES</td>
</tr>
<tr>
<td>• Alignment is lacking among pieces of and gaps in legislation, including IPRs, tax and insolvency, and spin-offs.</td>
<td>✗ Conduct a gap analysis, identifying legislative gaps and overlaps with a view to the objectives in the innovation strategy.</td>
<td>Short-term</td>
<td>MoES with mandate and oversight from NCUST</td>
</tr>
<tr>
<td>• Overregulation and bureaucratization impede efficient implementation of the innovation strategy, including on purchasing equipment and participation in international partnerships</td>
<td>✗ In parallel with the gap analysis, conduct a concerted regulatory impact assessment, in particular looking at regulatory obstacles to implementing the innovation strategy.</td>
<td>Short-term</td>
<td>MoES with mandate and oversight from NCUST</td>
</tr>
</tbody>
</table>

Source: UNECE
Sub-pillar II: Innovation policy coordination

Coordinated approaches help avoid overlapping, duplicating or omitting actions required to implement innovation policy successfully.

International cooperation

The new innovation strategy recognizes international collaboration in science and innovation as a priority. Ukraine has multiple agreements with international partners to cooperate on conducting joint research projects and developing innovative solutions. In 2018, the MoES approved the Road Map on Integration of Ukraine into the European Research Area. Examples include projects of the European Organization for Nuclear Research, the EUROfusion Consortium and the European Grid Infrastructure. In 2015, Ukraine joined Horizon 2020, the EU Framework Programme for Research and Innovation. Since then, 207 Ukrainian organizations have received 150 grants worth €29.78 million in total. Given the size of the economy and the extensive network of R&D-performing organizations, this funding amount is rather low, only 0.71 per cent of the total funding available for Horizon 2020 member countries. Ukrainian organizations thus need to improve their ability to compete for international grants and improve the quality of the innovation infrastructure.

Ukraine has multiple cooperation agreements in science and innovation with a large number of international partners. Nevertheless, the level of international cooperation is below the country’s potential. The Government is working on attracting FDI into domestic R&D-intensive industrial sectors and providing opportunities for knowledge spillovers from developed countries. A further aim is supporting the exchange of best practices and mutual learning among domestic and foreign enterprises. The National Export Strategy and its action plan, adopted in 2017, propose a set of measures to improve the international competitiveness of domestic firms and integrate them into global value chains.

Despite having multiple linkages with international partners, Ukrainian RDI organizations cannot fully capture all benefits from international collaboration for reasons that include a lack of incentives, demonstration effects, limited academia-industry collaboration and legislative barriers. They often do not have access to information on available funding opportunities or they have limited knowledge of and skills in how to manage application procedures. Legislation puts excessive constraints on how domestic organizations can use research grants, which negatively affects their involvement in international research and innovation projects. Domestic stakeholders such as the National Academy of Sciences often lack sufficient funding to shape international collaboration in science and innovation or at least to be perceived as equal partners.

Innovation policy coordination at the central government level and between national and subnational authorities

The Law on Innovation Activity of 2002 envisions a central government body responsible for coordinating national science and innovation policy initiatives. Although the MoES has
been the main contributor to coordinating science and innovation policy, the Ministry for Development of Economy, Trade and Agriculture has also played a role in recent years, as has the Ministry of Finance. The Innovation Development Council, established as a temporary advisory body by the Cabinet of Ministers, was founded to help formulate and design innovation policy initiatives. It is not functional and has a very limited impact on policy alignment efforts.

To harmonize implementation policy, Ukraine established the National Council on Science and Technology Development (NCUST) under the Cabinet of Ministers (chapter II). The council, which is chaired by the Prime Minister, gathers once every three months to discuss high-level issues of innovation policy. Its decisions directly affect the implementation of the innovation strategy. The Council has two subordinate bodies: an administrative committee responsible for organizational issues and a scientific committee responsible for providing analytical support. The scientific committee consists of 24 members who mainly represent research organizations. Each month committee members gather to discuss a broad array of issues related to scientific and technological development. Policy proposals of the scientific committee are submitted to the NCUST and are coordinated with the executive committee and the Parliament.

Yet, coordination efforts by the central government are still in their infancy and require more systematic and frequent interactions among innovation policy stakeholders. There are cases of overlaps of functions and unclear mandates of government authorities. For example, the recently established Ministry of Digital Transformation needs to have a clear mandate for its role in the national science and innovation policy.

Coordination between national and subnational authorities in science and innovation is shaped by the national innovation strategy. It calls for identifying priorities by region, based on the smart specialization initiative. Ukraine’s regional governments develop their own regional innovation strategies and incorporate the national innovation policy priorities into them. The role of regional innovation agencies is filled by not-for-profit organizations and business associations, such as the Agency of European Innovations in the L’viv region.

### Sub-pillar II IPO evaluation and recommendations

<table>
<thead>
<tr>
<th>Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️ Ukraine has strong historic linkages with foreign partners in science and innovation fields.</td>
</tr>
<tr>
<td>✔️ Substantial progress has been made in decentralizing authority to regional and municipal governments, including innovation promotion.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area for improvement</th>
<th>Recommendation</th>
<th>Time frame</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️ The remaining substantial barriers to international cooperation in science and innovation and to recent reforms need to be addressed in a concerted fashion.</td>
<td>✔️ Systematically identify the leading regulatory, legislative and informational constraints on international cooperation, using the low uptake of Horizon 2020 instruments as an example.</td>
<td>Short-term</td>
<td>MoES</td>
</tr>
<tr>
<td>✔️ Strengthen the capabilities of research organizations and HEIs to raise international funding.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Sub-pillar II: IPO evaluation and recommendations (Concluded)

<table>
<thead>
<tr>
<th>Area for improvement</th>
<th>Recommendation</th>
<th>Time frame</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Innovation policy is often carried out ad hoc, with little efficient coordination, unclear and overlapping mandates, and no long-term sustainable funding.</td>
<td>✓ Review and clarify the mandate, terms of reference and distinction among central, high-level coordination bodies such as the NCUST.</td>
<td>Medium-term</td>
<td>Government</td>
</tr>
<tr>
<td></td>
<td>✓ Clarify the roles of all bodies with regard to the innovation strategy, especially new bodies such as the Ministry for Digital Transformation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Policies and institutions do not efficiently address regional disparities, inefficiencies and opportunities for innovative development.</td>
<td>✓ Review the decentralization initiative to create clear roles and responsibilities for promoting innovation in Ukraine’s regions, within the framework of the innovation strategy.</td>
<td>Short- to medium-term</td>
<td>Regional governments with participation by national government</td>
</tr>
<tr>
<td></td>
<td>✓ Build on the momentum of the smart specialization initiative to create mechanisms for developing regional science and innovation policy initiatives.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: UNECE.
Bibliography


Chapter IV

PILLAR II: INNOVATION POLICY TOOLS

This chapter reviews the policy mechanisms in Ukraine that enable, promote and diffuse innovation. It addresses five sub-pillars: knowledge absorption, innovation promotion, relationships and linkages, knowledge diffusion, and research and education.

National innovation policy mix – strengths and weaknesses

Figure IV.1 · Scoring of sub-pillars: innovation policy tools
Ukraine’s Innovation Development Strategy 2030 aims to promote innovation to further sustainable development in the country. In the face of the stark economic challenges facing the country, it is especially important that the Government apply effective measures that correctly identify market needs. The IPO analysis of policy measures identified competitive advantages in Ukraine in the sub-pillars of Knowledge absorption and Innovation promotion, as well as several areas that need improvement in the sub-pillars of Relationships and linkages, Knowledge diffusion, and Research and education (figure IV.1). Human capital remains the central input to innovative development in Ukraine, but policy tools have yet to optimize the quality and relevance of human capital relative to the needs of the labour market. Despite the tangible improvements in the enabling environment noted in chapter II, the analysis points to a mismatch between targets specified in innovation policy documents and the scope and efficiency of vertical measures in place. Having effective tools and procedures to monitor and evaluate results and make impacts in line with the objectives of the innovation strategy will be central to ensuring good use of scarce public resources. A set of tailored policy recommendations has been developed to address those issues and is described in this chapter.

| Table IV.1 Overview of sub-pillars and indicators for innovation policy tools |
|-------------------------------------------------|-----------------|-----------------|-----------------|-----------------|
| Sub-pillar I: Knowledge Absorption               | Sub-pillar II: Innovation Promotion                | Sub-pillar III: Relationships and Linkages           | Sub-pillar IV: Knowledge Diffusion                   | Sub-pillar V: Research and Education                |
| Promotion of public and private sector organizational and managerial practices | Business plan and start-up competitions             | Innovation voucher schemes                           | Information and brokerage schemes for technology upgrading | Policies to increase the number of science, technology, engineering and mathematics graduates |
| Schemes to support the development of technical and business services | R&D loans                                           | Cooperative R&D grants                               | Standards, testing and certification instruments for SMEs | Policies to foster research development              |
| Fiscal incentives for acquiring knowledge capital | VAT exemptions                                      | Supplier matching services                           | Industrial technology assistance programmes and extension services for SMEs |                                                          |
| Technology incubators                            | S&T parks                                           | Public procurement for innovation                    |                                                          |                                                          |
| Innovation spaces                                | Digitalization                                      |                                                          |                                                          |                                                          |
| Technology accelerators                          |                                                          |                                                          |                                                          |                                                          |
| Business networks and clusters                   |                                                          |                                                          |                                                          |                                                          |
| Academia-industry linkages                       |                                                          |                                                          |                                                          |                                                          |
| Diaspora networks                                |                                                          |                                                          |                                                          |                                                          |
| Gender equality                                  |                                                          |                                                          |                                                          |                                                          |

Source: UNECE.
Sub-pillar I: Knowledge absorption

The process of assimilating external knowledge plays a substantial role in developing dynamic core competencies, as well as in acquiring competitive advantage and creating new value chains.

Promotion of public and private sector organizational and managerial practices

A constraint on innovative development in Ukraine is the level of knowledge absorption, signified by low productivity that limits the ability of the private sector to generate high demand for R&D and innovative input (see chapter II). The strong correlation between quality of management and labour productivity in the EECS sub-region was first identified in BEEPS V, the Business Environment and Enterprise Performance Survey of the European Bank for Reconstruction and Development (EBRD, 2020), in which Ukraine scored low on both indicators. It is thus essential to improve the professional skills and competences of local entrepreneurs, as outlined in the Export Strategy 2017–2020 (Ukraine, 2017). In addition to donor-funded projects on business development services and quality assurance mechanisms (such as certification by the International Standards Organization (ISO)), private sector organizational practices are enhanced by the Export Promotion Office (EPO), which has supported exporting firms through education activities, training and consultancy services since its establishment in 2016 (ISO, 2020). In the public sector, specialized training centres of the National Academy for Civil Service (NACS) enhance the professional qualifications of State officials, in line with the NACS Strategic Action Plan 2019–2022 (Ukraine, 2014a). In 2018, the NACS spent 54 per cent of its State budget allocation on training in public governance. This policy support does not extend to R&D institutions or State-owned enterprises (SOEs).

Schemes to support development of technical and business services

The innovation infrastructure in Ukraine provides consulting, marketing and financial services, as well as technical support, thereby contributing to the growth and competitiveness of enterprises. The SME Development Office (SMEDO), established in 2018, coordinates the provision of technical and business services, while the EPO provides a one-stop portal offering a range of services to SMEs, including training and seminars on developing business and attracting investment, as well as information sessions on how to launch a business (SMEDO 2020). Nevertheless, most support in the area comes through donor-funded projects. For example, the EBRD-EU4Business initiative established business support centres in 15 regions of the country in 2016–2020. Public-private collaboration is therefore essential to draw on international experience and benefit from the value chains established by the private consulting firms to which technical and business services are continuously outsourced.
Fiscal incentives for knowledge capital

The 2002 Law on Innovation Activity (Ukraine, 2002) stipulates favourable tax policy for innovation and technology transfer; however, the Government has not yet implemented fiscal incentives for innovation. The tax system, established in 2014, was simplified in an amendment in 2018 with approved criteria for State aid in selected areas, including scientific research, technology development and innovation activity (Ukraine, 2014b). Included in the Tax Code of Ukraine from 2011 (last amended in 2019) are several innovation-related exemptions from value added tax, such as for software products and imported equipment. Yet the exemptions are of limited scope, failing to support many potential opportunities to invest in innovative goods and services. Furthermore, no sector-specific assessment of tax policies has yet been conducted, leaving the cost-benefit ratio of introducing additional fiscal incentives in growing fields (such as the IT sector) unknown.

Achievements

- A specialized SME agency – the SME Development Office – was established in 2018 to support the development of entrepreneurship and coordinate provision of technical and business services.
- The service portfolio of the EPO has been expanded to improve business competitiveness on the international market.

<table>
<thead>
<tr>
<th>Area for improvement</th>
<th>Recommendation</th>
<th>Time frame</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policies and institutions do not efficiently address the issues that lead to the mismatch on the market for technical and business services and the overreliance on donor support.</td>
<td>✓ Increase public-private collaboration in technical and business services to identify market needs and draw on the experience of both private sector providers and donor-based projects.</td>
<td>Medium-term</td>
<td>MEDT</td>
</tr>
<tr>
<td></td>
<td>✓ Consider introducing (and promoting the pursuit of) certification programmes of quality assurance for private providers of technical and business services, to build trust among citizens and regulate the market.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Raise awareness about technical and business services and their importance for SME development (such as by conducting seminars or distributing informational material).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Develop an online register of all public and private providers of technical and business services in Ukraine, based on a review, include links to funding opportunities for SMEs and a filtering tool to sort by location and field of expertise.</td>
<td>Short-term</td>
<td>MEDO (in cooperation with the Ukrainian Chamber of Commerce and Industry)</td>
</tr>
<tr>
<td></td>
<td>✓ Provide the register on the official website of the SMEDO once it is launched.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessments of tax policy have not been conducted, causing the economy to miss out on the potential benefits of either sector-specific or economy-wide fiscal incentives for innovation.</td>
<td>✓ Conduct a comprehensive assessment of the tax policy framework and evaluate the economic benefits from introducing fiscal stimulation for innovative enterprises (sector-specific assessment or cost-benefit analysis could help identify whether and which incentives maximize return in terms of sectoral growth).</td>
<td>Medium-term</td>
<td>Ministry of Finance</td>
</tr>
<tr>
<td>No monitoring and evaluation activities are conducted of capacity-building and educational programmes for entrepreneurship.</td>
<td>✓ Improve monitoring and evaluation of educational and promotional activities (for example, regularly collect and publish data on training and support programmes for entrepreneurs).</td>
<td>Medium-term</td>
<td>SMEDO EPO MEDT</td>
</tr>
</tbody>
</table>

Source: UNECE.
Sub-pillar II: Innovation promotion

Promoting innovation requires the Government to invest in establishing platforms where young companies can develop and test innovative ideas.

Business plan and start-up competitions

National and regional competitions strengthen innovative development. With the EEN-Ukraine Consortium, the MoES organizes an annual All-Ukrainian Innovation Festival, creating linkages between investors and local entrepreneurs, and the Vinnytsia regional competition distributes cash vouchers to winning start-ups. A current challenge is the scarcity of evaluation and regular monitoring of projects following the receipt of capital. To this purpose in 2019 the Government launched a dedicated national scheme, the Ukrainian National Start-up Fund. It supports innovation projects in strategic areas defined by an independent supervisory board. Following the Fund’s first Pitch Day in early 2020, eight projects were awarded start-up grants, six of them at the seed development stage and two at the pre-seed development stage. Detailed information on the funds supporting research and innovation appears in table IV.2.

Table IV.2 Funds supporting RDI

<table>
<thead>
<tr>
<th>Provider</th>
<th>Established by</th>
<th>Main objective</th>
<th>Allocated funds</th>
<th>Year introduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizon 2020</td>
<td>EU</td>
<td>Provide research and innovation funding for multinational collaboration and individual projects</td>
<td>$83.4 billion</td>
<td>2014</td>
</tr>
<tr>
<td>Inventions Support Fund</td>
<td>State Finance Institution for Innovations</td>
<td>Stimulate the creation and use of inventions (utility models) and industrial designs</td>
<td>$4.3 million; $21,000–85,600/grant</td>
<td>2018</td>
</tr>
<tr>
<td>National Research Foundation</td>
<td>Cabinet of Ministers</td>
<td>Support basic and applied research in the form of grants</td>
<td>$11.1 million</td>
<td>2018</td>
</tr>
<tr>
<td>National Start-up Foundation</td>
<td>Cabinet of Ministers</td>
<td>Enhance innovative development via research commercialization</td>
<td>$17.1 million; $25,000–30,000/grant</td>
<td>2019</td>
</tr>
<tr>
<td>Western NIS Enterprise Fund</td>
<td>U.S. Agency for International Development</td>
<td>Strengthen export promotion and local economic development</td>
<td>$34 million (legacy programme)</td>
<td>2015</td>
</tr>
</tbody>
</table>

Source: UNECE

Support for RDI investment

According to the MEDT Cross-sector Export Strategy 2019–2023, 17 per cent of Ukrainian companies consider themselves to be innovative, compared with the EU average of 49 per cent (Ukraine, MEDT, 2019a; ITC, 2018). The strategy identifies low access to finance as a main impediment to innovation activity and high-tech manufacturing.
Although R&D loans are generally unavailable, the State Finance Institution for Innovations provides support in the form of loans to innovative economic entities, in addition to a range of services. Preferential loans and guarantees are further envisaged in the amended Law on State Aid to Business Entities (Ukraine, 2018a). In addition, the Entrepreneurship Development Fund provides loans at favourable rates as well as partial compensation of interest rates. In 2020 it was allocated approximately €67.6 million from the State budget (Ukraine, 2020).

Technology incubators and accelerators

The SME support infrastructure comprises 67 registered business incubators (Ukraine, MEDT, 2019b). According to the MoES, 24 of them specifically target innovative enterprises (Ukraine, 2019a). Yet, assessments show that only a few are effective and many are not operational (EU, 2017). A principal challenge for incubators in the EESC region is their high dependency on grant funding, which limits the scope of their activity; the lack of active monitoring and evaluation of incubators allows inefficiencies to persist. In addition, the potential of public R&D institutions to incubate ideas remains unexplored. Nevertheless, the USAID Business Incubators project offers start-ups opportunities to attract seed funding, while Ukraine's High-Tech Office provides integrated support to high-tech start-ups through incubation and acceleration services, including finance and coaching. The private sector also contributes actively to support for technology-based enterprises, providing acceleration services and innovation spaces for lab work, co-working and prototyping. A prominent example is the rapidly expanding UNIT.City Innovation Park in Kyiv, which comprises eight accelerators and state-of-the-art high-tech laboratories.

### Sub-pillar II IPO evaluation and recommendations

<table>
<thead>
<tr>
<th>Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>National and regional competitions have been established to support the growing start-up movement and create platforms for knowledge-sharing and product development.</td>
</tr>
<tr>
<td>Several state funds have been established to stimulate research and innovation activity in Ukraine on a competitive basis.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area for improvement</th>
<th>Recommendation</th>
<th>Time frame</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low access to finance hinders innovative start-ups and firms in growing their businesses, as commercial banks require high collateral.</td>
<td>✓ Stimulate investment in innovative activities by mainstreaming concessional finance for innovative projects (such as targeted R&amp;D loans).</td>
<td>Medium-term</td>
<td>MEDT</td>
</tr>
<tr>
<td>✓ Consider expanding direct financial incentives for R&amp;D (such as credit guarantees, interest rate refunds and equity financing).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The limited capacity of business incubators hinders early-stage development of start-ups and innovative enterprises.</td>
<td>✓ Learn from the few operational incubators and transfer their experience.</td>
<td>Medium-term</td>
<td>MEDT</td>
</tr>
<tr>
<td>✓ Conduct a study of international best practices on improving the innovation support infrastructure.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Set up a monitoring and evaluation framework to assess the impact of the innovation incubators.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Sub-pillar III: Relationships and linkages**

Schemes that support linkages between science and industries help create innovative ecosystems by assisting scientists and businesspeople in commercializing research, creating products and developing new organizational processes.

**Business networks and clusters**

The technology and industrial sectors are well represented by enterprise unions and business associations, which serve as vehicles for networking and collaboration. The Ukrainian Association for Innovation Development unites leading international and national companies in IT, high-tech, machine building, microelectronics and similar industries. In 2019, the Association of Industrial Automation of Ukraine and the Council of Entrepreneurs under the Cabinet of Ministers established the Industry4Ukraine platform, uniting interested groups and associations in the International Trade Center (ITC), engineering and machine building markets. The platform, established in 2019, supports development in the country towards the Fourth Industrial Revolution (2016) by promoting industrial policy (APPAU, 2020). The organization of international business events and matching services are run by the Ukrainian Chamber of Commerce and Industry, a member of the EEN-Ukraine consortium, and the European Business Association, which aim to expand investment and trade opportunities for Ukrainian enterprises.

Public-private partnerships have the potential not only to create synergies but also to develop coordination mechanisms that correctly identify sectoral needs and engage businesses in policy dialogue. One such example is the Digital Agenda for Ukraine 2020, which was jointly developed in 2016 by the High-Tech Office, private sector experts, the MEDT, the Verkhovna Rada Committee on Informatization and Communication, and the President’s Administration.

Despite the growing creation of clusters (with 30 registered in 2019), the innovation policy lacks initiatives to develop regional clusters. Although several market-driven clusters have arisen in the IT and agriculture sectors, many regional cluster programmes are not fully operational. Among them is an investment and technology cluster, recently created...
along with several other industrial clusters (Ukraine, 2019a). Only a few of the technology clusters are operational. The lack of a clear policy framework and data collection effort for clusters keeps information on them fragmented and prevents a comprehensive cost-benefit analysis.

**Innovation support infrastructure**

Ukraine has a vast array of innovation infrastructure elements, ranging from science parks and technology transfer offices to centres for commercializing intellectual property (table IV.3). Some of these organizations, however, are not operational due to lack of finances or insufficient innovative projects, leaving the number of active elements unknown. For instance, the Law on Science Parks envisages that those entities will provide the material and technical base for research commercialization, yet in recent years they have exhibited poor financial performance. In addition, the State Regional Development Strategy 2020 defines a regional network of industrial parks; 29 parks were established in the period 2017–2020.

<table>
<thead>
<tr>
<th>Innovation infrastructure element</th>
<th>Number of registered units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science parks</td>
<td>26</td>
</tr>
<tr>
<td>Technology parks</td>
<td>16</td>
</tr>
<tr>
<td>Industrial parks</td>
<td>40</td>
</tr>
<tr>
<td>Technology transfer centres</td>
<td>24</td>
</tr>
<tr>
<td>Innovation centres</td>
<td>22</td>
</tr>
<tr>
<td>Centres for intellectual property commercialization</td>
<td>38</td>
</tr>
<tr>
<td>Innovative incubators</td>
<td>24</td>
</tr>
</tbody>
</table>

**Source:** Institute for Economics and Forecasting, National Academy of Sciences of Ukraine, MoES.

**Academia-industry collaboration and mobility**

Although it is widely recognized that research institutions that cooperate with business make a stronger contribution to the economy overall, and innovation in particular, and enjoy a more sustainable footing, in Ukraine, academia-industry cooperation remains underdeveloped. Several schemes do contribute to the formation of such linkages, including enterprise traineeships for HEI personnel, dual general-vocational education and the Ukrainian-German training centre for engineering at the Kyiv Polytechnic Institute of the National Technical University. The EU-funded project “Cross-regional Network of Technology Transfer”, supported by the State Regional Development Fund, aims to establish several technology transfer centres during the period 2018–2021 (Ukraine, 2018b). These schemes, however, have limited capacity to build strong
industry-science linkages. One of the root causes of this limited capacity identified by the MEDT is the absence in universities and public R&D institutions of stimulating conditions for developing products and creating intellectual property (Ukraine, MEDT, 2019a). The lack of technology assistance, fuelled by a general decline in interest in RDI, inhibits partnerships between business and academia.

Another constraint is the lack of direct State financial support for innovation in the form of vouchers or matching grants. Innovation vouchers, which have been found to have positive impacts on emerging innovation dynamics (Matulova, 2015; Speisberger and Schoenbeck, 2019), are generally not available. An exception is the climate innovation vouchers in agribusiness that the EBRD grants to support the development of green business solutions. To improve industry-science linkages, further policy efforts are needed in the direction of competitive funding.

**Diaspora networks**

Although Ukraine has no comprehensive national strategy for mobilizing its diaspora, separate initiatives with a limited scope exist, such as the Forum of Ukrainian Research Diaspora of the National Academy of Sciences of Ukraine (NASU) and conferences organized by the International Institute for Education, Culture and Cooperation with Diaspora (2014). According to the Ministry of Social Policy, over 3.2 million Ukrainians – including many successful entrepreneurs and researchers – resided abroad permanently as of 2018. This ample potential should be leveraged for development at home.

**Gender equality**

Another important consideration in this sub-pillar is gender equality – better use of women’s skills is critical for the development of innovation, especially given the rising proportion of female tertiary-degree graduates, professionals and technicians (see chapter II). Among the latest developments in legislation on gender issues is the adoption of the State Social Programme of Equal Rights and Opportunities for Women and Men until 2021 (Ukraine, 2018c). Special provisions for female entrepreneurship are also included in the SME Strategy 2020, the Export Strategy 2017–2021 and the Poverty Reduction Strategy. Further progress faces several challenges, including limited funding of the State programme, scarce public information on the implementation of action plans, and lack of gender-disaggregated statistical data in many areas, especially business statistics. International donors implement several projects. Facilitating women’s participation in decision-making is one of the objectives of the Partnership for Local Economic Development and Democratic Governance (PLEDDG) project funded by the Canadian Government (PLEDDG, 2020).
## Achievements

- Several public-private partnerships have been established by business associations and enterprise unions suggesting strong development of business networks and synergies.
- Gender equality perspectives are integrated in several strategic policy documents and a dedicated programme at the national level has been adopted.

### Area for improvement

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Time frame</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>© Consider introducing direct public funding instruments in the form of innovation voucher schemes to stimulate the implementation of innovative ideas on a non-competitive basis.</td>
<td>Medium-term</td>
<td>MEDT</td>
</tr>
<tr>
<td>© Introduce competitive cooperative R&amp;D grants to promote collaboration between academia and industry in a transparent institutional framework, ensuring close monitoring and regular evaluation.</td>
<td>Medium-term</td>
<td>NASU</td>
</tr>
<tr>
<td>© Support public R&amp;D institutes in establishing structures and capacities needed for strengthening industry-science linkages.</td>
<td>Medium-term</td>
<td>MoES NASU</td>
</tr>
<tr>
<td>© Expand channels of collaborative research and extend the technology transfer system to facilitate intellectual property transactions.</td>
<td>Medium-term</td>
<td>MoES NASU</td>
</tr>
<tr>
<td>© Improve technology transfer infrastructure at HEIs to commercialize innovations from public institutions.</td>
<td>Medium-term</td>
<td>MEDT NASU</td>
</tr>
<tr>
<td>© Formulate an explicit cluster policy framework that will be the basis for developing clusters, with the aim of increasing their international competitiveness by strengthening regional linkages (for example, consider establishing a regional cooperation strategy among stakeholders from industry, academia and government).</td>
<td>Medium-term</td>
<td>MEDT NASU</td>
</tr>
<tr>
<td>© Conduct a comprehensive assessment of the innovation support infrastructure and develop a set of internal standards.</td>
<td>Medium-term</td>
<td>MEDT MoES</td>
</tr>
<tr>
<td>© Integrate advisory services in the portfolio of infrastructure elements, to cover the whole innovation cycle from early-stage project development to product commercialization.</td>
<td>Medium-term</td>
<td>National Statistics Service of Ukraine</td>
</tr>
<tr>
<td>© Identify areas that need policy intervention in terms of gender equality by integrating gender disaggregation into national statistics on enterprise activity.</td>
<td>Medium-term</td>
<td>NASU International Institute for Education Culture and Cooperation with Diaspora</td>
</tr>
<tr>
<td>© Develop a national diaspora mobilization strategy with outlined priorities and an action plan to make use of diaspora networks.</td>
<td>Medium-term</td>
<td>National Statistics Service of Ukraine</td>
</tr>
</tbody>
</table>

Source: UNECE.
Sub-pillar IV: Knowledge diffusion

Mechanisms that ensure equal and widespread access to information are vital to creating an innovative ecosystem in both the public and private sector, serving as channels for the distribution and intersectoral flow of information.

Public procurement for innovation

The Law on Public Procurement does not envisage special measures to support demand for or build platforms for innovation. In 2019, however, the MEDT took a step towards improving the efficiency of public procurement by establishing the Professional Procurement State Institution as a centralized procurement organization. In addition, separate initiatives support this dimension. For example, the donor-driven project “Transferring experience with green public procurement in Slovakia and Ukraine” has raised awareness about public procurement through an online educational course for state officials. Also, the State Finance Institution for Innovations stimulates the creation and use of utility models and industrial designs in competitions under the Invention Support Fund. The winners receive funding for several services, including lab tests, preparation of patent applications and business model development, with all services being procured through the State procurement system. As an effective response to the need for innovative solutions with a competitive advantage, a pre-commercial procurement approach could stimulate the demand side in the emerging dynamics of innovation while supporting innovative start-ups and SMEs, too.

Digitalization and e-governance

The digitalization of the economy has garnered substantial attention in recent years, as shown in the Concept of Digital Economy Development 2018–2020, including considerable investment into broadband infrastructure (Ukraine, 2018d). Although the Government has yet to adopt the national broadband development plan, room remains for improvement in broadband access in rural areas (see chapter II). Nevertheless, the Ministry of Digital Transformation (established in 2019) works towards the digitalization of SME services, narrowing the digital gap. According to a 2019 World Bank study, the rapid growth of the ICT sector in recent years has led to a rise in demand for qualified professionals. At the same time, Ukraine has experienced a dramatic brain drain of people with expertise in emerging technology areas, including artificial intelligence, cloud computing and cybersecurity. Nevertheless, positive developments are underway in high-performance computing: the national grid infrastructure combines the resources of 26 universities and R&D institutions, providing researchers with access to resources through nine virtual organizations. In addition, in accordance with the Law on access to public information (adopted in 2014), the Government established a unified, public, open data portal, providing access to metadata collected by the public sector for commercial purposes and strengthening cross-sectoral linkages.
Other policy issues

The existing policy tools do not sufficiently address present gaps of knowledge diffusion in Ukraine with regard to leveraging the potential of industrial technology assistance, brokerage schemes for technology upgrading, and standards, testing and certification instruments for SMEs. Nevertheless, the 2020 Strategy for Development of Technical Regulations Systems provides indirect support for the latter, although it does not specifically target SMEs.

### Sub-pillar IV IPO evaluation and recommendations

#### Achievements

- A centralized procurement organization was established, the Professional Procurement State Institution.
- Evident efforts have been made to introduce green procurement policies for sustainable development.
- A unified, public open data portal was established, promoting transparency in the activities of state bodies.

<table>
<thead>
<tr>
<th>Area for improvement</th>
<th>Recommendation</th>
<th>Time frame</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The ample potential of public procurement as a lever for innovative development has not yet been fully explored.</td>
<td>Stimulate the development of innovative goods and services through demand-driven policies; for example, consider adopting a pre-commercial procurement approach to stimulate RDI activity and create a competitive advantage for innovative entrepreneurship while modernizing public services.</td>
<td>Medium-term</td>
<td>MEDT Professional Procurement State Institution</td>
</tr>
<tr>
<td>• Information and brokerage services for upgrading technology and for assisting firms in planning and implementing innovative activities are insufficient, keeping SMEs from optimizing their work processes.</td>
<td>Expand innovation support services by introducing brokerage schemes (such as brokerage events, collaborative project planning and matching) in the portfolio of innovation infrastructure elements and/or in cooperation with the private sector.</td>
<td>Medium-term</td>
<td>MEDT</td>
</tr>
<tr>
<td>• The provisions of industrial technology assistance do not match demand in the SME sector, thus hampering modernization of SME production processes.</td>
<td>Stimulate further the economy’s transition to Industry 4.0 by providing SMEs with relevant market intelligence services, technical assessment and consultancy, ICT training and R&amp;D project assistance (such as integration in the mandate of science and technology and industrial parks, technology transfer centres and programmes implemented by the SME Development Office).</td>
<td>Medium-term</td>
<td>MEDT SMEDO</td>
</tr>
</tbody>
</table>

Source: UNECE.
Sub-pillar V: Research and education

Recognizing the requirements of today’s labour markets and fast-evolving technological environment, governments have pursued a multidisciplinary approach to education through STEM initiatives. Policy measures to enhance research are designed to promote research excellence, collaboration and commercialization.

Policies to increase the number of STEM graduates

A positive feature of the education system are the many incentives that promote science, technology, engineering and mathematics (STEM) in general education. They include scholarships, national competitions and extra credit on external evaluations, with a clearly defined policy and institutional framework. A secondary school reform with a pronounced focus on STEM began in 2016 with the adoption of the Concept of Implementation of State Policy on Reforming General Secondary Education “New Ukrainian School” for the period up to 2029 (Ukraine, 2016a). Yet although undergraduate students benefit from STEM exchange programmes, the higher education subsector lacks financial incentives for STEM-related fields at universities, such as scholarships, grants and fellowships. Further development is needed, as demonstrated by the skills shortage that businesses report (see chapter II) (World Bank, 2017). This need runs up against serious long-term constraints, such as the low number of qualified STEM teachers, and also sheds light on some of the structural problems of the economy – such as the rapid outflow of students and young scientists engaging with temporary placements in MNEs abroad.

Policies to foster research development

State funding of research is approved on an annual basis. National priority research areas for the period 2011–2020 are defined by the Law of Ukraine on the Priority Directions of Science and Technology (adopted in 2001) and last approved by the Cabinet of Ministers in 2016 (Ukraine, 2016b). Strategic (10-year) and medium-term (five-year) priority directives in the sphere of innovation are further set by the Law of Ukraine on the priority directions of innovative activities. The NASU, as the main research organization in the country, receives the highest share of the State research funding (61.2 per cent in 2018), allocated under the State Budget to 25 public institutions for fundamental and applied research, state programmes, state orders and international projects (Ukraine, MoES, 2019).

Enlarging research through effective support measures is particularly important for Ukraine because of the rapid decline in the number of researchers over the past decade (from 133,744 in 2010 to 59,392 in 2017). Thus, to expand the R&D talent pool, the National Research Fund of Ukraine (established in 2018) provides competitive grant funding through individual, collective and institutional awards (see table IV.2). A total of Hrv 260 million was allocated from the 2019 State budget to the Fund ahead of its launch. Another recently introduced support measure is the collaborative science and technology competitions organized by the NASU. In 2020, the NASU will begin awarding
grants to institutions conditional on external counterpart funding, thereby improving
the overall technology transfer system and contributing to mobility between academia
and industry (Ukraine, NASU, 2019). Cross-border cooperation is also sustained through
several international projects and partnerships with foreign research institutions.

### Sub-pillar V IPO evaluation and recommendations

**Achievements**

- An effective policy mix has been applied to stimulate STEM education in general education.
- The National Research Fund was established in 2018 to foster research and innovation activity in the country.

<table>
<thead>
<tr>
<th>Area for improvement</th>
<th>Recommendation</th>
<th>Time frame</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Competitive funding mechanisms for research are limited. There are no calls for proposals aimed at stimulating cooperation between the private sector and academia.</td>
<td>Expand competitive research funding to increase the efficiency of the science and technology system.</td>
<td>Medium-term</td>
<td>NASU</td>
</tr>
<tr>
<td></td>
<td>Consider introducing a collaborative funding scheme conditional on a partnership between a public R&amp;D institution and private enterprise.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Incentives for STEM degrees at HEIs are insufficient to attract tertiary degree students in related fields.</td>
<td>Promote STEM fields in higher education to ensure a future pool of talent (for example, develop a web-based STEM portal to provide information on opportunities and support infrastructure, hold promotion days at research institutes, offer financial incentives in the form of specific scholarships).</td>
<td>Short-term</td>
<td>MoES</td>
</tr>
<tr>
<td>• Research support schemes lack a set monitoring and evaluation framework.</td>
<td>Establish a framework for monitoring and evaluation to integrate in all current and future research funding initiatives to increase their efficiency by standardizing and to make it possible to conduct an impact assessment.</td>
<td>Short-term</td>
<td>MoES</td>
</tr>
</tbody>
</table>

Source: UNECE.

### Notes

1 The BEEPS V data set was last updated on 23 August 2017.
2 Deloitte, The Ukrainian Parliament adopted a law that substantially changes the Ukrainian taxation system, 11 January 2018.
3 Other initiators of the movement are the Institute for Economic Research and Policy Consulting, the Chamber of Commerce and Industry of Ukraine, the Office of Reform at the Cabinet of Ministers, the European Innovation Agency and the SOE Ukpromzovnishekpertiza.
4 The project is conducted by the non-governmental organization GoLOCAL in partnership with the Slovak Centre for Communication and Development and co-financed by the Slovak Agency for International Development Cooperation (SlovakAid).
Bibliography


Ukraine, Cabinet of Ministers (2016b). On approval of the list of priority thematic areas of research and scientific and technological development for the period up to 2020. Resolution No. 942. Kyiv.


Ukraine, Cabinet of Ministers (2018b). On approval of proposals for the allocation in 2018 of budget funds for regional development projects that can be realized at the expense of funds received from the European Union under the implementation of the financing agreement for the Sectoral Support Program policy — Support for regional policy of Ukraine passed the competitive selection. Resolution No. 569-r. Kyiv.


Website

SME Development Office: https://sme.gov.ua
Chapter IV

**PILLAR III: INNOVATION POLICY PROCESSES**

Pillar III examines the underlying processes for innovation policymaking: how data, evidence and stakeholder input inform how decisions are made, put into practice, monitored and evaluated, based on the experience from one specific policy. Ten detailed policy indicators address each step in the policy process of that specific policy, from problem identification or market failure to policy design, implementation, evaluation, impact assessment and learning.

In consultation with the MoES and the NASU of Ukraine, UNECE selected the Strategy of Innovation Development 2030 for assessment, on the basis of these criteria:

i) The policy measure is intended to foster science, technology and innovation (STI) in the country.

ii) The policy measure reflects the standard innovation policy practices in the country.

Pillar III also derives broader policy lessons for innovation policymaking.

**Innovation policy processes – strengths and weaknesses**

Ukraine’s Innovation Strategy is a necessary initiative with a long-term vision and targets for developing the country’s innovation system. It emerged from a structured and open consultation process with relevant stakeholders, and its design and content are partially in line with international good practices, such as its coherence with relevant overarching and sectoral policies, its duration and the types of targets. The strategy’s shortcomings lie in the underlying analysis, which does not identify, analyse and quantify market failures; evaluate corresponding policy options; present comparisons of viable alternatives and budgetary impacts; or include structured implementation and post-implementation modalities. It lacked a complete budget and an action plan when the research for this publication was undertaken.

More broadly, the IPO analysis found that, despite democratic and governance reform initiatives over the past five years – most notably the Strategy for Public Administration
Reform and the Law on Civil Service – the policy design, development and coordination system in place in line ministries and other government bodies with STI policy competencies is still not fully functional and significant gaps remain in the practices of planning and making policy. Monitoring and evaluation are insufficient and overly focused on outputs, with few systemic linkages to ensure that learning feeds into the policy design process. These issues affect the quality of policies and hence the innovation performance of the country.

**Policy overall: governance and democratic reform gaining traction**

Ukraine consistently ranks within the bottom third on global indices of governance because of its malfunctioning justice system and non-transparent government practices, combined with pervasive business-political ties and a weak civil society. Nevertheless, Ukraine has taken important steps towards modernizing public governance, in particular since 2016, when the legislature adopted the Strategy for Public Administration Reform and the Law on Civil Service. Both are widely regarded as ambitious but relevant flagship initiatives to enhance the effectiveness and accountability of public administration (Iarema, 2019).

Indeed, since 2016, Ukraine has undertaken several initiatives to modernize public services, with substantial donor support (SIGMA, 2018), particularly from its EU partners. The civil service has started to bear less of a political imprint and operate more professionally and transparently, government bodies have enhanced their capacity to implement reforms and digitization is under way (Iarema, 2019). Reform of civil servant remuneration has begun, and important legal changes in the recruitment of civil servants are being enforced (SIGMA, 2018). The Government has also conducted a comprehensive process of political decentralization to restructure relations between the centre and the periphery, strengthen the country’s resilience and improve governance (Romanova and Umland, 2019). The new Government has vowed to prioritize governance, judicial reform and anti-corruption efforts; however, given the scope and ambition of efforts under the new President, the prospects are not clear.

**Policy focus: Strategy of Innovation Development 2030**

A national innovation strategy is an overarching, guiding policy document that defines a government’s vision, objectives and resource commitments for developing innovation policy. It helps coordinate activities across the numerous government bodies involved in innovation policymaking and prioritizes policy action, targeting challenges while building on opportunities and resources. Given this multidisciplinary nature and the various government actors involved, government strategies related to innovation are considered particularly vital for coordination purposes.

Nowadays, most high- and middle-income countries elaborate high-level policy strategies to foster innovation (IDRC and OECD, 2010). According to the OECD (2014, p. 90), these strategies can serve three important functions in government policymaking:

1. They articulate the government’s vision regarding the contribution of [STI] to their country’s social and economic development.

2. They set priorities for public investment in STI and identify the focus of government reforms (such as funding of university research, evaluation systems). They also mobilize
STI actors towards specific [SDGs], such as energy, environmental issues or health, and may help steer the investment of private actors and increasingly autonomous universities and public research institutes towards priority areas or technologies.

3. The elaboration of these strategies can engage stakeholders (the research community, funding agencies, business, civil society, regional and local governments) in broad consultations that will help building a common vision of the future and facilitate coordination within the innovation system.

The content of innovation strategies depends on the specific needs of an economy. Governments should consider several building blocks and common characteristics that this chapter uses as benchmarks:

1. Clear vision. Innovation strategies should contain a clear vision of the improvements to pursue, ensure a transparent regulatory and incentive structure, and define possible technological trajectories in line with the objectives of the policy (IDRC and OECD, 2010).

2. Evidence-based, for an identified market failure. The vision in a strategy should be founded on the dynamics observed in the private and public sectors (IDRC and OECD, 2010) and prepared on the basis of empirical evidence, the identification of market failures and opportunity tools such as scenarios and strengths-weaknesses-opportunities-threats (SWOT) analyses. The process of preparing and designing the strategy is potentially more important than the document itself, as it helps identify barriers and hidden opportunities, and promotes a learning process (OECD, 2014).

3. Effective coordination. With multiple layers of support policies, the effectiveness of coordination efforts is important, particularly in developing countries, which need to adjust and coordinate these layers of intervention so as to promote innovation effectively, as well as other, complementary SDGs such as sustainability or alleviation of poverty (IDRC and OECD, 2010).

4. Appropriate time frame. National innovation strategies differ in their time frames but rarely exceed five to 10 years. In rare cases the duration is open, as in Colombia’s National Innovation Strategy, for example. Many European countries have defined their national strategies in the time frame of the EU’s Horizon 2020 Programme (OECD, 2014).

5. Benchmark targets. National innovation strategies should include targets to benchmark performance and progress. Commonly, these are expressed as quantitative targets for R&D spending. Countries have also set targets in terms of innovation outputs such as patents, citations and publications (as in the Russian Federation) or even educational outcomes (as in Denmark and Switzerland) (OECD, 2014). Ideally, a strategy should include specific innovation targets.

6. Action plans. Performance targets must be complemented by action plans, which set shorter-term steps, milestones and measures of progress, as well as responsibilities, specific assignments and the timeline. Action plans define the implementation sequence of strategies and make them operable and their goals achievable. National innovation strategies are often implemented by ministries or specific funding and innovation agencies. They may also be operationalized through regional strategies or even contracts, such as university performance agreements (OECD, 2014).
7. Evaluation. To ensure accountability and measure the outputs and outcomes, evaluation rules and tools should be incorporated in the implementation of strategies. Evaluation typically concerns not only discrete policy interventions or instruments but also entire research portfolios or the overall research and innovation system (OECD, 2014).

Ukraine’s Strategy of Innovation Development 2030 is the overarching, guiding policy document that defines the Government’s vision and objectives for developing innovation policy. It was prepared by the MoES and adopted by the Cabinet of Ministers on 10 July 2019. It has three main components: (a) the legal framework of innovation activity, (b) innovation infrastructure development and consulting support, and (c) educational and entrepreneurial cultural activities. It effectively replaces the State Innovation Policy, in place since 2009. The implementation time frame extends until 2030.

The main goal is “creating the innovative ecosystem of Ukraine to ensure the rapid and qualitative transformation of creative ideas into innovative products and services”. Three sub-goals correspond to the overall objective:

1. To create favourable conditions for accelerated growth of the innovative sphere and post-industrial branches of the economy
2. To overcome current negative trends in the development of innovations and innovative potential, creating conditions for expanding its reproduction
3. To increase the efficiency of using budget funds directed towards the development of science and innovation

<table>
<thead>
<tr>
<th>Sub-pillar I: Preparation</th>
<th>Sub-pillar II: Design</th>
<th>Sub-pillar III: Implementation</th>
<th>Sub-pillar IV: Post-implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation foresight</td>
<td>Planning</td>
<td>Amendment of policies</td>
<td>Ex-post evaluation</td>
</tr>
<tr>
<td>Rationale</td>
<td>Decision-making</td>
<td>Review of the policy</td>
<td>Adaptation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>against its action plan</td>
<td></td>
</tr>
<tr>
<td>Private sector consultation</td>
<td></td>
<td>Coherence</td>
<td></td>
</tr>
</tbody>
</table>

Source: UNECE
Sub-pillar I: Preparation

Sound preparation of policies sets the foundation for the policymaking process. Public intervention should, where appropriate, depend on the identification of market failures along with future trends that will affect the area of intervention.

Innovation foresight

The analysis revealed that innovation foresight – the practice of capturing future trends and perspectives for research activities to incorporate or adjust in innovation policies – is sporadically integrated into the policymaking process. According to interviews conducted by the Institute for Economic Research and Policy Consulting (2019), a comprehensive policy foresight exercise took place in 2011. In a second step, the Institute conducted a comparative analysis of these trends with the current potential of Ukraine, taking into account the country's commitments to the SDGs. In addition, the MoES has introduced a series of consultations with businesses regarding their needs for research and innovation. About 10 such meetings have been held and more are planned. The first results were the follow-up received from businesses and the development of the first steps for decision-making in accordance with the proposals of businesses. During the preparation of the Innovation Strategy, no foresight tools or methods were used.

Policy rationale

The vast majority of innovation stakeholders consulted for the IPO analysis considered that the preparation of an innovation strategy was long overdue. This perception can be attributed to a number of factors: the limited impact of the State Innovation Policy, an overall lack of a clear strategic vision to put Ukraine on an innovative development path and the lack of a cross-sectoral document addressing science and innovation in the country. One stakeholder stressed the need to move away from the ad hoc approach to innovation, which has produced a flourishing of initiatives that have not led anywhere.

The Innovation Strategy itself acknowledges that “the approaches to the formation of the State Innovation Policy, which have been in place for the last [10] years, have proven incapable of raising Ukraine to a higher [innovation performance] level, and therefore require radical change” and that “previous attempts to formulate a state policy for innovation support in Ukraine through selective assistance in the development of particular industries, sub-sectors and projects have had limited positive impact” (Ukraine, Cabinet of Ministers, 2019, p. 6). Between 2013 and 2018 various government bodies developed almost 40 sector-level strategic documents with provisions relevant to the development of innovation in specific areas, with limited synergy in content and limited coordination. Thus, the preparation of a new innovation strategy seems justified.

Nonetheless, the underlying analysis, which determines the issues to tackle and the way forward to resolve them, had limitations. To conceptualize the strategy, CASE Ukraine, a non-governmental think tank engaged in economic research, policy analysis and
macroeconomic forecasts – albeit not with specific expertise in innovation policy, provided an analysis of the innovation ecosystem. Based on this concept, the MoES drafted the rationale for the strategy.

The rationale comprehensively reviews Ukraine’s innovation performance on the basis of recent international benchmarking studies, including the GCI, the Innovation Index, the EU Innovation Scoreboard and the GII, as well as the latest data from the State Statistics Service. It also articulates the Government’s vision of how innovation contributes to social and economic development and outlines a range of broad actions for how to improve innovation performance and achieve the vision.

Where the analysis falls short is in identifying, analysing and quantifying the underlying constraints and market failures that the strategy responds to and should address. Nor does it use opportunity tools such as scenario analysis and SWOT analysis. It contains no comparison of viable alternatives or assessment of budgetary impacts, although, considering the measures proposed, these are bound to occur. It provides no information on how the strategy is to be implemented – an action plan is still pending adoption – or how the effects of the strategy will be monitored and evaluated, including the metrics to be used, the institutions responsible and the processes involved.

The strategy contains an analysis of the state of affairs of the national innovation ecosystem and of the structural issues the strategy aims to improve. Yet the lack of cost-benefit analyses to underpin the policy measures prescribed and the lack of a concrete operational direction hinder the establishment of clear links between the ambitious objectives and the actions supporting progress towards them.

**Broader policy issues**

The legal framework places responsibility for preparing policy within ministries. Three main line ministries deal with STI policies: the MoES; the Ministry for Development of Economy, Trade and Agriculture; and the Ministry of Digital Transformation. According to the Law on Central Executive Authorities, ministries ensure the formation of state policy in one or several areas, and other central executive bodies oversee the implementation of these state policies. Indeed, it is not uncommon for more than 60 per cent of a ministry’s staff to be responsible for developing policy (SIGMA, 2018).

In Ukraine, two legal requirements aim at ensuring a standard of quality in the preparation of draft laws and policies. On the one hand, the Cabinet of Minister’s Rules of Procedures stipulate that an impact assessment of draft legislative and policy proposals is mandatory and must contain a problem analysis, the objectives, the reasons for adoption and an assessment of the regulatory impacts as well as impacts on the labour market (SIGMA, 2018). On the other hand, the Law on the Principles of State Regulatory Policy obliges policy drafting institutions to assess the impact of all regulations that affect the private sector. This includes most innovation-related regulations.

The practicability and implementation of these two requirements entail at least four issues:

1. Policy development bodies do not always comply with the requirements. Specifically, ministries have a widespread practice of submitting draft policy and legislative proposals directly to members of Parliament with the aim of ensuring adoption
while avoiding quality control by the Government and bypassing requirements for evidence-based policymaking.

2. The quality of the analyses conducted is low. As in the Innovation Strategy, they lack insight into the justification for the proposal and relevant impacts of its implementation.

3. Particularly for policy strategies, policy documents rarely include proper calculations of costs (whether in terms of overall cost planning or in terms of a link to subsequent resource allocation), which has a significant impact on their allocation and ultimately their implementation (SIGMA, 2018).

4. Perhaps most strikingly, the two requirements are not aligned in their legal framework or in their implementation. Policymaking institutions that work on private sector development are required to prepare regulatory impact assessments (RIAs) and explanatory notes with largely overlapping content. This creates additional burdens for these institutions without providing added value to decision makers. The business community confirmed the low quality of policy preparation in a recent survey, in which less than a third of respondents agreed with the statement, “Laws and regulations affecting my company are clearly written, not contradictory and do not change too frequently” (SIGMA, 2018).

---

### Sub-pillar I IPO evaluation and recommendations

#### Achievements

- The Government has adopted a national innovation strategy, prepared with the support of a non-governmental economic think tank, based on a comprehensive review of the country’s innovation performance and responding to the need for a strategic vision to put Ukraine on an innovative development path, as well the lack of a cross-sectoral policy covering STI.
- A legal framework exists that sets quality standards for policy preparation by relevant government institutions, including the two main ministries in charge of making innovation policy.

<table>
<thead>
<tr>
<th>Area for improvement</th>
<th>Recommendation</th>
<th>Time frame</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The rationale for the Innovation Strategy is not based on market failures or a cost-benefit analysis.</td>
<td>Improve quality-control mechanisms to ensure that cross-sectoral government strategies are evidence-based and contain the elements necessary to guarantee the quality and applicability of policies.</td>
<td>Medium-term</td>
<td>Cabinet of Ministers</td>
</tr>
<tr>
<td>• Ministries submit draft policy and legislative proposals directly to individual members of Parliament, avoiding quality control by the Government.</td>
<td>Adopt and enforce legislation that prevents these types of practices and shortcuts from occurring, which might require revising the parliamentary code.</td>
<td>Medium-term</td>
<td>Cabinet of Ministers/Secretariat of the Government</td>
</tr>
<tr>
<td>• The lack of compliance with the legal framework and the lack of alignment between the two legal frameworks for policy preparation leads to operational inefficiencies.</td>
<td>Simplify the requirements for policy preparation, by merging the required impact assessment and RIA into one combined process, thereby reducing the burden on ministries and avoiding duplication of work (SIGMA, 2018).</td>
<td>Medium-term</td>
<td>Cabinet of Ministers</td>
</tr>
</tbody>
</table>

Source: UNECE.
Sub-pillar II: Design

Public-private consultations are an integral part of the policy design process, to ensure policy relevance to market and private sector needs and to confirm the commitment of relevant stakeholders to implementing it. Innovation policy is a supplementary component of a country’s overarching strategy that contributes to the achievement of the broader vision and objectives of socioeconomic development. Its priorities and activities should be consistent and coherent with relevant “non-innovation” policies.

Planning

The Innovation Strategy’s time frame of just over 10 years (summer 2019 until 2030) is in line with international good practices for policy design for such a strategy. Furthermore, as prescribed earlier as one of the elements of sound design of national innovation strategies, the strategy includes targets to benchmark its long-term performance and progress. As is common, these are expressed as quantitative targets for R&D spending (increasing gross domestic expenditure on R&D to 3 per cent of GDP in 2030 from 0.45 per cent in 2017), as well as in terms of innovation outputs (for example, an increase in the share of medium- or high-tech exports to 30 per cent from 15.4 per cent in 2017). These targets seem overly ambitious and are far above the average for countries in the lower middle-income group. This raises the question of how well-founded these targets are.

The strategy recognizes international collaboration in science and innovation as a national priority. It focuses particularly on the contribution of innovation to laying the foundations for sustainable growth, improving the returns to and impact of scientific outputs, and improving the quantity, quality and relevance of the skills base – all relevant and typical foci for countries in which innovation performance lags and R&D is less intensive (OECD, 2014).

The strategy does not, however, address a broader range of SDGs and does not include specific social or environmental targets. Nor does it include a comprehensive focus on developing synergies and networks between academia and industry or improving legislative frameworks and enforcement mechanisms in property protection, IPRs and insolvency regulations – all important to complement and enhance the national innovation system.

The Innovation Strategy lacks an adopted action plan that defines short-term actions and provides a clear and actionable implementation path. As this publication was drafted, no action plan had been adopted. The strategy stipulates that action plans cover three-year implementation periods.

Public-private consultation mechanisms

A relatively broad, open and well-structured consultation process informed the design of the Innovation Strategy. A specific working group – at the initiative of the MoES, not following the legal requirement to do so – guided the overall direction of the strategy,
and seven sub-working groups developed aspects related to specific stakeholder groups such as start-ups or sole traders. About 100 stakeholders participated in the main working group, which met 10 times over the course of 10 months. UNECE interviews with stakeholder groups (line ministries, implementing agencies, business associations, chambers of commerce, academia and non-governmental organizations) confirmed their involvement and the openness of the discussions.

On 22 October 2018, following the working group discussions, the MoES published the draft strategy for public consultation on its website. Comments were to be submitted by e-mail and telephone until 5 November 2018. Two working weeks is not a suitably long enough time frame for a strategic document of this significance; international practices point towards a period of at least six weeks.

After this last phase of consultations, the MoES released the report for public consultation online, including a list of the commentators. A number of comments that stakeholders made about terminology, problem definition, targets and the evaluation of the strategy were taken on board and integrated into the final strategy text.

Regarding interministerial consultations, all line ministries participated in the working group. The working group itself was closed after the Government adopted the strategy. A sign that at least some of these consultations were perceived as constructive and fruitful is the weekly coordination meeting between the MoES and the Ministry of Digital Transformation that emerged out of the working group. These coordination meetings happen at the level of deputy ministers, which is a relevant development, given that deputy ministers are charged with developing policy and drafting legislation.

**Policy coherence**

The Innovation Strategy is coherent with the Ukraine 2020 Sustainable Development Strategy, which contains a list of 62 reforms divided into four “vectors”. Development of innovation is one of the reforms under the vector for development. The innovation-related content of a number of other government strategies aligns with that of the Innovation Strategy; for example, the SME Strategy 2020 section on improving the competitiveness and the innovation potential of SMEs. Furthermore, the export strategy envisions facilitating innovations to boost exports, as does the Innovation Strategy. The export strategy also identifies an innovation strategy as a key requirement for Ukraine. Some efforts to layer and coordinate support policies are thus evident. A gap is the lack of any apparent link or cross-reference to the innovation law being developed by the Ministry for Development of Economy, Trade and Agriculture, pointing to the lack of coordination between these two ministries, specifically on innovation policy. Nor are there evident synergies between the Innovation Strategy and related policy documents on education or industry.

**Broader policy issues**

Although the practices used to design the Innovation Strategy are an example of participative policymaking and significant stakeholder involvement and coordination efforts, public scrutiny of government work and participation in policy design are usually limited across ministries, including those responsible for STI policymaking. That said, the working group was created at the initiative of the MoES and not enforced by a central authority; that is, the Ministry did not involve stakeholders because it felt legally
obliged to but because it was convinced that doing so would improve the quality of the strategy. At the heart of the participation issue is the lack of a basic law to guarantee uniform citizens’ rights in interactions with the public administration, a Law on Administrative Procedures (Iarema, 2019), which is common in other countries of the sub-region.

The legal framework establishes mechanisms for public-private consultation, but not comprehensively for all types of draft policies. Furthermore, practice seems to be inconsistent. Outcomes of the consultation process are usually not described in the materials submitted by ministries to the Cabinet of Ministers of Ukraine nor made publicly available (SIGMA, 2018). Legal acts must be published within 15 days of adoption, and this is done online in practice. This practice is much less consistently applied for secondary legislation. This has negative impacts: only 39 per cent of businesses stated that information on laws and regulations affecting their business is readily available from public bodies (SIGMA, 2018).

In his first months in office, President Zelenskyy made concerted efforts to establish a more direct relationship with citizens. For example, the Government has set up the LIFT platform, which enables citizens to send in ideas and projects, and apply for jobs with the Government and local authorities. The President asked his Facebook followers to pick the new governor of L'viv from a list of three candidates (ECFR, 2019b).

Regarding interministerial consultations on policy drafts, the Cabinet of Ministers has specific rules of procedure that prescribe relevant requirements: all affected bodies must be consulted on laws, and the obligation to consult the Ministry of Justice, the Ministry of Finance and the Ministry of Development for Economy, Trade and Agriculture is specifically mentioned (SIGMA, 2018). In practice, these consultations are performed consistently, however, two omissions limit their effectiveness: the absence of administrative-level conflict resolution processes and the absence of an established minimum duration for interministerial consultations (SIGMA, 2018) do not give ministries enough time for meaningful commenting. The latter was particularly pronounced during the first few months of the new Government, during which it passed a flurry of reforms and laws quickly.

Another issue that inhibits the quality of the design of policies are the overlapping competences of public bodies in coordinating policy planning (SIGMA, 2018). For some policy areas, including innovation, responsibility is scattered or unclear. The lack of coordination between the Innovation Strategy (drafted by the MoES) and the Innovation Law (drafted by the Ministry of Economic Development, Trade and Agriculture) is a case in point.

Regarding intraministerial consultations, the internal regulations of ministries refer to the general requirements for the policy design process established by other legal acts, mentioned earlier, which include the obligation to consult all “affected departments within the ministry and the legal department as the final authority”. Not all ministries have adopted such rules, however, so internal intraministerial practices have not been broadly set up across all ministries. Regarding guidelines and training, the Ministry of Justice and the Parliament developed guidelines for drafting policy, which are available online and offer solid, useful instructions. Training for policy design is not centrally organized; line ministries conduct it at will, so there is no cross-government quality assurance nor certainty that ministries are addressing the most relevant shortcomings in policy design (SIGMA, 2018).
# Sub-pillar II  
**IPO evaluation and recommendations**

## Achievements

- An innovation strategy has been designed in line with international practices regarding its duration, types of targets and focus.
- Comprehensive and meaningful stakeholder consultations were conducted during the design of the Innovation Strategy.
- Interministerial consultation during the design of Innovation Strategy was fruitful, and the an interministerial working group was subsequently established at the deputy minister level.
- The Innovation Strategy is coherent with overarching and sectoral policy strategies.
- Relevant line ministries make a consistent practice of interministerial consultations on draft policies.

<table>
<thead>
<tr>
<th>Area for improvement</th>
<th>Recommendation</th>
<th>Time frame</th>
<th>Responsibility</th>
</tr>
</thead>
</table>
| • The Innovation Strategy lacks an action plan. | ✓ Develop the tools and mechanisms needed to put the strategy into practice, including these four:  
  - Develop and adopt the first three-year action plan.  
  - Secure sustainable funding for these activities from different sources.  
  - Establish the respective institutions to implement the strategy or guarantee their operational work (financial and personal resources).  
  - Include actions on developing appropriate capacities and mechanisms for monitoring and evaluation. | Short- to medium-term | MoES  
National Council of Ukraine for Science and Technology Development |
| • Public scrutiny of government work and participation in policy design are limited, in part because of the lack of a law on citizens' rights. | ✓ Adopt a law on administrative procedure to guarantee citizens' rights in their interactions with state authorities. | Medium-term | Cabinet of Ministers |
| • Interministerial consultations on draft policies are only somewhat effective. | ✓ Establish a top administrative-level coordination body with the formal mandate for solving differences of opinion among line ministries, before drafts are submitted for discussion at the political level (SIGMA, 2018). | Medium-term | Cabinet of Ministers |
| • The civil service has no specific training on drafting policy. | ✓ Develop an agenda for training on legislative and policy drafting in the National Agency of Ukraine on Civil Service, in coordination with the relevant ministries, to raise civil servant awareness of the legal frameworks for preparing policy and the importance and mechanics of evidence-based policymaking. | Medium-term | National Agency of Ukraine on Civil Service |

Source: UNECE.
Sub-pillar III: Implementation

Targets and time frames defined in the action plan provide a basis for regular reviews of implementation progress. Analysis of intermediate progress helps identify administrative, institutional and technical challenges faced during implementation and makes it possible to take necessary measures, including adjusting activity and reallocating resources.

Review of the policy against its action plan

The MoES is in charge of implementing the Innovation Strategy; however, the strategy does not have an adopted action plan. The aim of the Ministry is therefore to finalize and adopt the action plan, focusing on specific support measures that can be implemented with existing in-kind and human resources. These include an annual innovation festival – a platform for young scientists and start-ups to present ideas and to obtain mentoring support and meet potential investors, and an annual innovation market – a platform for businesses and research institutes to explore research commercialization.

When the Government adopted the Innovation Strategy, a budget declaration for 2019–2021 was adopted. In February 2020, the MoES prepared a budget request for 2021–2023. Some of the actions are likely to be financed through other strategies, State programmes and international aid. Some innovation-related activities are also envisaged in other strategic documents. For example, innovation is a focus of the SME Development Strategy. Several activities of that strategy were originally implemented with support from international donors or within the framework of other strategic documents and the national programme.

Broader policy issues

The lack of cost estimates or information on sources of funding in draft policy documents and the inconsistency between planned and actual funding severely hampers implementation of reforms. In addition, the Government or the President frequently initiate amendments during early implementation. Some 40 per cent of laws are amended within one year of adoption, which has a negative impact on the consistency and clarity of the legal framework: only 33 per cent of businesses consider government policy to be clear and stable (SIGMA, 2018).

The Government’s capacity to implement reforms is likely to be enhanced over the coming months. Under the new Government, line ministries are being transformed into “policy hubs” tasked with policymaking (as opposed to public service delivery) as their chief mandate. To realize this goal, new policy directorates were introduced in ministries in 2017, and the Government has committed to filling 2,500 reform specialist positions in these directorates (Iarema, 2019).
**Sub-pillar IV: Post-implementation**

*Ex-post evaluation is completed after the implementation of the action plan and based on results rather than forecasts. It helps establish the impact of policy activities on the industry in general, on specific fields or on beneficiaries. In light of experience acquired during implementation, governments introduce necessary adjustments to innovation policy measures so as to better target new or established policy objectives.*

**Ex-post evaluation**

The Innovation Strategy states that its “monitoring procedure will be developed by the [MoES] together with the Ministry of Economic Development” and that these two ministries should conduct or order annual surveys of innovation stakeholders, in particular, enterprises and business associations, regarding their perceptions of changes of the innovation ecosystem. It contains no mention of impact assessments.

**Broader policy issues**

No general requirement exists in the Government’s legal framework for reporting on the implementation of sector strategies, so government bodies have no consistent practice of doing so (SIGMA, 2018). Overall, monitoring and evaluation is insufficient and overly
focused on outputs, with few systemic linkages to ensure that learning feeds into the policy design process, including in government bodies responsible for STI policy. The IPO analysis found limited evidence of any type of impact assessment of innovation policies across relevant ministries. For a detailed overview of the practices of monitoring and evaluating innovation policies and measures, see chapter IV.

### Notes

1. Starting in the mid-2000s, the Ukrainian Institute of Scientific and Technical Expertise and Information (UkrISTEI) conducted foresight exercises to define priorities in science and technology. The State Programme for Forecasting Scientific and Technical Development for 2004–2006 financed the exercises, but during their implementation the programme’s funding was suspended. In 2007, the Government adopted the State Programme for Forecasting Scientific and Technical Development for 2008–2012, which UkrISTEI was in charge of. Its experts analysed priority areas that included energy and energy efficiency, biotechnology and new materials, and ICT. The results informed the draft Law on Priority Directions of Innovation Activity in Ukraine, adopted in 2011.

2. The complete list of working group members is available at https://mon.gov.ua/ua/npa/pro-stvorenyta-robochoyi-grupi-z-rozrobliuya-stratehiyi-innovatsionogo-razvitku-ukrayini.
Bibliography


IDRC (International Development Research Centre) and OECD (Organization for Economic Cooperation and Development) (2010). Innovation and the Development Agenda. Ottawa, ON.


