Review of Industrial Transition of Bulgaria:

*Draft Final Report*

European Commission, DG Joint Research Centre

22 October 2020

Ruslan Stefanov
Patries Boekholt

ARC Fund
Innovation Policy Matters
Key challenges of Bulgaria

• Low labour productivity and related low levels of income
• Shortage of labour due to migration (demographic crisis)
• Digitalisation at very low level across economy and society
• High concentration of economic and R&I activity in capital city
• Low level of (strategic) interactions in the system between public and private sector
• Despite overarching bodies such as Council of Ministers still fragmented policies
• Government strategies and decisions not consistently implemented
Focus of the thematic case Bulgaria

Governance & Joined up Strategy

ICT Sector In Bulgaria

Creating pathways to other digitalisation routes (e.g. clean tech, telemedicine, education and training)

Industry 4.0

Mechatronics

Education & Skills

Digitalisation
Current state-of-play

- Bulgaria strong history in both mechatronics and ICT
- ICT sector showed steady growth in last 20 years and export oriented
- Mechatronics has relatively high level of R&D and innovation activity
- Promising mix of multinational, indigenous and start-up companies
- Nevertheless:
  - Labour shortage important bottleneck for growth
  - Overall level of digitalisation low in business, education and society
  - In mechatronics: stuck in low-value segments of international value chains
  - Not a strong domestic market for both industries
  - Strong concentration in the Sofia region
National strategic objectives

• Multiple documents, governed by separate line ministries: fragmentation

• Trend towards streamlining:
  • Innovation Strategy for Smart Specialisation 2014 - 2020
  • National Development Programme: Bulgaria 2030
  • Digital Tranformation of Bulgaria for the Period 2020 – 2030
  • Concept of Digital Tranformation of the Bulgarian Industry (Industry 4.0)
What could be some more general headline targets?

• GDP per capita in PPS relative to the EU average, %, baseline 51.2 -> target 75
• Digital Economy and Society Index (DESI), 36.2 -> 52.2
• Variation in GDP per capita (in PPS) by region, %, 37.5 -> 34
• Population (aged 25-64) participating in education and training, %, 2.5 -> 7
• Share of low performers in the Programme for International Student Assessment (PISA) (average for the three subjects of the study) 46 -> 25
• R&D expenditure, % of GDP 0.8 -> 2.5
• Integration of Digital Technology, DESI, %, 18.1 -> 50
• Share of high-tech exports in total export, %, 5.9 -> 15
• Ultra-fast broadband take-up, DESI, %, 9.7 -> 40
• 5G readiness, DESI, %, 0 -> 80
Vision demands from stakeholders

- Whole of government
  - Transforming the dominant public funding philosophy
  - Improving the social capital across the eco-systems
  - More dialogue and coordination
  - Life long learning across all formal and informal education and training mechanisms

- Agility to respond to global changes

- Improving product development and soft innovation skills in BG businesses
Recommended key actions

• Reinforce implementation capacities of (regional) government authorities and particularly the Council of Ministers

• Continue implementing planned activities RIS3 and ensure they are business oriented
  • Intermediary organisations (in particular Digital Innovation Hub, Cluster organisations, Competence Centres)
  • Regional Innovation Centres
  • Centres of Competence

• Set up National Skills Strategy Platform with representatives from government, business and educational sectors
  • Engage with new Skills Agenda for Europe

• Experiment with joint R&I actions between ICT Cluster (Digital Innovation Hub) and Mechatronics related clusters
Possible policy experiments

• Establish a **digital manufacturing research and innovation centre** that combines the development and dissemination of digital production technologies, education and training in ICT and production technology skills, applied research, pilot and demonstration facilities and business services
  • core ecosystem **hub** that initiates programmes, projects and services for the mechatronics domain;
  • set up smaller satellites within the different regional innovation centres that serve as a first entry point for companies;
  • partner with the existing ICT Academies that are set up by the business sector.

• Stimulation of **internationalisation** of key actors in the eco-system through the entry of national institutions in European networks, such as EEN, providing their alignment with national priorities