Trakia TECH

Snapshot Report: February | 2020

THE RISE OF ENGINEERING MANUFACTURING

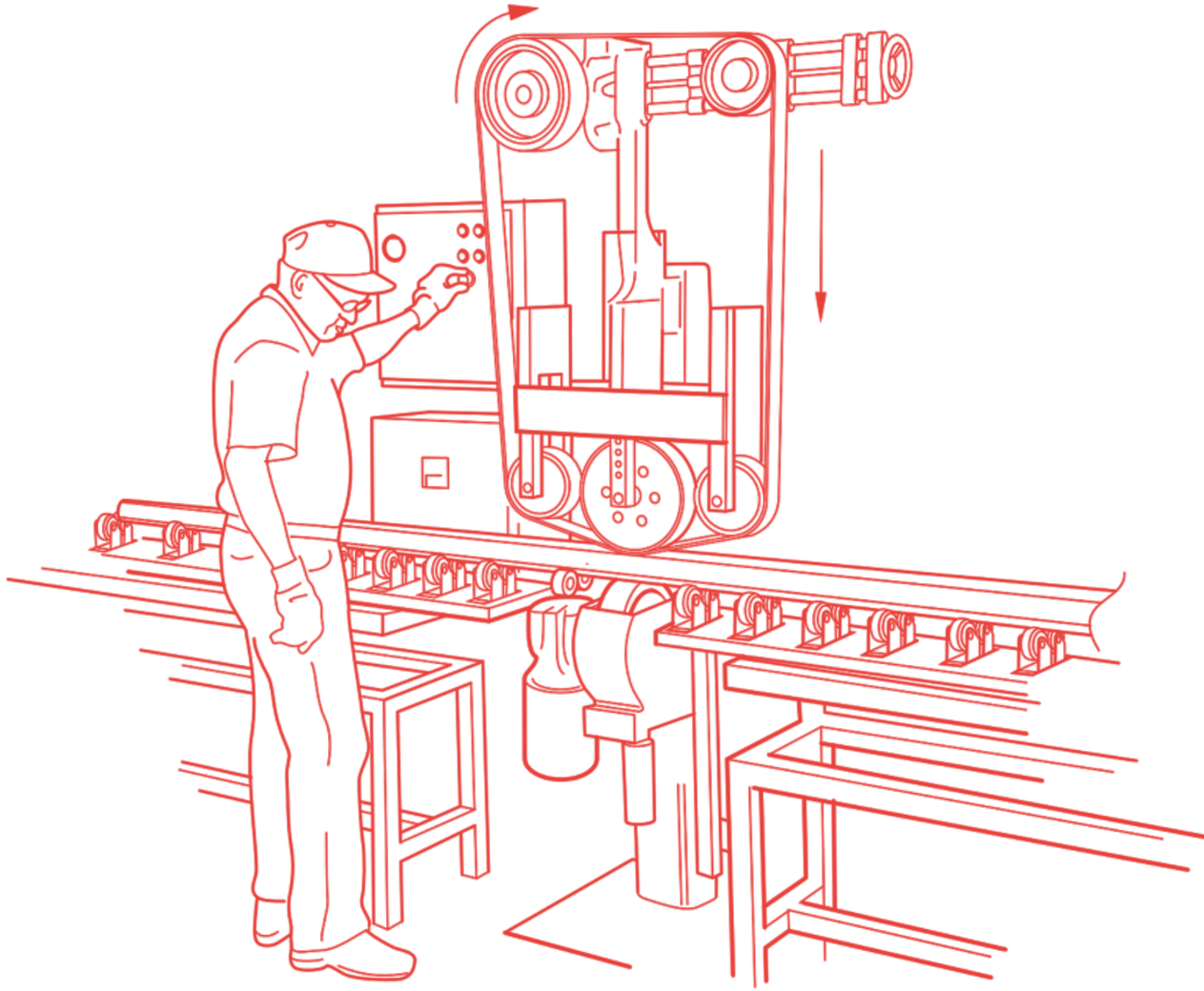
What is the structure of a modern industrial economy?

How Central and Eastern Europe transform its industry?

When will Romania and Bulgaria catch up?

The mid-sized emerging economies of Central and Eastern Europe are countries with populations between 5 and 20 million people. They are big enough to need a diverse and sustainable engine of economic development such as manufacturing, the term for all tangible production at stages after mining and farming. They are also geographically and culturally close enough to their Western neighbors, which have prospered mainly through advancement of their industrial capacities.

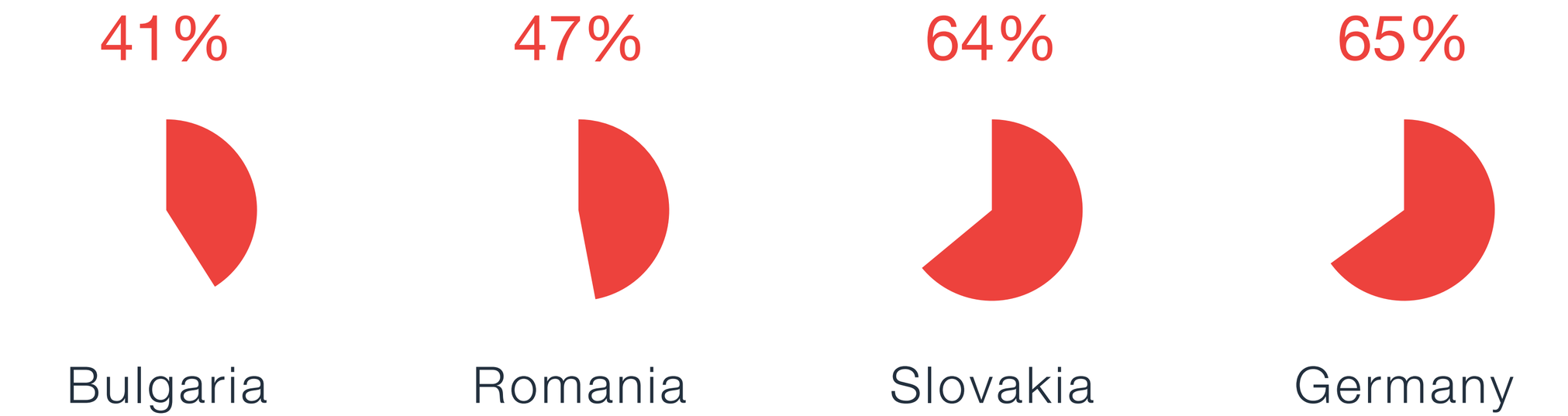
The modern European manufacturing is dominated by discrete productions such as machine building, automotive, commercial vehicles (planes, trains, ships), home appliances, electronics, medical equipment, etc. The wide range of those original equipment manufacturers, as well as their tier one and even tier two suppliers, we call ENGINEERING MANUFACTURING



INDICATOR FOR INDUSTRIAL DEVELOPMENT

As countries advance in their development, the share of the those industries in total manufacturing employment increases. In the most developed industrial economy of Germany, that share is about 2/3. Emerging economies of Eastern Europe, such as Romania and Bulgaria, still have that share at less than 1/2.

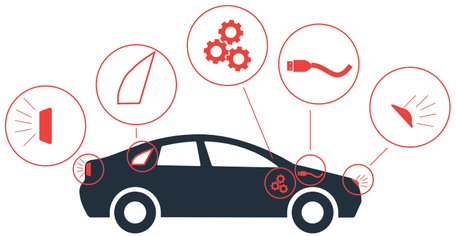
Engineering industries as % of manufacturing employment

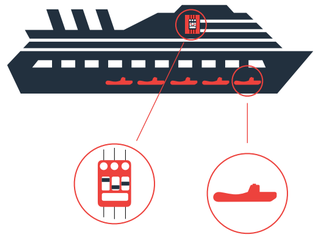


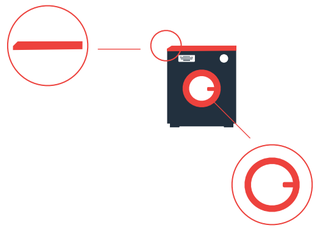
Source: Trakia Tech with data from Eurostat for 2018

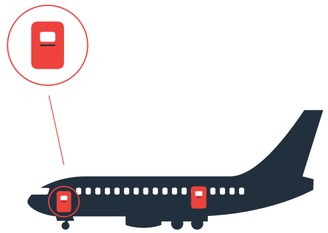
WHY IS INDUSTRY DOMINATED BY ENGINEERING MANUFACTURING?

The end products of those industries are industrial machines, cars, trucks, home appliances, transport vehicles other than cars and trucks, e.g. trains, planes, ships, farming and mining vehicles, personal electronics, medical and lab equipment.









Most often a large number of source components, coming from a wide range of suppliers, are being used to create the end product by the original equipment manufacturers (OEMs). Some producers of components for the above products, the so called Tier 1 suppliers, manufacture highly complex products, which imply their own product development. In other cases Tier 1 suppliers may be providing just production capacity for standard elements made of metal, plastic or rubber, however in most cases such would be classified as Tier 2.

In the general case the creation of the end product in the engineering industries requires product development to take place in both the OEMs and their suppliers of components. Thus we believe that the engineering industries must include at least the OEMs and their Tier 1 suppliers. However the official classification of industries in many cases does not distinguish between Tier 1 and Tier 2 suppliers, which explains why we include all producers of metal, plastic and rubber elements in the engineering industries as well.

BULGARIA'S ENGINEERING PRODUCTIONS ARE SMALLER THAN SLOVAKIA'S BY 100,000 JOBS

Mid-sized economies of Central and Eastern Europe advance in their development through investments in manufacturing and creation of more productive jobs. Romania has about 1.2 million industrial jobs, as much as Czechia, which is half the size in population.

Bulgaria and Slovakia are two of the most industrial nations of EU, as share of manufacturing employment in population, but differ substantially in structure. Slovakia, though a smaller nation, has 100,000 more jobs in engineering industries than Bulgaria.

('000 jobs)	Bulgaria	Romania	Slovakia	Germany
Engineering industries	225	564	327	4890
Other manufacturing	330	642	186	2593
Total manufacturing	555	1206	513	7483

Source: Trakia Tech with data from Eurostat for 2018

JOB CREATION IS MAINLY IN ENGINEERING INDUSTRIES

Even in the heavily outsourcing Germany, engineering industries grew by half a million jobs after 2010. In the emerging economies in EU other (non-engineering industries) have been shrinking. Slovakia was able to gain 70,000 more jobs in engineering industries. Bulgaria and Romania are still shrinking the number of jobs in their non-engineering industries (mostly in apparel and food production).

Change for the past 8 years ('000 jobs)

	Engineering industries	Other manufacturing
Bulgaria	↑ 50	↓ 32
Romania	↑ 133	↓ 55
Slovakia	↑ 70	↓ 8
Germany	↑ 527	↑ 32

Source: Trakia Tech with Eurostat data for 2010-2018

Wages in the engineering industries of the catching up economies of Bulgaria and Romania grow much quicker than Germany, but also twice as quick compared to Slovakia. **Bulgaria has the quickest wage rise in the emerging industrial countries of EU, however mostly driven by productivity gains.**

In other countries of Central and Eastern Europe wages have been artificially moved up, thus surpassing the productivity growth. Germany was much more relaxed on its labor market where average wages in engineering industries grew slower than average productivity.

PRODUCTIVITY GROWTH IS DRIVEN BY THE ENGINEERING INDUSTRIES

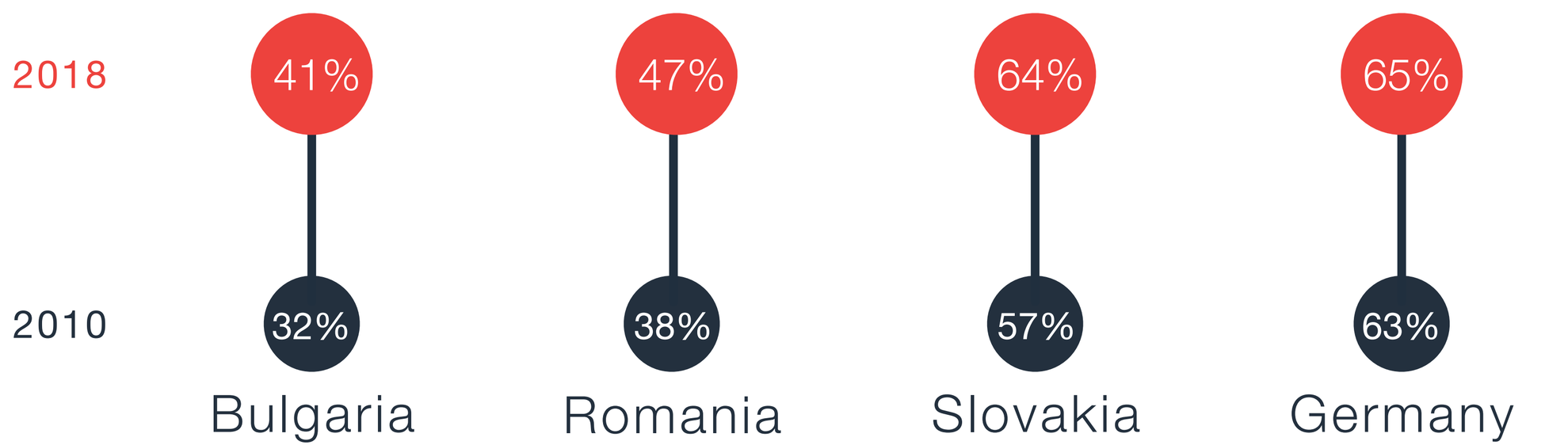
Annual average growth	Bulgaria	Romania	Slovakia	Germany
Productivity	9.5%	5.7%	3.1%	3.1%
Wages	8.8%	7.8%	4.8%	2.6%

Source: Trakia Tech with Eurostat data for 2010-2017

BULGARIA AND ROMANIA STILL HAVE A LONG WAY TO GO, BEFORE THEY CATCH UP

Quicker change of industrial structure in Romania and Bulgaria, starting from a less advanced industrial structure, is now fueled by both net job creation in engineering industries and also a substantial net job destruction in other, non-engineering industries. **Romania is now very close to the structure of Poland, Bulgaria lagging behind, Slovakia and Czechia well close to the German structure.**

Engineering industries as % of manufacturing employment



Source: Trakia Tech with Eurostat data for 2010-2018

Greenfield investments in emerging economies like Bulgaria have been predominantly in engineering industries. First wave of such capital inflows were in mass production facilities. Meanwhile local machine builders have sharpened their competitive edge with craft-like manufacturing. **Now we are at the dawn of the second wave, when the foreign capital inflows are shifting from mass production to a "leaner" and in some cases craft custom and small series productions.**

MASS PRODUCTION WILL GIVE WAY TO "LEANER" FOREIGN DIRECT INVESTMENTS

Tech companies and start-ups with technological solutions will play even bigger role in the new industrial landscape.

Custom production, especially machine building, will become more agile to serve more complex, customized and faster orders.

Production will become more dispersed, with micro plants serving regional markets.