An Infrastructure Strategy for Austrian Prosperity in the 21st Century

Nehlsen, James
2000

Find more at https://preserve.lib.lehigh.edu/

This document is brought to you for free and open access by Lehigh Preserve. It has been accepted for inclusion by an authorized administrator of Lehigh Preserve. For more information, please contact preserve@lehigh.edu.
AN INFRASTRUCTURE STRATEGY FOR AUSTRIAN PROSPERITY IN THE 21ST CENTURY

James Nehlsen

Introduction

Economies are driven by movement. Raw materials must be moved from their source to processing areas. Finished goods must be moved to their respective markets. Services rely on the movement of people and information. Economies thrive on movement, and increasing the speed and decreasing the cost of such movement makes economies more productive. The borders of the Roman Empire stretched far beyond those of its precursors with the help of a network of roads that enabled messengers and military units to move swiftly from one side of the empire to the other. Similarly, the emerging global economy has benefited from improvements in transportation.

In the modern European economy, Austria lies in an uncertain position with new markets growing around it. The small but prosperous state, offering its 8 million citizens an average per capita income of $1,893 each month (Federal Press Service, p. 69), sits at the crossroads between the established markets of the European Union and the emerging markets in eastern Europe. Austria is geographically positioned to become a hub of market activity in the new Europe if it can overcome the limitations of its location and internal politics. Landlocked in the shadow of the Alps, Austria must continue to invest heavily in infrastructure development during the next decades to ensure the prosperity of the Austrian people in the new Europe.

Failure to prepare adequately for the future will result in a missed opportunity for economic growth or a degradation of environmental quality. The political clout of the Green Party in Austria attests to the populace’s concern for the environment and unwillingness to sacrifice the environment for economic gain. The Green Party has used its political influence to halt many road projects, even when the Austrian people suffer as a result. The delayed construction of a major autobahn to Slovenia has already caused economic losses for people along the route. (Senger-Weiss)
Continued prosperity requires economic growth, which in turn requires increased trade both within Austria and internationally. As the volume of trade grows, unchecked motor vehicle traffic can degrade the existing infrastructure and pollute the environment, while over-regulating traffic can lead to restrictions on free markets and a lost opportunity for economic growth. A careful balance between regulation and open borders can make Austria a prosperous hub of trade while protecting the environment.

The physical infrastructure of a country extends to many levels, from roads and bridges to river ports and railcar depots. For Austrian economic development and commerce, however, the four most relevant components of infrastructure are: (1) major cargo carrying highways; (2) main rail lines, particularly those connecting the German and Italian borders with the large industrial areas of Austria; (3) navigable waterways such as the Danube and associated canals; and (4) commercial airports, combined with the passenger and cargo carriers using them.

**Growth in Trade**

Austria must focus on these four areas of infrastructure to enhance its trade routes and future economic viability. Currently, none of these components is operating in an optimal way suitable for the country's needs. The roads are overused, while the rail and waterways operate well below capacity. The airports are relatively small and carry low volumes of passengers and cargo. Solutions to these inefficiencies are required for the continued development of both the Austrian economy and those of its neighbors who rely on trade routes through Austria.

Austria is a small country, about the size of Maine, but is the sixth wealthiest country in the world in terms of per capita income. The population of Austria is relatively stable. Figure 1 shows the population growth trend during the past 68 years. The total population of Austria rose by only 274,000 from 1991 to 1998 (Federal Press Service, p. 10), while the total population of Vienna has actually declined during the past sixty years.

![Figure 1: Population of Austria](image-url)
Despite low population growth, Austrian imports and exports have increased significantly, as shown by Figure 2. The figures presented are current dollar values, meaning that inflation has accounted for some of the growth. However, Austria's inflation rate, averaging around 5 percent annually (less since 1990), is not sufficient to account for the rapid increase in foreign trade. Germany remains Austria's main trading partner (41.7 percent of Austrian imports are from Germany; 35.1 percent of Austrian exports go to Germany) with Italy, Hungary and Switzerland combined accounting for roughly 12 percent of foreign trade. (Federal Press Service, p. 69) Obviously, the increase in trade is a result of increased per capita economic activity, not population growth. The population grew 1.1 percent from 1970 to 1990 while the value of foreign trade increased by 1,500 percent over the same period.

If the value of foreign trade is assumed to be proportional to the physical quantity of goods transported, the rise in the trade value reflects a similar rise in commercial freight transported to and from Austria. Austria's central location in Europe suggests an increase in through traffic as well, due to increased foreign trade activity in neighboring countries. A similar trend is found throughout the European Union (EU). While the steady upward trend in the value of foreign trade is good news for Austria, the increasing trade volume places growing demands on the infrastructure used to transport these goods.

![Figure 2: International Trade in Austria](image-url)

**Figure 2**
**International Trade in Austria**


**Problems on the Ground**

Much of the new trade volume, both international and domestic, is finding its way to Austria's highways. A growing number of trucks move goods from seaports and factories in Germany, France, and Italy to the rest of the EU and Eastern Europe over routes that cross
Figure 3
Commercial Road Traffic

Austria. The major Austrian transit routes are the north-south passage through the Tyrol, a north-south route called the Hohe Taurern in the east, and an unfinished route stretching from the northwest corner of Austria to Slovenia and the Balkans. Despite the fact that Austria has the lowest percentage of cargo transported by road in the EU, the number of registered commercial vehicles (including both cars and trucks) in Austria has been rising dramatically, as shown by Figure 3. (Senger-Weiss) The number of commercial trucks has risen from fewer than 200,000 in 1985 to almost 800,000 in 1998.

The growing commercial traffic poses a particular problem for the Trans-Alpine tunnels connecting Austria to Germany and Italy. All four major Trans-Alpine tunnels are considered traffic bottlenecks. (Bevan, p. 29) The annual Alpine cargo load carried on trucks has increased from 4.1 metric tons in 1971 to 28 metric tons in 1998. Road traffic to eastern European countries has also boomed since the fall of communism and the decline of state-owned logistics companies.

The congestion in the tunnels caused by increasing commercial traffic has contributed to several tragic accidents. Twelve people were killed in a fire in the Taurern tunnel in May of 1999 that closed the tunnel for three months. The fire was started when a truck rear-ended a car, causing a series of explosions. Less than five months after it reopened, another fire broke out in the same tunnel. The second fire was also caused by a truck. ("Truck Catches Fire in Tunnel") As commercial traffic through these tunnels increases, more accidents like these are likely to occur.

In addition to causing highway and tunnel congestion, trucks cause other problems as well. While trucks provide rapid service to almost any destination, they cause more problems than all of the other transportation methods combined. Trucks produce the most environmental damage. Commercial trucks cause 91 percent of air pollution and 98 percent of accidents compared to the other major forms of transportation — rail, water, and air. (Bevan, p. 36) Furthermore, new roads are expensive to build, costing $6.8 million per kilometer in mountainous areas. With only $402 million allocated in the 1998 national budget for road maintenance and construction, funding for new roads is limited. (Wirtschaftskammer Österreich, p. 70) Adding
to the funding problems, money earned from road tolls, taxes, and gasoline surcharges is frequently diverted to cover other deficits in the national budget. (Senger-Weiss)

The environmental damage caused by trucks has prompted environmental groups to seek federal legislation to restrict commercial traffic. Michael Gröller, CEO of Austria’s Mayr-Melnhof Karton AG, indicated that it often takes years to build even a minor road due to bureaucratic red tape created by the government and special interest groups. The Green Party, one of the major political pro-environment groups, has halted the construction of new highways designed to alleviate the congestion through lobbying and political pressure. A planned route linking Prague and Linz has been proposed by the Czech government, but the Austrian government, due to political pressure, is not willing to complete the Austrian portion of the road. (Senger-Weiss)

These same environmental groups have stalled construction of a connecting route across the Rhein Valley between two major Swiss and Austrian autobahns in the west for more than 15 years. (Senger-Weiss) Environmental groups have also blocked the expansion of existing roads. The 120-mile autobahn connecting Linz and Vienna, one of the most heavily traveled routes in Austria, is currently overcrowded. Under pressure from environmental groups, the former minister of transportation announced in 1999 that the current capacity would be sufficient for the next ten years. (Senger-Weiss) The Green Party seems willing to tolerate heavy traffic on the existing roads if it limits the growth of commercial traffic through Austria.

The railways in Austria provide an alternative method of ground transportation. Austria has the seventh highest railway density (miles of railroad per square mile) in western Europe. (Bevan, p. 31) Much of the Austrian system is run by the state-owned Oesterreichische Bundesbahnen, or OBB. The 14,300 miles of track crossing Austria carried 80 million tons of cargo in 1998. (“Austria,” p. E10)

The freight traffic patterns on Austrian rail lines have faced the reverse problem. As road traffic continues to increase, rail freight remains stagnant despite huge investments in infrastructure. The OBB reports a freight volume of 78 million tons in 1999, unchanged from 1998. A large decline in freight business for 1999 was expected until a dramatic rise in summer freight traffic pushed the yearly total upwards to its 1998 value. (“Railways Register Record Profit”) The rail system is now significantly underutilized, despite the fact that Austria has the second highest percentage of cargo moved by rail in the EU. (Senger-Weiss) Rails are environmentally cleaner and safer than roads for ground transportation, but many businesses have found trucks easier to manage than rail cars due to their greater speed and flexibility in both loading and delivery locations.

Problems on the Water

While railroads can move large quantities of freight efficiently, transport by water is also an option. The Danube River is the only navigable waterway of importance in Austria. However, the Danube is, by consensus, underutilized. Part of the reason for the low volume on the river is that goods shipped by water must be loaded at a river port, such as Vienna, and must be delivered to another river port, restricting the possible destinations. Water transport is generally slower than road or rail as well. Capable of handling immense quantities of cargo on barges, this large artery through Europe presents a low cost alternative to road transport with less environmental impact. Water transport, however, is limited to non-perishable, low cost items, particularly bulk raw materials and agricultural products such as grains. For a country concerned with the environmental impact of through traffic, the Danube River represents a potentially valuable mode of transportation to supplement other more mobile, lower volume modes. However, significant investment in ports where goods can be trans-shipped from water to rail is needed for the Danube to become an attractive mode of transportation.

The 1992 completion of the Main-Danube canal was supposed to bring new life to the Danube by connecting the Black Sea to the North Sea and to the Rhine River. The Rhine River carried 270 million tons of cargo in 1997, while the Danube carried only 9.2 million. (Federal Press Service, p. 102) The reason for
the minimal use of the Danube is largely political, not economic. Before reaching the west, the Danube meanders through Serbia, where the government blocks the passage of most vessels. The political turmoil in the Balkan Peninsula during the past few years shut down the Danube trade route before it had the chance to fully develop. Even bulk commodities from Romania and Bulgaria that used to travel to western Europe on the Danube now go by rail through Hungary or do not go at all. (Reed, p. A25) For bulk producers in these southeastern countries, transport by rail or the Black Sea is often too expensive and pushes the price of their commodities out of the competitive range. (Milmo, p. 6) The only traffic on the northern Danube is cargo bound for Vienna or Hungary, or cargo that stays within Germany. The decline in shipping along the Danube becomes more ominous given the observation of Istvan Csakvari, an executive for a German shipping company, who stated, “When cargo leaves shipping, it doesn’t come back.” (Reed, p. A25)

Problems in the Sky

However, economies are not based on the movement of goods alone. The transportation of people is required as well. The mode of choice for many pan-European travelers is the airplane. Air transportation fills a crucial niche in the modern world economy. Even in the Information Age, businesses are still run by people. Business travel has increased significantly over the past few decades and should continue to do so into the next century. Figure 4 demonstrates the trend of rising air travel through the six Austrian airports, especially Vienna. The number of passengers on commercial airlines has increased by more than 450 percent during the past decade. Yet, Austria has problems in the sky, too.

The main problem with air traffic is not the airports, but the carriers. For many years, Austria’s largest carrier, Austrian Airlines (AUA), and its subsidiaries held a monopoly on domestic flights. AUA was considered “a notorious protectionist and high-cost company” and was believed to have little chance for success in the deregulated environment of the EU. (Benisch, p. 39) The company was under great pressure to adjust in the early 1990s when faced with competition from Lauda Air and Lufthansa. (Benisch, p. 39) Today, AUA and its subsidiaries,
Lauda Air and Tyrolean, form a partnership that is relatively small compared to other major European airlines such as Lufthansa or even Swissair. The airline is faced with “increased competition and ongoing downward pressure on prices,” as well as “distortion of competition through government subsidies to several European carriers.” (Austrian Airlines Annual Report, p. 11-12)

Austrian Airlines allied itself with Swissair in 1955 in an effort to expand its service network. Under these conditions, Vienna served as a low volume endpoint. With limited international reach, the alliance lost the opportunity to turn Vienna into the major gateway to eastern Europe. Frankfurt took that honor instead. Vienna, historically a center of trade and travel, has failed to develop into a hub of air travel. The Vienna airport is well situated geographically to serve as a gateway between eastern and western Europe. However, the failure of the Austrian government and Austrian Airlines to promote Vienna as such a hub has resulted in fewer travelers and cargo shipments, and fewer businesses to support those functions.

Limited air traffic represents more lost opportunities for Austria. The Vienna airport has grown, but it has done so sluggishly compared to virtually every other major European airport. AUA reports a total increase in passengers carried of only 12.7 percent from 1992 to 1996, with only 40 percent of the available seats bought by passengers. (Austrian Airlines Annual Report, p. 9) In terms of total passenger throughput, Vienna does not rank among the top 20 airports in Western Europe. AUA carried fewer than 3 million passengers in 1996. (Bevan, p. 35; Austrian Airlines Annual Report, p. 9) While the airport and travelers alone do not provide a significant stimulus to economic growth, many businesses with physical distribution requirements see a major international airport as a boon. These businesses will tend to congregate near favorable distribution sites. An example of this effect in the United States is the difference between Chicago, Illinois, and Jefferson City, Missouri. Chicago is a major hub by water, rail, highway, and air. Chicago has grown tremendously during the past century as businesses such as magazine publishers locate near the major distribution sites. It now serves as the primary gateway between the east and west coasts of the United States and has the country’s busiest airport. Jefferson City is not a global center of commerce and has not grown substantially.

Austria’s Solutions on the Ground

The Austrian government and people recognize their position in a rapidly changing Europe. The current infrastructure ranks fourth in level of development among 53 industrialized nations. The current network of roads is one of the most developed in Europe, including 80,000 miles of road with 12,500 miles capable of handling heavy cargo traffic. ("Austria," p. E10) Despite the impressive road network, the growing road traffic causes congestion and with it, lost time and money.

The Austrian government has responded to the situation on the roads in a typically restrictive manner. After EU membership required that the government discontinue permit and quota systems designed to limit commercial through traffic, Austrian officials set up the Ecopoint system. As explained by Dr. Reinhard Rentmeister, head of Austria’s International Road Transport Division, this system is designed to lower the emissions of harmful pollutants, particularly nitrogen oxides. The system, which was designed for use from 1993-2003, allows only a certain amount of NOx emissions per year. Each carrier is assigned a certain number of points. The system provides an incentive for carriers to use low emission trucks, since they provide more miles per gram of NOx released. (Rentmeister)

The Austrian government also established a 28-ton weight limit for all cargo vehicles and banned night and weekend transportation of freight on many major autobahns. (Senger-Weiss) The weight restrictions are designed to minimize the damage to the Austrian highways. The Austrians have stuck to this limit, despite opposition from other EU members, who insist on the 40-ton limit used by most other countries. Austria also uses a toll and tax system to pay for road maintenance.

The response by the Austrians to the increased traffic flows was predictable. Restricting through traffic to protect the environment and the infrastructure is an obvious
answer to the problem; unfortunately, it has also proved to be the wrong answer. The nighttime ban of truck traffic causes the trucks to travel the autobahns in the morning and evening, making rush hour traffic worse. (Senger-Weiss) Current taxes on many roads increase the operating costs of trucks by several times. (Senger-Weiss) Prosperous economies rely on the efficient transportation of goods. Restricting the movement of goods hinders those economies. Now part of the EU, Austria's continued economic growth is strongly linked to the growth of its fellow members. The economies of Germany and Italy, among others, will undoubtedly be hindered by continued Austrian restrictions.

However, the Austrian government deserves kudos for one of its solutions to the transportation situation. The Austrians, along with the Swiss, have embraced a program they call CombiCargo, in which freight is shipped in standardized containers via a combination of road, rail, and water transport. (“Austria,” p. E10) Combination transportation of goods solves two problems at once by increasing the traffic on the rail and water systems while simultaneously getting cargo off the roads. The government has established “rolling roads” from Graz to the German border and 15 other points within Austria. (“Austria,” p. E10) On these “roads,” trucks are loaded onto flatbed railcars and carried by train. The trucks are offloaded at the endpoints, where their journey continues by road. A similar measure has been taken on the Danube, where the trucks are carried by barges. The incentive for using the mixed-mode transportation is an exemption from taxes, tolls, or permits while on the rails or barge. (Bevan, p. 37) The combination transport reduces the traffic on the roads while increasing the traffic on the underused rail and waterways.

The Austrian rail system and the OBB continue to move forward. Perhaps in preparation for increased intermodal transport, the OBB leased $460 million worth of rail cars and locomotives in July of 1997. It subsequently signed a $599 million lease for marshalling yards (rail car distribution points) in Vienna and Villach. (“OBB Wins Race....,” p. 6) The yards serve to ease the logistics and transfer of cargo along the shipping routes through Vienna and along the Danube. Both moves indicate that the OBB is not willing to become a relic. The government feels that intermodal transport is vital to Austria's future and is willing to invest in it now. Ironically, much of the funding for the new investments in rail projects is the same money that is diverted from road funds. (Senger-Weiss)

The Austrian government has recently enacted the Private Railways Support Law, under which private companies are allowed to finance the installation of high-speed railway systems. The law also exempts private railway companies from corporate taxes, putting them on the same footing as the OBB. (“Make Way for Private Railways,” p. 19) Despite almost zero growth in freight volume, the OBB posted record profits for 1999, due primarily to the acquisition of Express and Interfracht, two hauling contractors. Some analysts believe the OBB used the acquisitions to cover what were actually operating losses. (“Railways Register Record Profit”)

**Austria’s Solution for the Danube**

The Austrian government is also investing in the future of the Danube. Four state-of-the-art ports in Linz, Enns, Krems, and Vienna now handle most of the river traffic. The government invested an additional $787 million in infrastructure improvements along the Danube during the six years from 1994 through 1999. (“Austria,” p. E10) River traffic has been growing in recent years, but remains well below capacity. The other problem with the Danube — Serbia — continues to be difficult to solve. The cost of clearing the river of debris from bridges destroyed by NATO is estimated at only $24.3 million. The 11 nations with access to the Danube have agreed to pay for the clearing of the river in accordance with an Austro-Hungarian plan. The United States and the EU remain firm in their stance not to rebuild the bridges, per EU sanctions. While clearing the debris to make the river passable is not in violation of the sanctions, Serbia will only allow the river to be cleared if the bridges are also rebuilt. (Guzelova, p. 10)

The Austrians are receiving help in their efforts to increase trade on the Danube. The Float Project is an effort to help shippers on the
Danube by providing them with detailed information about shipping loads and schedules that can be handled at different points on the river throughout the year. The project is being funded by a consortium of barge and shipping companies who use the Danube. (White, p. 65)

Austrian Airlines Takes Action

Austrian Air is taking the lead in expanding the country's network of international air travel. Until five years ago when AUA joined the Delta Airlines-led Atlantic Excellence alliance, AUA was limited to local markets and operated in the red. After joining the group, Austrian Airlines reduced its payrolls by 20 percent and focused on being an international carrier, using the hubs provided by Swissair and Delta. ("Austrian Airlines Drafts $265m Capital Increase," p. 10) Austrian Air announced the end of its partnership with Swissair in October 1999 after Delta terminated its agreements with both Austrian Air and Swissair. ("Delta Ends Alliance...," p. 4) Instead, the carrier is aligning itself with the Star Alliance, led by Lufthansa and United Airlines. Mario Rehulka, Austrian Air's CEO, cited the international reach of the Star Alliance coupled with expansion opportunities for the Vienna airport as reasons for the switch. (Sapkinker) United Airlines chairman Gerald Greenwald boasted of a ten percent increase in profits after forming the alliance. (Thomas, p. 63) A similar increase could help Austrian Air enhance its competitive standing. The airline issued new stock in mid-1999 to raise capital and purchased seven new aircraft in an effort to modernize and expand its fleet. ("Austrian Airlines Drafts $265m...," p. 10; Davidson, p. 447)

Austrian Airlines is looking towards a future in eastern Europe. It has already added destinations in Ukraine, Slovakia, Macedonia, and Romania to its network (Benisch, p. 39), as well as cargo flights to Kazakhstan, Moldova, and two destinations in Armenia. (White, p. 65) AUA's scheme for its newly opened neighbors is simply to beat the competition by offering the most services from the most places before other, larger carriers have a chance to step in. (Benisch, p. 39)

The Reward

The efforts by the Austrian government and people to rectify these problems have borne fruit. Several companies, including Hewlett Packard, 3M, and Volvo, use Vienna as their primary distribution center for eastern Europe. The needs of such companies have drawn more than 30 logistics companies to the area as well. ("Austria," p. E10)

The partially privatized Vienna Airport is scheduled to open a new business park in 2000 for other companies wanting to locate their distribution centers in Austria. The aggressive moves taken by Austrian Airlines have provided them with growth prospects of around 14 percent per year in both the regional and long distance markets. (Davidson, p. 447) The alliance between Lufthansa and Austrian Airlines may have other benefits to Vienna as well. AUA will likely vie for decreased competition from its partners in regional flight markets. If Lufthansa agrees to make Vienna an eastern European hub to complement Frankfurt, the Vienna airport could find many new passengers standing in its ticket lines within a few years.

The intermodal system has flourished as well. Nestle, Sony and Novartis use European intermodal systems exclusively for their distribution needs. ("Austria," p. E10) The relative success of intermodal transportation should be a positive signal to the Austrian people. However, the growth of road traffic has outstripped all other transit modes. The burgeoning use of trucks needs to be contained and the growth needs to be shunted to other forms of transportation more capable of handling the large quantities of cargo. Without such a redistribution of growth, inventive intermodal transportation will not prevent the eventual degradation of the Austrian infrastructure.

The Road Ahead

The Austrians are thoroughly aware of the problems faced by their country. The Parliament and large corporations are already taking steps to combat these problems.
However, an alternative course of action may be beneficial to the future of this small nation.

The concept of mixed mode transportation is sound, but perhaps the Austrian government has not taken the idea far enough. A “rolling road” from Graz to the German border is insufficient. To reduce the traffic problems through the Alps while simultaneously reducing the pollution levels in Austria, a new Trans-Alpine tunnel should be built. However, the new tunnel should not be for road traffic. The tunnel should have a dedicated, two-way rail line from intermodal loading stations in southern Germany to Austria. Once in Austria, the rolling road should have branches to the Italian border near Linz, the existing branch to Graz, and a line to Vienna. There should also be lines to connect each of these major end points, where loading ports would be available to load and unload trucks. Existing rails could be upgraded for this purpose to save money. The importance of the 15 Austrian terminals is minimal, since the bulk of the future traffic is likely to be transit traffic crossing the country en route to other destinations. The Vienna spur will become important as eastern European trade flows increase. Spurs to other eastern European countries could be added as their economies develop. The cost of developing the intermodal potential in all of Europe is estimated at only $2.2 billion, or enough to build only 325 kilometers of road. (Bevan, p. 37)

The rail tunnel through the Alps would decrease the number of tunnel accidents by reducing the chances for human error, which was the cause of both fires in the Taurern tunnel. A dedicated dual rail tunnel allows each rail to be used only in a single direction, so cargo can pass safely in both directions simultaneously. As the volume of cargo being shipped increases, more trains can be added to the system.

The success of such a rail system and the existing CombiCargo system depends on two critical factors: price and speed. To achieve a competitive price, the government must be willing to keep taxes and tolls on the rails to a minimum while those on the roads are maintained. An operating subsidy may also be necessary for the first few years. Tight restrictions on cargo through the other existing Alpine tunnels would contribute to the competitiveness of the mixed mode system. Additionally, the decrease in commercial traffic through the tunnels will make them more available to private vehicle traffic.

The speed of the system must be sufficient to make the mixed mode transportation as fast or faster than road transit. Modern technology
allows TGV passenger trains in France to travel at 300 kph. With such technology, designing a cargo train to move at 100 kph is not difficult. The trains would have the advantage of traveling as fast as trucks but without the need to stop overnight while the driver sleeps. The combination of speed and cost makes the mixed mode system very competitive with trucks.

A further enhancement to this system would be connecting the loading station in Vienna with the mixed-mode loading ports on the Danube. Once the Yugoslav passage is cleared, cargo could be shipped from the Black Sea to Italy, Germany, or France, passing through Austria without ever touching the road.

The enhanced mixed mode transportation scheme may actually save the Austrian people money in the long term. Once established, the fees paid by the users of the system will cover its operating costs. Jobs for workers at the loading ports will be created. The traffic on the country's roads will be reduced, extending the life of the infrastructure. Pollution levels will also decline as floating barges and electric trains are used in place of thousands of trucks. The biggest advantage, however, is the potential for economic growth in Austria. As Austria becomes the hub for cargo shipments in central Europe, many more companies needing to move goods around Europe will locate there. Vienna could become the Chicago of Europe.

REFERENCES


