

History of transportation



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History of Transportation

Transportation was, is and will be one of the most important issues of peoples life. It accounts centuries. Definition of transportation can be different, as the reason, it can mean the trip between two places, two villages, for trade, war or maybe just for journey. It can be done using air, water or land. Transports transformed during centuries and today look much different than in nineteenth or at the beginning of twentieth century and much different than it was in early stages.

Transportation is an integral part of history, history itself, in point of fact, has often been determined by movement across the land-movement of armies, of whole peoples in migration and of trade.

In the early stages progress rate in land transportation was very slow. Man from the beginning was characterized by movement from one place to another, searching some food, attacking his neighbors, to find wife in other groups and so on. The main goals of man in early stages were: hunting and abduction. But all of these was often behind the human migration, the stronger conquering the weaker. Man for on his own feet could travel more than three miles per hour. Despite the flexibility of his physical structure, he was compared to other animals, which were stronger, more agile, and swifter, but the human animal had certain advantages, big brain, flexible hand structure, he had to walk upright, freeing his hands for the use of tools. Later man started to evaluate substitutes. Firstly he had dragged all the things he needed, but later the man understood that someone else also could do it by his direction and regulation. The animals: dogs, elephants,

donkeys camels became the first, who appeared in the history of transportation.

The earliest vehicle seems to have been the sledge. Very possibly the sledge had its origin in a simple branch drawn behind a man or beast. For thousand years ago the Egyptians used much the same kind of vehicle, but with heavier and stronger runners, to transport immense blocks of stone , some weighing as much as 800 or 900 tones. So as we see the sledge was very useful, but later however the wheel made its progress. The oldest examples of wheel are found in Mesopotamia and date from the fourth millennium B. C., among the Sumerians, Akkadians, Elamites and Chaldeans. Sumerians were the first people who reach the civilization, so they seem to have been the first who used the full wheel. At the beginning it was three planks of wood , which were pegged together in a rough circle. Soon they strengthened it, using a metal band or tire and finally hollowed out for lightness and equipped with spokes. For a long time the chariots was reserved for the nobility, for trade or by the common people as wagons, but it was later.

Sumerian chariot changed very little over a thousand years , until the introduction of the horse from central Asia. In the seventeenth century B. C. horse-drawn chariot made its appearance. It became the principal weapon of the Assyrians, who eventually subdues most of the civilized world.[1]

The biggest transformations in transport sector started from the construction of roads. Romans constructed a huge road system that made possible to use different types of vehicles and also develop new ones. They had 20 different

types of vehicles, from the two-wheeled carpentum, which was very fast and light and had a leather hood for protection of drivers, to the four-wheel carruca, which could carry whole family.

The first real roads, that were constructed were very short. Babylon under Nebuchadnezzar had its famous Procession street, which was made with large stones over a foundation of asphalt, which led through the city to a substantial bridge across the Euphrates. For facilitating the transportation of heavy blocks of stone the Egyptians built roads, which were short, but very broad.

Times changed and from year to year people started to invent more energetically and interesting things for transportation. Historically horse, pulling a vehicle was very useful for people, but later they started to create different kinds of apparatus, which provided for them more energy to get from one place to another, from time to time. And so we come to the curious mechanical vehicles of the sixteenth and seventeenth centuries and which were operated by land levers.

First everything started with invention of different and small carriages, which was possible to drive without horses.

In 1645 Jean Theson create a small four-wheeled carriage, which was driven without horses for two seated man. Another invention was made by German, Hautsch around 1600, which also was used without horses.

The ancient Chinese had attached some sails for their cart, which helped them along, the elector Johann Friedrich built a vehicle of this type in Europe

in 1543. In 1600 Simon Stevin a military engineer, built a famous chariot, it had two masts, a plough-shaped rudder and all kinds of ingenious devices for trimming or lowering the sails with dispatch.

In 1826 an English man , George Pocock launched smaller carriage, which he called " flying Chariot", of course without horses, it worked average from 15 to 20 miles an hour. There was also another wind-propelled vehicles , named " Flying Coach" , which was invented by Non Jose Boscasa and Hacquet's " Eolienne" The latter , favored by a southwest wind, actually sailed through the streets of Paris one day in 1834.

The first steam carriage which actually worked and could not go faster than 4 miles per hour was Nicolas Cugnot's " fardier" , a large cart. Intended to transport guns or other heavy loads , it was made of stout beams and had three huge , iron-strapped wheels, with power delivered direct to the single wheel in front by two massive cylinders. A big boiler and firebox were suspended over the front wheel, making it even more cumbersome. This frightening monster , which was tested before the Minister Choiseul in 1769, had to stop every 15 minutes to get up more steam and vibrated so much that it finally escaped from its inventor and tore into a wall of the arsenal. Nevertheless, it was the first vehicle in which the thrust of pistons successfully turned a driving wheel; in order words it was really the first automobile .[2]

The ' fardier' can still be seen at the Conservatoire des Arts et Métiers in Paris. On view at the Birmingham Museum is the second forerunner of the automobile, a small steam model built by William Murdock, Watt's assistant

in 1784. With its light wheels and little smokestack at the back it looks frail compared to the heavy "fardier". The third pioneer vehicle was Oliver Evans's steam carriage, which he drove through the streets of Philadelphia toward the end of 1804. It was a huge amphibious boat which had been built to dredge the Schuylkill River. Evans named it the "Orukter Amphibolos" or the "digger which works all ways" because it was equipped with wheels for land travel and paddlewheel for the water. And it actually worked, lumbering several miles over uneven ground before entering the river, where the paddlewheel took over from the belts which drove the wheels.

In 1891 Richard Trevithick, helped by Andre Vivian, built a steam carriage with the engine in the rear which could carry about a dozen passengers at nine miles an hour. Two years later, before turning to the steam railway, Trevithick actually ran a steam tricycle through the streets of London. In the next 30 years or so quite a number of self-propelled steam carriages were built and operated on the new, hard surfaced roads of England and with considerable success. Outstanding was the steam carriage of Goldsworthy Gurney, which weighed two tones. By 1832 his coach was running on schedule four times daily between Gloucester and Cheltenham. In 396 trips it carried 3 000 passengers without mischance. Around 1834 Walter Hancock was operating several lines, including his Paddington-City of London run. But all these coaches disappeared and the same happened in France – even though Onesiphore Pecqueur in 1828 had invented true modern steering with two wheels, and the differential for a rear-wheel drive.

Later train became very popular among other transports, its success was irresistible, of course because it could go faster with great safety and

economy and also could carry more passengers. The railroad interests combines with owners of horse drawn stages , with people who sold horses , with turnpike companies , and farmers who grew oats for fodder -pushed through a series of laws hampering and taxing the road locomotives, forbidding them to travel faster than four miles an hour and finally requiring a man with a red flag to precede each self-propelled vehicle on a public highway. The latter act was not repealed until 1896. thus with the failure of the steam coaches Britain was deprived of any chance for an early lead in the automobile field. Bollees, were father and sons , who brought steam back on the road. Their first machine was the " Obeissante" a 15- horsepower monster weighing five tones and traveling at 24 miles per hour. It was well received when it was shown in Paris in 1873. Five years later the " Mancelle", a much smaller machine , made its importance, it was much more economical. By this time Bollee machines became known throughout the Europe. There was the " Marie-Anne " , " Nouvelle" of 1880 , which could do 27 miles per hour , per " Avant-Courrier " of the same year and the " Rapide" of 1881.

Count Albert de Dion, with the mechanic Georges Bouton, worked out a little three-wheeler in 1883 which could be drive by one man. He followed it with others, faster and more economical. But the principal inconveniences remained: the driver had to stock water and coal, light the fire, wait for his car to get up steam and finally he had to abandon all thoughts of traveling faster then 24 miles per hour prescribed by law.

" There is a great need". Baudry de Saunier wrote, " to produce almost instantly and with little pressure the quantity of steam needed and to do it

with a strictly non-explosive boiler. » Leon Serpollet, last of the great steam-car inventors, did prissily this, making the Paris to Enghien-less-Bains run in 1888 on a kind tricycle which answered Baudry de Saunier's equipments. In 1890, with Ernst Archdeacon, he made the Paris-Lyon run in ten days. At Nice in 1902 Serpollet achieved a speed of 75 miles per hour.

An eclectic automobile by Nicolas Raffard appeared in Paris in 1883. About the same time an English man, Magnus Volk, brought out a similar car, while a carriage builder named Jentaud produced one with a seven horse-power engine that could make 15 miles an hour. Later on, a racing car by Jenataud achieved a world record- 56 miles per hour. This was finally capped by Camille Jenatzy's electric "Jamais Contente", which did 65 miles per hour. At the end of nineteenth century, when the gasoline automobile was still young, it seemed for a time as if the electric car might be the automobile of the future. Many were built -silent, powerful, and comfortable and were a common sight up into the 1920s, especially in the cities. But electric traction had a serious defect: the batteries often weighed a ton, and the driver had to stop frequently to recharge them.[3]

It is difficult to say, who was the inventor of the first engine. Philippe Lebon in 1800 planned to explode a medley of air and lighting gas in a cylinder to move a piston.. Other inventors used gases and hydrocarbons as fuel and experimented mostly in design. Combustion engine first became commercially successful in middle of nineteenth century with small gas engines,, whose inventor was French, Joseph Etienne Lenoir. The next was to compress the mixture before exploding it, an idea which was worked out in terms of the conventional engine by Beau de Rochas, in 1862. The idea was <https://assignbuster.com/history-of-transportation/>

taken up in 1867 by Nikolaus Otto, he produced engine two times, as economical one and as fast as Lenoir's. His four-cycle " Otto Silent" of 1876 led directly to the modern automobile engine.

Daimler, hitting upon gasoline as a fuel, produced a lightweight engine which he tested on a bicycle in 1885 , thus unwittingly inventing the motorcycle. His first automobile was a four-wheeler. Benz's was a simple three-wheeler , but it had some features, that anticipated the modern automobile., a rudimentary water-cooling radiator, differential gear and electrical instead of flame ignition. Its engine was a four-cycle. Like the Daimler , its speed was around 10 miles per hour. .

Daimler sold his patent to Rene Panhard and the engineer Emile Levassor, who wanted to introduce the automobile to France. The first test was in 1890 and 1891 . The objective was to go from Porte d'Ivry to the Viaduct of Auteuil and back without engine trouble, an objective that was soon achieved. After this the firm of Ponhard-Levassor received its first order and soon was sharing it with Armand Peugeot who also used the patent of Daimler.

In 1894 by Pierre Giffard of the Petit Journal organized the first great race between Paris and Rouen-77 miles, the competition was between all types of automobiles: whether steam, electric, or gasoline. The winner was Count Albert de Dion, who averaged 13 miles per hour in the little steam car. In 1895 a second race was organized , much longer and more difficult, fro Paris to Bordeaux and return, a distance of 744 miles. Steam was represented by one of count de Dion's cars, two Serpollets, and Bollee's " Mancelle", gasoline by a Panhard Levassor and three Peugeots and electricity by

Jeantaud . From the 21 vehicles, which participated, Panhard Levassor was who won, completing the course in less than half of 100 hours anticipated by the organizers. The superiority of gasoline over steam and electricity was proved beyond a doubt. The race proved also that an automobile, like a bicycle could and should ride upon air. Michelin Brothers had been proved a success -even through they had to be changed by the drivers every 93 miles.

The next round was infernal and murderous, right up to the Indianapolis race of today , the " 24" hors of the Le Mans , of Monte Carlo, of other places.

There was the Tour de France, from Paris to Berlin, the Paris-Vienna , the Gordon Bennett Cup and the bloody Paris- Madrid race of 1903, in which was killed Marcel Renault. During the Competition the roads between cities were turned into mad circuses filled with surging crowds. Out of the noise was born Germany's Taunus meet, Italy's Monza, Englands Brooklands and in the United States , the Atlantic City. From year to year the automobiles improved. Then there were rallies and competitions, which sent the automobiles in different sides of the world.

The United States , saw its first successful gasoline automobile in 1893-that of Charles and Frank Duryea. It was a small, four-horsepower phaeton with little engine. American Automobile industry comes form 1896, when the Duryea Motor Wagon Company produced 14 cars. The First Packard introduced in 1899. But the real contribution of United States was in mass production and the start player , her was Henry Ford, who is famous for all of us.

Henry Ford first started with steam, but later he left the idea. He put together his first successful “ gasoline buggy “ in 1896, then series of cars “ 999”, the “ Arrow” and others and could not decide , which one of them was better.

The answer on this question, later was received in Europe , first by Citroen and then by others. The immediate result was the Model T Ford. In 1909 Henry Ford had written that that the automobile of the future must be superior to the present car to beget confidence in the man of limited means , and sufficiently lower in price to insure sales for an enormously increased output. He said: “ the car of the future must be a car for people...the market for a lower-priced car is unlimited.”[4]And latter, every one saw , that he was really write, because the number of sold cars sharply increased. Between 1908 and 1928 there were sold more than 15 million Model T Fords. During 1925 , only in one day alone, more than 9000 were built.[5] Later the competitors and successors followed the example of Henry Ford, because it was really good idea, who else could imagine and do it.

The First design of carriage in Italy , which could run without horses , was done by famous artist Leonardo da Vinci, if we look back. But Father Barsanti and Professor Mattenci were, who together took out a patent for a gas engine in 1854. In 1894 Colonel Bordini produced a small automobile. But the real beginning was in 1895 , the year the celebrated Agnelli created the no less celebrated “ Fiat ” in Turin. A Fiat in 1907 won a magnificent triple victory: the Traga Florio, the Sarthe circuit and the Emperor’s Cup. The road had been prepared for the elegant automobile, for automobiles, which are named as Lancia, Ferrari, Maserati and Alfa-Romeo.

Now the automobile has everything it needed, things such as four-cylinder engine, wheels of the same size all around, electric lighting, an electrical self-starter , and for all of that we have to be thankful for American inventor Charles Kettering, who invented this automobile in 1911.[6]

Looking at all these historical points we saw that the transportation was important not only in nineteenth century and today, but it comes from much earlier period, people used transportation for different reasons . During many years transportation transformed and the period from the nineteenth century to the present was the period of amazing changes and progresses in automobile industry. Transportation started by foots with man from early stages and today continues with luxury automobiles. In past we saw that the automobile was very luxury and very expensive pleasure for people, but today it is very necessary thing, which has almost all families and use them for different necessity , but as it was as in past , today automobile industry also feels and faces many different problems . What will be tomorrow nobody knows, how transportation and automobile industry can transform, maybe we can dream about something more, about something unbelievable in this sector.

Meaning of Common Transport

Policy

Since the entry into force of the Treaty of Rome in 1958, the transport industry , faithful servant that it is , has undergone significant change in order to adopt to the growth and needs of international trade.[7]

The Treaty of Rome provides the legal basis for the creation of a common transport policy . Next to agriculture and commercial policy the Common <https://assignbuster.com/history-of-transportation/>

Transport Policy is one of the three common policies specially mentioned in Article 3 of the Treaty as one of the activities the Community must pursue in order to “ establish a common market and progressively to and progressively approximate the economic policies of the Member States». Irrespective of the Treaty provisions, transport policy left under the control of the Member States . The Member States pursue different transport policies and proceed from different bases for State intervention.[8]

Common policy means reformulating the policies of Member States to form a single Community policy: a process of integration culminating is supranational transport policy.[9] The main aim of the policy is to shun the difference between Member States.

Transport industry has few differences from other industrial sectors. When we are talking about economic fields:

1. Transport is used as an instrument of State economic policy. Transport is a major industry by such criteria , that it is measured : employment , investment and etc.[10]In transport sectors are employed high percentage of workers . Transport sector of EU-15 employed 6. 2 million people, and that increased to 7. 4 million after enlargement of 2004.[11]
2. Transport industry is important activity to other industrial sectors and its levels of rates are crucial to the State’s economy. In a market promoting specialized production, the consumer and the producer , both depend on transport , to meet their each others needs. The independent carrier, occupies a central position in the market as a

whole: this his policies, unless regulated, can hinder international trade by discriminating as to charges between producers or also between consumers.

3. Some regulations are important for modes which are covered but Transport , such as road rail, inland, waterway, sea and air, because most of them are competing with each other and sometimes conflicts are irreversible.
4. Transport is an industry with public service obligations, where governments often intervene by obliging some services and also by controlling the tariffs. Railways are used an instrument of economic policy, where public financing of the infrastructure is very common. In case of roads, the building of roads often depends on the State, but once the roads are built and open to traffic many different types of users take advantage of their existence.
5. Transport industry is characterized by undertakings of dissimilar structure, which provides interchangeable services. Inelasticity in the supply of transport owing of the “ perishability “ of its services makes full freedom of competition impracticable.
6. Transport sector is subject to many international agreements, whose some of the Member states are parties and have to fulfill international obligations.
7. In area of inland waterways, the Commission has incomplete competence because of relationships with third countries. The Rhine regime, which is established by the Mannheim Convention in 1868 , with Central Commission implementing its provisions, cannot be ignored. The Central Commission, within the EC territory governs the

most important single constituent in inland transport. The area of air and maritime transport are governed by many international treaties.

All these factors which are mentioned above made difficulties for the Union to develop such as policies, which will spirit the integration of transport services and satisfy the needs of the single European market.[12]

The most important changes in European Transport industry started from 1970s, when increased the usage of road transport. This growth was really dramatic and it effected the railway transport. During the 1970s the rail's share of the passenger market has fallen from 10.2 % to 6.3 %.[13]

European railway increased investment on developing fundamental new techniques and infrastructures, such as high speed trains: TGV, Eurostar and etc., for competition with other transport's modes. Also was mentioned the high increase in air transport for long-haul journeys and maritime transport has been relegated to the short-haul ferry market.[14]

In the European Union transport sector is very important issue, it provides 4% of the GDP. Also as we already mentioned above, it provides employment for EU citizens. In 1991, employees in the transport sector constituted between 4 % and 5% of waged labor. It amounted to 5.6 million people, 2,509,000 of them were employed in road transport, 897,000 in rail transport, 24,000 in inland waterway transport, 217,000 in maritime and 349,000 in air and 1,569,000[15] in other sector which are related to transport industry.

Transport sector is the growth industry in European Union. The demand in industry is generally proportionate to Gross Domestic Product. Taking the average annual economic growth in the European Union since 1970 as 2.6

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%, the growth in goods transport services has been 2.3 % and passenger transport services 3.1%.

Transport is the link which brings together people and products from all European regions, above all the remoter regions.

Transport in European Union was and is characterized by a great measure of government intervention and a confused network of bilateral and multilateral inter-state agreements in which the Member States used to and still participate.[16]

When we speak about Common Transport Policy it is important to distinguish three phases of this policy. First phase of the transport policy started after the entry into force of Treaty of Rome and continued till 1973-1974. During this phase, the European Community, was concentrated on creation of common market for transport by road, inland waterways, rail and opening the national market between all Member States for competition. This idea was formulated in 1961 Memorandum by Commission and in 1962 Action Programme.[17]

First phase of Common transport policy involved discussions between Member States and Commission, because the provisions given by the Treaty were not concreted to what it should contain.

At the end of the second phase, from 1973, the accession of Denmark, Ireland and the United Kingdom to the European Community introduced more liberal and less land-centred views into inactive transport policy[18] At

the end of 1973, The development of Common Transport Policy was determined again by the Commission and The Council .

In 1974 in maritime and air transport sector two important events took place for development of Common Transport Policy : the Court gave judgment in the French Seamen case and under the auspices of the United Nations, the United Nations Conference on Trade and Development Code of Conduct for Liner Conference was adopted.[19]

Third phase started from 1983, when the various proposals for structured development of the Common Transport Policy , in several memoranda concerning the inland (1983), air (1984) and maritime (1985) sectors.[20]

Speaking about Transport policy it is important to mention the main factors, which influence , such as: geography, technology, wealth.

The oldest influence probably lies in the physical features of European geographical environment, which can encourage or discourage travel. It is relatively easy to travel up and down a river valley such as the Rhine and Danube , much harder to cross major physical barriers such as the Alps or the Pyrenees other than by air. Most traffic crossing the English Channel or the Baltic has to go by the sea, though there is now a Channel Tunnel Between England and France, opened in 1994 and the Oresund bridge between Denmark and Sweden, opened in 2000. There are four rail tunnels through the Alps and seven road crossings, but some of these are open in summer only, and the two road tunnels between France and Italy, opened in 1965 and 1980, are single-bore with just one line of traffic in each direction. Heavy-goods traffic is heavily dependent on these two narrow tunnels,

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another under the Gotthard Pass in Switzerland and the one major four-lane highway which crosses the Brenner Pass at 1,372 meters. The only significant rail and road crossings of the Pyrenees follow the Atlantic and Mediterranean coasts. Since these mountain chains and sea crossings generally coincide with national frontiers, which indeed they have often determined, they also contribute to keeping national transport policies separate.[21] Sometimes the national frontiers don't coincide with the physical barriers.

People always thought about travel and trading goods in places, where they can use their own language, where their rights are respected and they have easier access to the education and medical system. It is very interesting in this case to mention the situation in Germany after the Second World War. When Germany was divided into two parts its system of roads and railways, built to facilitate military and civilian communications on East and West axis, had to be reconfigured to strengthen North-South communications on either side of the Iron Curtain.[22]

After the reunification European Union is reducing the importance of national frontiers, for example with the creation of single currency of Europe-Euro, but for some people it is difficult to cross the borders and go to study or work, for few of them it is unbelievable to cross national borders, even where there are no physical barriers, who can avoid them. Even with the single European market, the volume of international trade in 1994 was only about 7% of the tonnage moved within national frontiers.[23]

Second important influencing on transport policy is technology. As we already mentioned, when we discussed the history of transportation, transport sector developed many times, during many years, first the feet presented the main transport for people, then transports developed by wheel, sail and etc and over the past 250 years the steam engine, internal combustion engine, the jet engine, and electric traction have each facilitated a step-change in technology[24] the main objective of such as technological revolutions are to make transportation more comfortable, easier, cheaper and safer.

The third factor which has the major influence on transport policy is wealth. There is very strong correlation between economic performance as measured by gross domestic product and the growth of goods and passenger transport. It seems that the more we earn, the more we spend on travel and on the consumption of goods which themselves have to be transported over long distances to reach our homes. And there is no sign as yet that these trends will not continue to generate a steadily increasing demand for transport. In 2001 Transport White Paper, the commission estimated that GDP growth of 43% between 1998 and 2010 will generate increases in the movement of passengers and goods of 24% and 38% respectively.[25]

Transport policy as we already mentioned above is very important issue for European Union, because it is important policy for economic sector of the Union, for Environment, for Labor Market and also for competition. And European Union always tries to implement different strategies to improve and restructure this policy for the well-being of the citizens.

Modes of Transport

Transport sector covers different modes such as: road transport, railway, waterway and air transport.

Development of all these modes is different by times and by structures. In this part we will discuss recent developments in European different modes of transport sector.

Personal mobility has more than doubled from 17km a day in 1970 to 38km in the late 1990s. Road transport is Europe's dominant transport mode and its dominance continues to grow. Private car ownership in the EU -15 increased from 232 per thousand in 1975 to 469 per thousand in 2000 and continues to grow .[26] Road transport at the end of 1990s represented 44% of the goods transport market compared with 44% for short sea shipping, 8% for rail and 4% for inland waterways. In passenger transport it represented 79% of the market, 5 % of air and also 6% of railways.

Development of road transport is very important and interesting case , because during last years the volume of road freight grew by 3. 5% a year and 7% in the case of cross-border freight. The roads now take about 75% of freight traffic within the EU , compared with less than 50% in 1970. As regards road transport, the key mode is the private car and growth in car use. During last 30 years the number of cars tripled, at an increase of 3 million cars each year. For 1975 there were 232 cars per 1000 people and now there are 444 cars per 1000 persons.[27]

For promotion of more safety transport , European Union introduced some legislations on the driver qualifications, inspection of cars