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# **THE DIGITALIZATION OF TRANSPORT INFRASTRUCTURE AND ITS IMPACT ON HUMAN RESOURCE MANAGEMENT**

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**Abstract:** The article aims to analyze the effects of the pandemic related to COVID-19 on the process of digitalization of human resources in the management of infrastructure sites in the field of transport sector. It also discusses the dilemma between goal #8 of the UN SDG for high employment of the population and digitalization of the processes and human resource management. They will require using only highly qualified personnel and less human factor. Those processes can increase labour productivity and economic growth at the cost of negative effects on total demand, social inequality, and employment.

**Key words:** digitalization, human resources, transport infrastructure.

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**T**he deepening economic, social, and demographic crisis caused by the coronavirus pandemic over the last two years has forced a significant part of the world, European, and national businesses to accelerate the process of mass digitalization of their economic activities. This process has caused profound changes in the way of life, employment, education,

consumption, and mobility of the population. The necessity of improving the knowledge, skills, and qualification of the employed personnel both in the state and the private sector has become especially urgent. There have been prerequisites for establishing new professions, while some of the existing ones have become extinct in all economic spheres worldwide. As early as 2015, the European Commission concludes that approximately 45% of the population on the continent at working age does not possess the necessary basic digital skills to be part of the future economic and social life of the Union (EC, Dig Comp 2.0, 2016). In this respect, the future development of the member states shall be directed first: towards the demand for human resources who can make decisions on economic problems in digital environment and second: the necessity of hiring employees who, by using digital tools, will be able to create a new product.

Contrary to the above-mentioned claims, we pose the question – how then will the UN's vision of completing the sustainable development goals by 2030 be achieved, more specifically, goal 8, which corresponds to full and productive employment and decent work for all women and men, including young people and persons with disabilities, and equal pay for work of equal value (UN, 2015). In support of the UN's vision of sustainable development by 2030, we shall point out the priority goals of the European Pillar of Social Rights, according to which, by 2030 at least 78% of the population aged 20 to 64 should be in employment, at least 60% of all adults should be participating in training every year and a reduction of at least 15 million in the number of people at risk of poverty or social exclusion (EPSR, 2021). Globally, this could be achieved by: reducing the economic and social inequality among the population, especially with economies in the process of transition; stimulating youth employment; increasing labour productivity by economic activities; providing gender equality when selecting personnel for all professions and positions; regular improvement of the digital skills and competences of the employees. In addition, we can point out the necessity of overcoming the effects of the global pandemic, which, on the one hand, has accelerated the process of digitalization of the world's economies, but on the other, has caused a significant decrease in the major macroeconomic indicators of the individual countries.

Undoubtedly, one of the most affected sectors due to the world coronavirus pandemic is the transport sector because the pandemic has imposed the necessity of restructuring cargo turnover at infrastructure sites and changing the quantities of the processed cargoes. On the other hand, this has accelerated the processes of complete digitalization of the transshipment and warehousing operations at ports, airports, and other exploitation sites in order to maintain the

volume of the performed operations and preserve the health of the employed personnel.

In relation to the above-mentioned assertions, the aim of this article is to research the degree of digitalization in the transport sector and its reflection on the employment at infrastructure sites. To correspond to the aim, we have set the following objectives: *First*, we evaluate the trends in the development and implementation of digital technologies at sea and inland ports, airports, and aeronavigation activity. *Second*, we have researched economic and financial indicators which characterize the state of the infrastructure sites and provide a clear view of the preparation of the Bulgarian airport and port operators to digitalize the processes of human resource management. *Third*, we have studied the impact of digital technologies on the numbers and labour productivity at airports, sea, and inland ports. *Fourth*, we have drawn up specific recommendations to the corresponding infrastructure operators and institutions regarding conducting relevant organizational and national policies for maintaining the degree of employment in the sector.

### **1. Literature review in the field of digitalization of human resources and transport operations at infrastructure sites**

The problem of the impact of digitalization on the major economic processes in the management and exploitation of transport infrastructure sites has not received much attention in scientific publications so far. Without doubt, the degree of digitalization of the operative activities, as well as the human resources employed in them, is related to the competitive advantages of the economic agents, the changes in the differentiation and technical and economic and exploitation characteristics of the offered products and services (Dimitrov, Ilieva, Hadzhiev, Stefanov, 2019).

Another important moment, which is elaborated in the works of a group of authors – Zareva, Beleva, and Lukanova (2004) – is the role of education in the development and expanding of scientific knowledge and its transformation in highly-productive technologies. In their research, they place the emphasis on the lack of practical skills and experience in real production environment, which, in this case, are of special significance for the acquisition of basic and specific digital skills among the trainees and their future adaptation to the labour market.

Another research team studies the labour division on European level, the necessary skills of those who offer labour and the possibilities to create “smart labour market” (Vasilescu, Serban, Dimian, Aceleanu, Picatoste, 2020). The authors introduce three groups of factors which, according to them, determine

the digital division of the workforce – access to digital infrastructure; living standard of the population; age, gender, language, and religious structure of the households. For the purposes of the research, they have implemented a two-stage cluster sampling and regression analysis to assess the inclinations of European citizens to create a “smart labour market”.

An interesting work, in this respect, is the publication by Berger and Frey (2016), according to whom, the development of digital technologies will bring about growth in labour productivity. On the other hand, this will be related to a continuous and slow convergence within the EU regarding the high-technology employment due to differences in the degree of digitalization in each member state. They place the emphasis on the development of electronic learning as a means of acquiring specific digital skills, which means that the employees will have the opportunity to continually update their knowledge. The authors have developed their research by distinguishing among three groups of digital skills, namely: practical, consumer, and electronic-leadership skills. To conclude, they propose establishing digital competence centers in each district city, which shall conduct campaigns in favour of the mass introduction of digital technologies among the local business organizations.

Wang and Sarkis (2021) conduct research which analyzes the implementation and impact of digital technologies on the theory and practice of the organization of freight and logistic activities.

In their article, Ageron, Bentahar and Gunasekeran (2020) evaluate the challenges and opportunities for the development of digital supply chains. They provide their definition of the term “digital supply chains” which they bind with the establishment of competitive advantages for the organizations which participate in those chains; the optimization of the major economic processes; the effective product planning; the optimization of the sales and after sales customer service.

Two other authors – Loske and Klumpp (2020) try to identify the effect of digitalization of the retail logistics on the productivity of enterprises, on the one hand, and on the other – whether this digitalization will contribute to the simplification of warehousing and transport operations in maintaining large product ranges at infrastructure sites. Based on non-parameter statistical models, the authors reach the conclusion that digital transformation and the implementation of information technologies will lead to short-term loss of efficiency in this sector, but in the long term, this will lead to increase in the productivity of the enterprises, especially if those technologies are combined with the knowledge and skills of the available human capital.

As a result of the performed literature review, it becomes clear that the identified scientific research does not repeat the aim of this article.

## **2. Trends in the digitalization of transport operations and warehousing activities at infrastructure sites**

The large capacity and significance of information and communication technologies has become obvious as a result of the world COVID-19 pandemic, especially regarding the warehousing and ancillary activities in the transport sector. Their implementation is directed primarily towards the optimization of the processes of planning and managing the freight traffic, monitoring and control on freight facilities, as well as the secure and safe data transfer regarding sending and receiving customs and other documents (Moldabekova, A, Philipp, R., Reimers, H, Alikozhayev, B, 2021).

The implementation of digital technologies in the exploitation of infrastructure sites aims at realizing several types of benefits: operative efficiency, higher satisfaction among consignors and consignees, implementation of contemporary business management models, competitive advantages, improvement of the relationships among the stakeholders in the supply chain, cost efficiency. On the other hand, the introduction of information and communication technologies to warehousing and ancillary activities in transport is accompanied by changes in the labour market in the sector. In this respect, we can outline several groups of factors which shall have both a positive and negative impact on the digitalization in this subsector, namely: economic benefits, dynamics, and age structure of the working age population; knowledge and qualification of human resources; relevant legislation.

To what extent and how fast this economic activity will be digitalized depends primarily on the development of markets on global, European, and national level, because approximately, every year, 63 billion tons of cargo are processed in the maritime, inland and airport infrastructure worldwide (WMU, 2019). The expectations are that, by 2040, the market share of maritime transport within Europe will maintain their values of 32% in the total freight turnover, while it is predicted that the share of inland waterway transport will increase approximately 4 times (14.4%) compared to 2015. Regarding warehousing and ancillary activities, no change in the market share is expected for air transport – 0.10%.

Without a doubt, the abovementioned forecasts will have an impact on human resource development, too, because the transport sector is one of the three largest “employers” in the field of services. The development of artificial intellect, the appearance of mobile robots will lead to the automation of a number of activities, respectively, to changes in the state of affairs on the labour market. Whereas routine work positions will become increasingly scarce, a certain group of transport employees will be able to benefit from technological progress, especially highly qualified specialists, because technologies will

supplement the activities performed by them, they will lead to increase in labour productivity and respectively to excess demand on their labour market. Thus, for instance, worldwide, 62% of transport employees (crane operators, loaders, those who perform monitoring and security of freight facilities) at maritime and inland ports are semi-skilled, whereas those employed at air transport (airport infrastructure and aeronautical servicing) – approximately 40% of the employees are highly qualified (flight managers occupied with the monitoring of measuring devices for securing correct operation and exploitation, etc.) (WEF, 2020).

In this respect, scientific literature offers three scenarios of human resource development, which can be successfully implemented in the digitalization of ancillary activities in the transport and warehousing of cargoes (Chinoracky, R., Corejova, T., 2019):

- semi-skilled personnel – average degree of digitalization – it is implemented in the cases when national legislation regulations do not allow a high degree of digitalization of the offered and used services by the corresponding sector; furthermore, the wider use of human resources leads to cost efficiency;

- unskilled personnel – high degree of digitalization – it is implemented in the cases when human intervention would lead to more risks and hazards for the participants in transport activity than the implementation of artificial intellect (for instance, bus drivers, truck drivers, etc.);

- highly skilled personnel – high degree of digitalization – the complete digitalization of the transport processes and warehousing activity, it will be economically efficient to employ several specialists with narrow expertise rather than a lot of workers with low qualification.

The digitalization of airport infrastructure and aeronautical servicing is directed primarily towards the activities of ground airport servicing and those related to the control, monitoring and management of air traffic (TRIP, 2013). The introduction of automated systems for processing the cargoes by barcode scanners and radio-frequency identification (RFID) labels is one of the options for making receiving and sending the cargoes much easier. The aim of those facilities is to improve the commercial and technical functions of the airports which comprise: monitoring freight flows, full automation of the processes; mutual decision making; easy forecasting of the arrival times, processing and forwarding the cargoes; direct participation of the users (Zaharia, S., Pietreanu, C, 2018).

The most often implemented technologies in realizing the major activities (operations) in airport infrastructure are: mobile CRM systems; cloud technologies; blockchain, large database management, the Internet of Things, and robots. In this respect, a key aspect in the process of digitalization of ground

operators is the training and qualification of the employed human resources. This corresponds to the necessity of constant expansion of the acquired knowledge and skills and obtaining the so-called “interdisciplinary qualification” (Kovynyov, I. Mikut, R., 2018).

Over the last two years, and also as a result of the world coronavirus pandemic, we have witnessed the establishment of the concept of the so-called “smart airports”, which aim at minimizing the physical contact among the users of services of ground operators and the servicing personnel at airports; at reducing the time for processing freight, luggage, and post; at cost optimization; at increasing the safety and decreasing the risk of infection. In their essence, “smart airports” are a complex structure which encompasses several elements (Drljača, M., Štimac, I., Bračić, M., & Petar, S., 2020): *Smart airport mobility*; *Smart airport logistics*; *Smart airport infrastructure*; *Smart airport services*; *Smart airport equipment*; *Smart airport networks*.

In the near future, the forecasts of the World Economic Forum (WEF, 2020) are that: first, automobiles, which service the freight flows at the premises of the airports will be replaced by unmanned vehicles, whereas microrobots will inspect and maintain hard to reach places when repairing aircraft. Second, there will be full introduction and deployment of the SESAR system regarding the improvement of the safety and security of air flows, as well as the optimization of the work of employees who are occupied with the monitoring, control, and management of air traffic. Third, the implementation of unmanned aircraft systems will be an alternative to human intervention in the delivery of products to consumers and will facilitate the reduction of the risk of accident occurrence, as well as making commercial flights to ultrashort distances.

In turn, the digitalization of warehousing and ancillary activities in waterway transport is limited to the implementation of information and communication technologies in the major port activities, which is accompanied by the generation of economic effects related to the three major flows at the ports: freight, information, and financial (Musolino, F, 2021). In this respect, the key applications which can be introduced by port operators are: The Internet of Things; Large database management; Blockchain technologies; Artificial intellect; Digital twin/double; Machine training; 3D printing, Augmented reality.

Thus, for instance, on the basis of research carried out on the territory of the Port of Rotterdam, which is equipped with most of the abovementioned applications, it is proven that the complete digitalization of the major freight operations and warehousing activities could lead to saving USD 8.5 billion annually (Onwuegbuchunam, D. E., Aponjolosun, M. O., & Ogunsakin, A. W. 2021))

Without doubt, the implementation of information and communication technologies at ports requires the availability of workforce with the relevant qualification. In this respect, the persons employed at ports shall possess knowledge of working with the listed applications; consequently, in the future, organizations will seek primarily developers of the Internet of Things; large database analysts, etc. (Agatić, A., & Kolanović, I., 2020). Therefore, port operators shall invest a sizable portion of their income in developing and offering training programmes for upgrading the knowledge and skills of transport workers because from now on the main duties of those employed at ports will be to monitor and manage a set of complex machines and facilities.

Similar to airport infrastructure, the concept of “smart ports” has found a wide application. The building of such infrastructure sites aims at using technological innovations for improving port activities as well as providing socio-economic benefits for the economic agents in the vicinities surrounding the ports, improving the internal trade balance in the country, etc. (Yau, K. L. A., et. al, 2020).

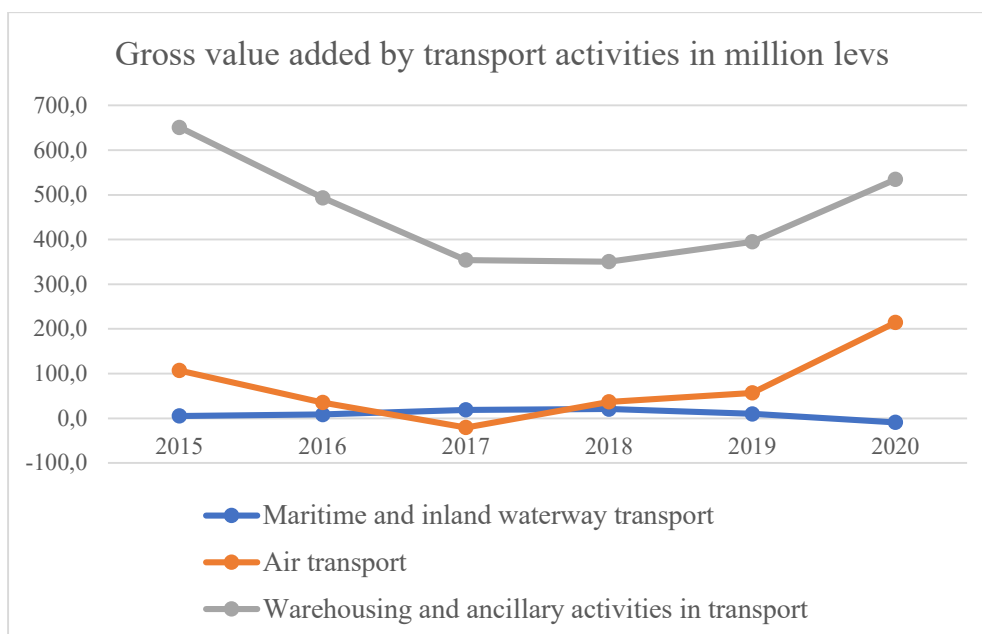
### **3. Economic and financial indicators for the state and development of transport infrastructure**

The research on the state of the economic development of infrastructure sites in the transport sector will be directed towards studying the trends in the development of the sector regarding indicators such as: gross value added of the subsector; number of employed persons; labour productivity; cargo turnover of infrastructure sites of national significance; average wage; contribution of port operators to the trade balance of our country.

The ports and airport structure in Bulgaria are 100% owned by the state; most of the terminals at the infrastructure sites (over 53%) are managed and exploited on the principle of public-private partnership (PPP) through concession contracts. In this case, the main reason for this partnership is to limit the role of the state in the realization of the major and the ancillary activities at the corresponding sites caused by inefficient public management and funding (Tchipev, 2019). It is owing to the PPP that there can be competition among individual private enterprises, which will result in improving the quality of the offered services and the efficiency of the exploitation of the sites (Koralova – Nozharova, 2019).

This could be evaluated by ascertaining the contribution of waterway and air transport in forming the gross value added (GVA) of the country.



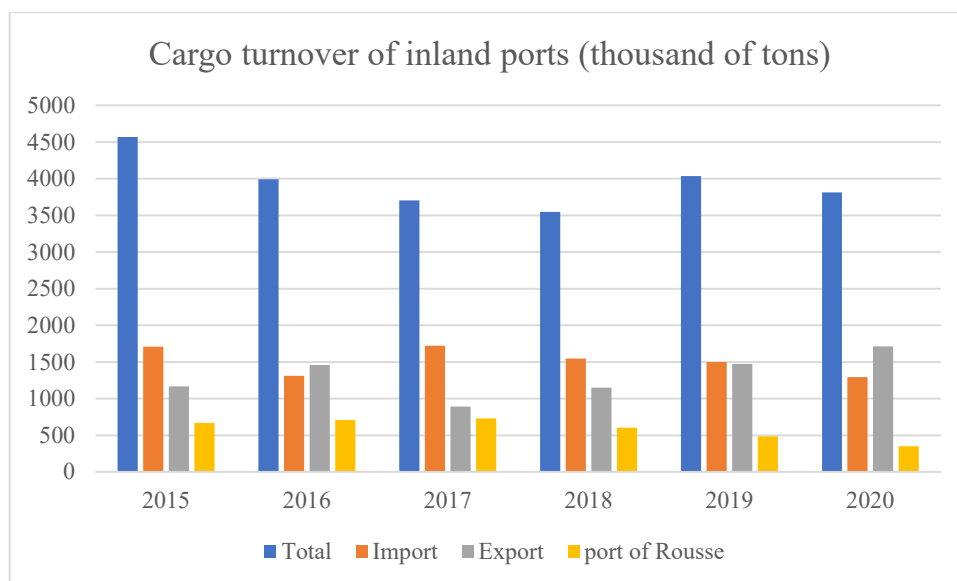


Source: EUROSTAT, 2021г.

*Figure 1. Gross value added by economic activities in the transport sector in million levs*

Clearly, as the graphic shows, after 2017, the gross value added for the whole subsector begins to rise; regardless of the world, health and economic crisis caused by the coronavirus pandemic which occurred at the beginning of 2020, it reaches the values from 2015 (BGN 535 million). As a whole, the GVA of this subsector comprises about 2.4% of the GVA of the sector “Services” and as little as 0.5% of the GVA of our country. As far as the participation of waterway and air transport in the formation of the gross value added in the “Warehousing of cargoes and ancillary activities in transport”, their share is minimal – respectively, 6% and 10.5%. The trend which is observed in waterway transport is downward – a decrease of 270% is reported in 2020 compared to 2015, whereas in air transport, an increase of 100% is observed.

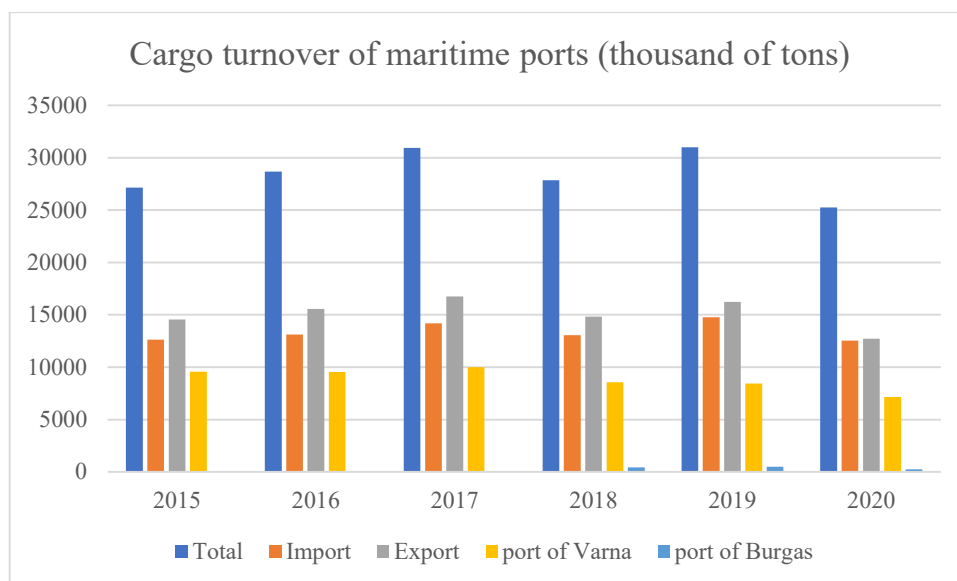
Another important indicator, which concerns the economic development of the subsector is the cargo turnover of infrastructure sites. Figure 2 shows the turnover of processed cargoes by inland ports in the Bulgarian part of the river Danube.



**Source:** Executive Agency “Maritime Administration”, <https://www.marad.bg/bg/node/2934>

**Figure 2. Cargo turnover of inland ports (thousand of tons)**

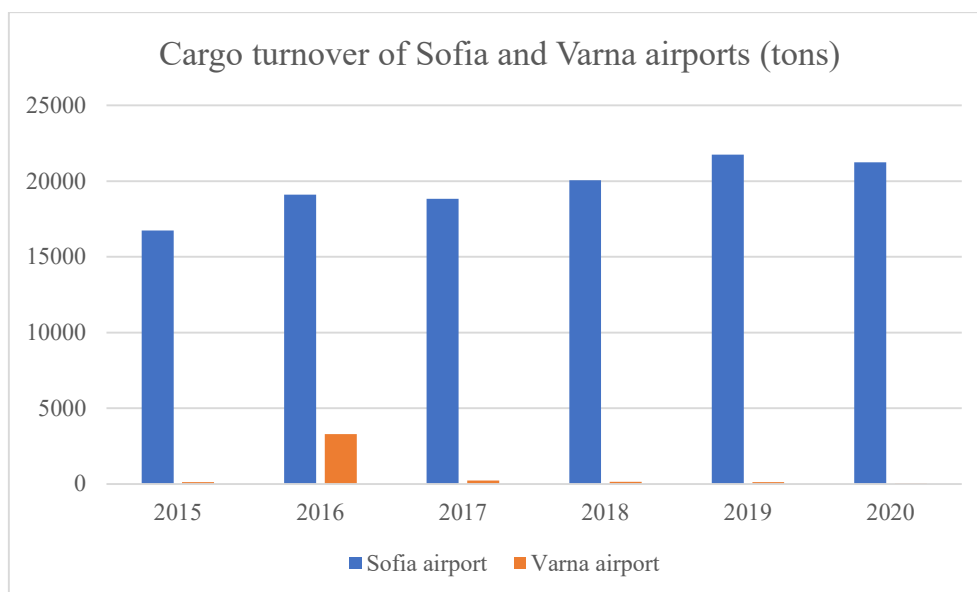
Clearly, as the graphic shows, the trend in the development of the total turnover is a gradual decrease until 2018, after which an increase of 14% is realized in 2019. The dominant part of the processed cargoes at inland ports is in the form of import – they comprise 39% of the cargo turnover, whereas 33% of the cargoes have been processed for export. We observe continual fluctuations in the amount of the exported and imported cargoes during the discussed period, as in 2019, their volumes level up. Approximately 15% of the total cargo turnover is realized by the port of Rouse. The trend which is observed is of significant decline in the amount of the processed cargoes at the port – they decrease by 52% in 2020 compared to 2017 when their amount was the largest.



**Source:** Executive Agency “Maritime Administration”, <https://www.marad.bg/bg/node/2934>

**Figure 3. Cargo turnover of maritime ports (thousand of tons)**

As far as seaports are concerned, their cargo turnover is approximately 6 times as large as that of inland ports. This is totally logical because they service a large part of the cargo traffic which is directed from Western Europe to the Middle East. We observe a trend of decline in the total volume of cargo turnover as the realized decrease in 2020 is 18% compared to 2017 when the cargo turnover is the largest. Unlike inland ports, at seaports, 53% of the processed cargoes are in the form of export, whereas 47% – in the form of import. Approximately 31% of the cargo turnover at seaports is realized at the terminals of the Port of Varna, as in 2020 we observe a decline of 25% in its amount. At the Port of Burgas, a significantly lower amount of cargoes is processed, as in 2020, the cargo turnover is twice as low as in 2018.

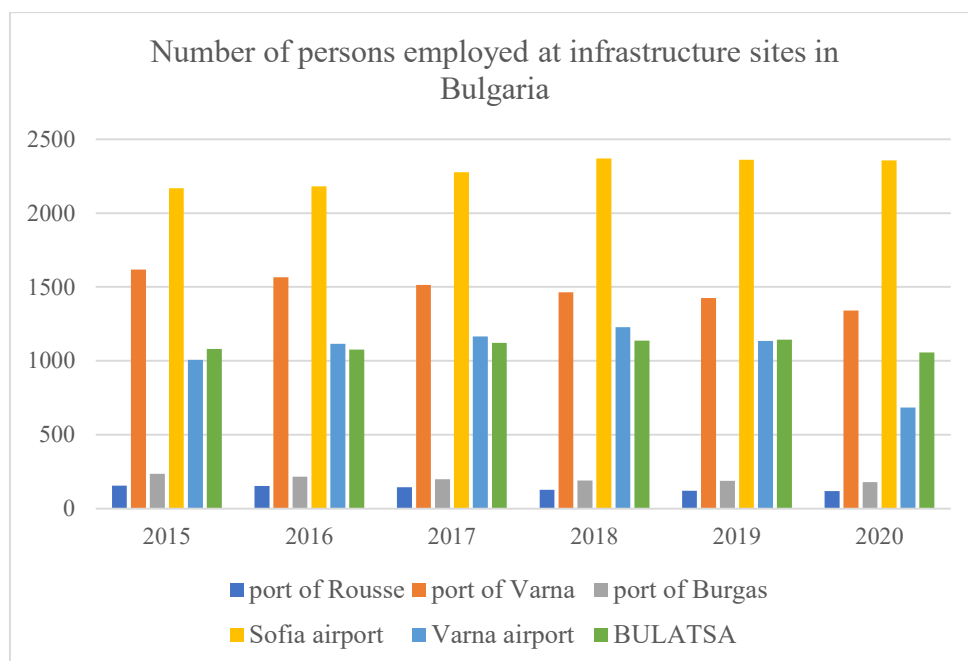


**Source:** Directorate General “Civil Aviation Administration”,  
<https://www.caa.bg/bg/category/292/17285>

**Figure 4. Cargo turnover of Sofia and Varna airports (tons)**

As far as cargo terminals at Sofia Airport and Varna Airport are concerned – the processed amounts of cargoes at them are insignificant – below 0.5% of the total volume of the cargo turnover in the economic activity “Warehousing of Cargoes and Ancillary Activities in Transport”. This is owing to the fact that sea transport is used for the transportation of mainly fast-moving consumer goods of high value, whose share in the trade turnover of the country is not significant. For Sofia Airport, we observe a trend of increase of the amount of cargo turnover by 27% in 2020 compared to 2015, when for Varna Airport, a decline of 62% is reported for the same period.

Transshipment and ancillary activities at infrastructure sites as well as the digitalization of the processes in them are especially dependent on human resources. The amount of labour depends on the available workforce, the qualification and skills of transport workers, the degree of digitalization of transshipment operations, whereas the quality of labour is determined by their productivity. Figure 5 presents the number of personnel at infrastructure sites.



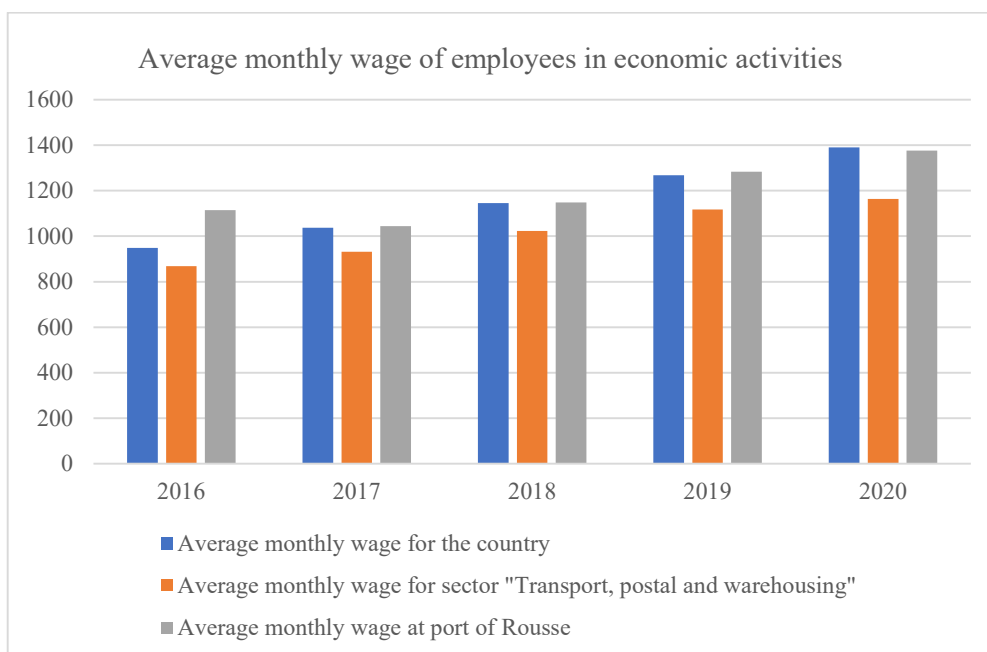
**Source:** Annual reports of the infrastructure sites and the Bulgaria Air Traffic Services Authority (BULATSA) for the period 2015–2020.

**Figure 5. Number of persons employed at infrastructure sites in Bulgaria**

The data in the graphic indicates that the employed persons have the highest number at Sofia Airport – over 2,200 employees on average per annum, whereas the lowest number of transport employees is observed at the Port of Rousse – 138. There is also a trend of decrease of the number of employees at infrastructure sites, as the decline is between 17% and 21%. On the one hand, the trends in the change of the number of persons employed at infrastructure sites follow the development of the “cargo turnover” indicator, but on the other hand, they are also determined by the age structure of the employed persons (a large number of the employed persons are at a pre-retirement age). It is only with BULATSA that the number of employees remains approximately constant, as the average change per annum is around 3% a downward trend. This is primarily owing to the fact that the employed persons are highly-skilled and the process of gradual digitalization of the aeronautical servicing does not reflect negatively their number.

A key role for the efficient exploitation of the workforce is also played by the salary for which they are hired. Its amount depends mainly on the knowledge, skills, education, and qualification of the transport employees, as well as the labour productivity. Figure 6 shows the degree of work salary at the

Port of Rousse in comparison with the salaries received by the persons employed at sector “Transport, postal and warehousing”, as well as nationwide.

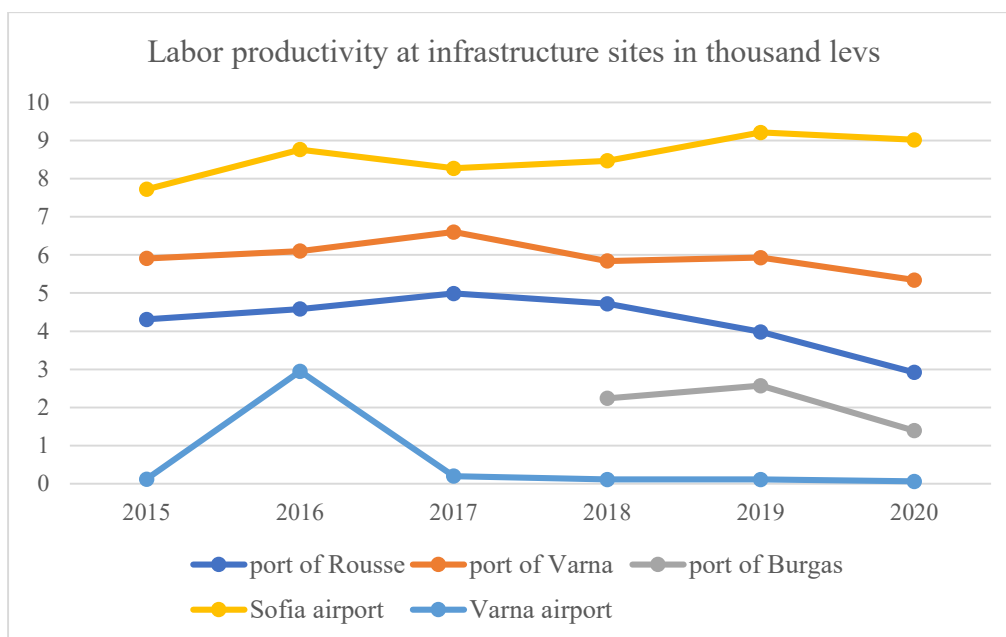


**Source:** Annual reports of the Port of Rousse for the period 2015–2020 and the National Statistical Institute

*Figure 6. Average monthly wage of employees in economic activities*

Clearly, as the graphic shows, the average monthly wage received the transport employees at the Port of Rousse (BGN 1,200 on average for the discussed period) is above the average degree for sector “Transport, postal and warehousing” and equals the average monthly wage in the country. We observe a smooth trend towards an increase of the amount of the wage of the persons employed at the Port of Rousse, as in 2020 it increases by 24% compared to 2016. This means that the transport employees at the port are semi-skilled persons, they have the skills to work with specialized facilities and equipment, and their adaptation to the process of digitalization will not cause any problems.

The degree of digitalization of the major and the ancillary activities at ports and airports, besides the demographic and financial factors, is directly impacted by labour productivity. Figure 7 shows the change in labour productivity of the employees at infrastructure sites (airports and ports).



Source: Authors' calculations

Figure 7. *Labor productivity at infrastructure sites in thousand levs*

The indicator “labour productivity” has been calculated by applying the natural method, which has found a wide application in the transport sector. The highest values for the indicator are observed at Sofia Airport – on average for the period, one employed person has processed 8,600 tons per annum. The lowest labour productivity is observed at Varna Airport – approximately 600 tons on average per annum are processed by one employed person. We do not observe significant fluctuations in the volume of the processed cargoes by the employed persons, as for the Port of Rousse a decline of 32% is reported in 2020 compared to 2015, for the Port of Varna – 10%, for the Port of Burgas – 38%, for Varna Airport – 50%, it is only for Sofia Airport where a growth of 17% is observed.

The data presented above is also confirmed by the fact that over the last two years, the COVID-19 pandemic has caused enterprises worldwide to accelerate the processes of mass digitalization of their main activity. In this respect, although at slower rates, the predominant part of the enterprises in Bulgaria in the field of “Cargo warehousing and ancillary activities in transport” have expanded the share of remote work. Even if we take into consideration the fact that there has been an increase in their expenses regarding the purchasing of information and communication software applications, most of the operators (airport and port) have benefited from the advantages of digital technologies

such as: introducing more paperless processes, reporting a growth of cloud based internal processes, preserving the employees' health.

On the other hand, as early as 2016, the European Commission, acknowledges the problem with the necessity of improving the digital skills of the population; in this respect, it adopts the European Citizens Digital Competences Framework (DigComp, 2016). Its key role is to provide universal understanding and notion of digital skills and make recommendations for establishing national policies for acquiring and upgrading basic and specific digital competences by the employees in the separate sectors of the economy.

Those processes will naturally lead to the achievement of the priority goals of the European Pillar of Social Rights, which foresee preserving up to 78% of the employment among the population at working age until 2030, as well as expanding the digital education of European citizens, which as of 2015 is only 43%. Therefore, in the future, there will be a demand for human resources, which can make decisions about economic problems in digital environment; furthermore, enterprises will hire employees who can create new products through digital tools.

## Conclusion

In researching the financial and economic state and development of infrastructure sites in transport, we can outline several trends: **First**, over 53% of port and airport terminals are exploited as public and private partnerships. This, respectively, frees the state from activities which are managed inefficiently, but on the other hand, it shows that giving under concession is a complex and bureaucratic process which could hamper the processes of digitalization of the major activities at infrastructure sites. **Second**, cargo turnover at inland ports marks a decline by 16.5% in 2020 compared to 2015, whereas with seaports – the decline is by 18% in 2020 compared to 2017, which definitely means modernizing the adjacent infrastructure in compliance with the global trends and necessity of attracting more consignors. **Third**, we observe a trend of decrease in the number of personnel at infrastructure sites, as the achieved decline is between 17% and 21%. The highest employment is observed at Sofia Airport – over 2,200 employees on average per annum, whereas the lowest – at the Port of Rousse (138 employees). **Fourth**, only at BULATSA, the number of employees for a period of 6 years (2015–2020) remains approximately constant, but this is owing to the fact that the employed persons are highly-qualified, which will facilitate the processes of digitalization of their management. **Fifth**, labour productivity at exploitation sites decreases on average by 33% in 2020 compared to 2015; on average, per annum, one



employee processes 20,400 tons of cargo, which imposes the necessity to change the policies of human resource management as they shall conform to the global digital trends.

The worldwide trends of development of the processes of warehousing cargo and ancillary activities in transport are directed even more towards the building of “smart airports” and “intelligent ports”; their management and exploitation will require employees who possess “interdisciplinary qualification”.

The most sought-after jobs and positions in this field during the next from one to three years will be: digital marketing specialists; Big data specialists, specialists in the automation of cargoes, specialists in cloud and cyber-physics systems, experts in digital business models development and experts in computer simulations.

In this respect, the development of the processes of digitalization of personnel management in the transport infrastructure shall be oriented towards: first – creating unified standards of holding trainings for acquiring new or expanding the existing general and/or specific digital skills by taking into consideration the specific aspects of the separate subsectors (waterway and air, for instance); second – digitalization of the procedures of giving infrastructure sites under concession to improve the efficiency of their exploitation and making good use of their capacity, and third – a change of the curricula and training transport specialists in the field of cargo warehousing and ancillary activities in transport by taking into account the specific aspects of the sector.

### **Acknowledgement**

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