

**The National Socialist Transport Policy and the claim of modernity:
Reality or fake?**

Christopher Kopper
Universität Bielefeld

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Resumen

El programa nacional socialista de construcción de autopistas (*Autobahn*) superó tanto en alcance como en escala a todos los programas de este tipo previos a la guerra, pero no desencadenó una motorización de masas de la sociedad alemana que fuera igual de impresionante. La inesperada fragmentación del poder en el ámbito de las políticas de transporte contribuyó a retrasar el crecimiento del transporte de mercancías por carretera y redujo los efectos que podría haber tenido *Autobahn* como “motor” de la motorización, valga la redundancia. Los constructores de *Autobahn* no tenían interés real en transferir tráfico desde el ferrocarril a la carretera y descuidaron, en *Autobahn*, los parámetros y requisitos técnicos para el transporte por carretera a larga distancia. Incluso la empresa Volkswagen, modelo de éxito en impulsar la motorización de masas después de la Segunda Guerra Mundial, tuvo que soportar expectativas no realistas. Los cálculos financieros para un automóvil económico y popular se basaron más en deseos positivos que en estimaciones sólidas.

Palabras clave

Nazismo, Planes de desarrollo, Política de transportes, Motorización, Autopistas, Industria del automóvil

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Abstract

The National Socialist highway (*Autobahn*) programme exceeded all pre-war highway programmes in scope and scale, but did not trigger an equally impressive mass motorization of the German society. The unexpected fragmentation of power in the area of transport policies contributed to a delayed growth of road haulage and reduced the potential effects of the *Autobahn* as an engine of motorization. The builders of the *Autobahn* were not really interested in a significant shift from rail transport to road haulage and rather neglected the technical requirements and parameters for long distance road transport on the *Autobahn*. Even the Volkswagen, the role model of a successful agent of mass motorization after World War II, was rather overburdened with unrealistic expectations. The financial calculations for a cheap peoples' car were rather built on wishful thinking and than on sound estimates.

Key words

Nazi Regime, Development programs, Transport policy, Motorization, Highways, Automotive industry

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The National Socialist Transport Policy and the claim of modernity: Reality or fake?

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Christopher Kopper (Universität Bielefeld)

1. The National Socialist Autobahn: Myth and controversies

Already in the 1970s, historians deconstructed the claims of the National Socialist propaganda that the German motorway (*Autobahn*) network had a paramount importance for the job creation policy of the Nazi regime¹. In the age of the cultural turn in historiography, and already before, historians like Rainer Stommer, Erhard Schütz, Eckhard Gruber and Benjamin Steininger turned the scholarly focus on the cultural aspects of the *Autobahn*². Since the 1980s, research about the *Autobahn* aesthetics, the symbolism of its monumental signifiers – like bridges – and the artistic staging and propagandistic marketing of the *Autobahn* dominated the scholarly discourses.

This kind of culturalist historiography re-constructed and de-constructed the making of the monumental imagery and the staging of popular fascination. Architecture historians turned their attention to the fact that state-of-the-art building technology (like concrete bridge pillars and bridge cantilevers of steel) was frequently cloaked with pre-industrially hand-masoned stone plates. Thus, historians took the *Autobahn* as another evidence for the contradictory position of National Socialism towards modernity: The combination of technological modernism with cultural parochialism and aesthetic backwardness for which Jeffrey Herf coined the term “reactionary modernism”³. But the term “reactionary modernism” does not do justice to the aesthetics and the engineering of the *Autobahn*. Cloaking functionalist buildings with hand-masoned stone plates

¹ Henning (1978).

² Stommer (1982); Schütz/Gruber (1996); Steininger (2005).

³ Herf (1984).

was a general European tradition since the turn of the century. The architectural form of the *Autobahn* bridges and the rest areas along the motorways was not strictly functionalist in the sense of classical modernism (“form follows function”), but certainly not an irrational and dysfunctional antithesis against modernism.

[98] Interestingly and surprisingly, historians have rather implicitly dealt with the long-term impacts of the National Socialist *Autobahn* for post-war Germany. Dietmar Klenke’s extensive book about the West German road transport policy in the 1950s focused on the popular post-war idea of the free and responsible motorist as the antithesis to the rigid enforcement of road discipline under the Nazi regime, but did not systematically consider the impact of National Socialist road construction for the West German infrastructure policy⁴. Omissions like this are hard to understand from both a culturalist and a socio-economic perspective: First, the German *Autobahn* was (and still is) the most persistent positive myth about the National Socialist rule in Germany. The unprecedented size of the *Autobahn* network (as completed until 1942) compared to the road networks of all other nations symbolized the visionary power of the regime. The *Autobahn* myth only faded very slowly in the communicative memory of the German society, since a growing number of Germans became motorists since the late 1950s and early 1960s. With a delay of two decades, Germans got the chance to share the sensational driving experience on the formerly National Socialist *Autobahn*. Second, the *Autobahn* network of about 3 300 kilometres constituted a substantial infrastructural asset for the Federal Republic of Germany and, even more, for the German Democratic Republic. In the Federal Republic, the existence of an *Autobahn* network permitted the Federal Government (*Bundesregierung*) to postpone major road building programmes until the 1960s, a decade when the most pressing socio-economic problems like post-war reconstruction and housing had already been solved. This was even truer for communist East Germany which was struck far harder by the economic consequences of the German partition and the post-war dismantling of key industrial capacities⁵. As communist economic planning did not consider the upgrading of transport infrastructures a priority, the physical structure of the East German *Autobahn* retained their pre-war materiality up to the late 1980s. Unlike in West Germany after the early 1960s, extensions of the East German *Autobahn* network remained equally scarce as structural upgrades like breakdown lanes, three-lane motorways and modern asphalt surfaces.

2. Enthusiastic road builders –but conservative transport politicians

From a positivist perspective, historians may take the hypothesis of a visionary Nazi road building policy as a given and hardly questionable fact. But both the advocates and the opponents of modernizing effects of the National Socialist rule left the *Autobahn* despite its symbolic significance aside. The scholarly debate about the modernizing impacts of the Nazi rule petered out in the 1990s, leaving the transport policy widely neglected. Even the more recent debate between the economic historians Werner Abelshausen and the late Christoph Buchheim about the contribution of National So-

⁴ Klenke (1993).

⁵ Dossmann (2003)

cialist policies to the quick economic recovery after the Great Depression did not shed new light on the importance of the regime's infrastructure programme⁶.

Apart from the *Autobahn*, the National Socialist government took additional steps to foster the motorization of the German society. The famous Volkswagen project was both highly visionary and ambitious – but the mass production of civilian Volkswagen never materialized in the “Third Reich”. The abolition of the motor tax for all new cars and motorcycles on April 10, 1933, ten weeks after Hitler's appointment as chancellor, looked far less spectacular, but proved to be an efficient booster of private motorization. Owners of used cars and motorcycles equally benefited from the opportunity to pay off all future vehicle taxes in a lump-sum payment⁷. The generous taxation of cars contributed to the fact that Germany was the only major country where the car production grew by the factor six from 1932 to 1937. But the tax level for lorries remained unchanged except for a degression for larger lorries since 1935. Therefore, the motor tax policy did not provide significant incentives for commercial vehicle operators.

Facts like this suggest that the National Socialist motorization policy was homogeneous, quickly implemented, centrally planned and free from contradictions, red tape and bureaucratic infighting. But a closer look at the politics of transport and motorization under the Nazi regime reveals substantial contradictions which were equally opaque for contemporaries and historians. Hitler overruled the concerns of the Ministry of Transport (*Reichsverkehrsministerium*) against a full-fledged abolition of the motor tax⁸ and appointed the civil engineer and enthusiastic road builder Fritz Todt as a plenipotentiary for road construction. The new chancellor endowed Todt with the newly created office of a General Inspector for Road Building (*Generalinspektor für das deutsche Strassenwesen*).

Like in many other political fields, Hitler did not care about a precise demarcation and a systematic reorganization of administrative competences. The Führer and Chancellor did not strive for an administrative centralization of the German transport policy and allowed the Ministry of Transport and the General Inspector for Road Building to coexist and to pursue uncoordinated agendas. Todt despised the existing State Road Building Administrations as too slow, too bureaucratic and incompetent to implement his *Autobahn* construction programme and decided to establish a new public body called “*Gesellschaft Reichsautobahnen*” (Motorway Inc.). As the Ministry of Transport lacked funds to supply the *Gesellschaft Reichsautobahnen*, Hitler enlisted the German National Railroad Company (*Deutsche Reichsbahn Gesellschaft, DRG*) to fund the *Gesellschaft Reichsautobahnen* with an initial equity of 50 million Reichsmark. But despite her nominal position as the only capital holder of the *Reichsautobahnen*, the DRG held no stakes in the *Autobahn* project. Due to her large reservoir of civil engineers, Todt commissioned the DRG to delegate civil engineers of the Reichsbahn to the *Gesellschaft Reichsautobahnen*. Hitler set Todt, and not the DRG, in charge of the *Ge-*

⁶ Abelshauser (1999); Buchheim (2001).

⁷ Overy (1994), pp. 68-89.

⁸ Edelmann (1989), pp. 157-59.

sellschaft Reichsautobahnen. The integration of railroads and motorways was only a nominal fiction and not a fact.

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Which were the consequences of this polycratic institutional arrangement? The Ministry of Transport was staffed with traditionally minded officials with a strong pro-railroad affinity who believed that the DRG should be protected against any uneven and unfair competition from the road haulage industry. The role models and visions of Todt and the transport officials could not be more different. The officials at the Ministry of Transport viewed the DRG, the “the most valuable asset of the Reich” (Alfred C. Mierzejewski)⁹, as an important source of federal revenues –and favoured a market regulation as a legitimate means to achieve this end. The Minister of Transport, the conservative catholic nobleman Freiherr von Eltz-Rübenach, who had already been appointed by Hitler’s predecessor Franz von Papen and stayed in his office until 1937, had no intention to revoke the existing emergency decrees against an open competition between the DRG and the commercial lorry operators. Since October 1931, the freight rates of commercial lorry operators were pegged to the railroad freight rates for transport distances of 50 kilometres and more¹⁰. Germany was not the only European country to restrict the intra-modal competition between lorries and railroads in the course of the Great Depression, but adopted the most restrictive rules in terms of rate settings and capacity ceilings.

The Minister of Transport expected this railroad-friendly regulation to continue after Hitler was appointed as the new Chancellor (*Reichskanzler*) of Germany. When he announced the Undersecretary of the Chancellery that the Ministry of Transport continued to protect the DRG against competition from road haulers, he did not receive any competing orders or reprimands¹¹. The German motor vehicle manufacturers had to settle with the fact that the Ministry of Transport prevented a tax cut, let alone a tax abolition, for lorries and buses. But the CEO of the Deutsche Reichsbahn-Gesellschaft Julius Dorpmüller noticed Hitler’s enthusiasm for motorization and decided to steal the thunder of the road haulage lobbyists with a pre-emptive initiative. Thanks to her status as the biggest German employer and the most important procurer for investment goods, the DRG wielded far greater economic influence and political bargaining power than the road haulage industry. The DRG offered an extension of its investment and procurement plans in order to support the National Socialist drive for a full-fledged job creation programme and kept the political desires of the road haulers and lorry manufacturers at bay.

In March 1933, Dorpmüller presented Hitler a lorry procurement programme that the German Armed Forces (*Reichswehr*) highly appreciated as a step towards the mo-

⁹ Mierzejewski (1999/2000).

¹⁰ Executive order by the Ministry of Transport, October 9, 1931, quoted in: Salzwedel (1985).

¹¹ Letter from the Minister of Transport to the Undersecretary of the Reich Chancellery (Reichskanzlei) Franz Lammers, February 24, 1933, in: Bundesarchiv Berlin, record group R 431, no. 1074.

torization of the infantry¹². But Dormmüller demanded a political price at the expense of the road haulage industry: A monopoly for all road transports beyond distances of 50 km. Dormmüller's idea was to merge rail and road transport under the roof of the DRG – and to force the road haulers to cooperate with the DRG instead of competing with the railroad. The DRG also benefited from the fact that Hermann Göring and the newly appointed Minister for Economic Affairs (*Reichswirtschaftsminister*) Kurt Schmitt (the former CEO of the big Allianz Insurance company) cornered the radicalism of National Socialist anti big business activists for the sake of economic peace. From July/August 1933, the road haulage entrepreneurs were trapped in the defence.

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In January 1934, the rail affinity of the Ministry of Transport and the newly secured position of the railroad lobby became manifest in a draft for a new road haulage law¹³. This new draft demanded nothing less than a Reichsbahn monopoly for long distance road haulage. The private road haulers should be degraded to the position of subcontractors and receive all of their freight business through the Reichsbahn administration, provided they were not entirely pushed out of business with severance payments. The implementation of this draft would have spelled the end of all inter-modal competition between the railroad and the road haulage industry. In an obvious misrepresentation of the existing mode of competition, the Ministry of Transport claimed that this law would finish the ruinous trend of inter-modal and intra-modal competition¹⁴.

In the public and in the inter-ministerial discourses, the DRG and the Ministry of Transport legitimized the suppression of inter-modal competition with the Reichsbahn's political obligation to operate as a commonweal and not as a profit-oriented enterprise. The full control over rates and suppliers in the road haulage sector would allow the Reichsbahn to generate additional profits for the cross-subsidization of her bulk good shipments. This was an important aspect of the commonweal concept that remained undisputed among German transport economists even until the 1950s. The idea of free enterprise and unregulated competition had not yet taken place among the academic transport economists in Germany. Deeply rooted in the intellectual tradition of the German Historical School of Economics (*Historische Schule der Nationalökonomie*)¹⁵, they assumed that the laws of Classical Economics were not applicable on the transport sector because of an inherent tendency towards a ruinous price competition.

The road haulage industry and the German Association of Car Manufacturers (*Reichsverband der Automobilindustrie*) objected, but lacked the political clout to abort this anti-road haulage draft. Only Fritz Todt who enjoyed the privilege of immediate access to the Führer was in a position to prevent the enactment through a personal intervention. Todt's intervention at Rudolf Hess, the "Deputy of the Führer", sufficed for

¹² See the minutes of the senior official Franz Willuhn (Reich Chancellor) about Dormmüller's presentation in the Reich Chancellery in the presence of Hitler, March 16, 1933, in: Akten der Reichskanzlei (1983), Regierung Hitler, 1933, pp. 225-231.

¹³ Minutes of the Reich Chancellery about a new road haulage law, January 1934, in: Bundesarchiv Berlin, record group R 43 II, no. 1075.

¹⁴ Second draft of the road haulage law, July 1934, in: Bundesarchiv Berlin, record group 43 II, no. 752.

¹⁵ Hascher (2006).

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stopping the enactment that was scheduled for the next cabinet meeting. In addition, Todt successfully talked into Hitler not to accept a Reichsbahn monopoly for long distance transports, convincing him that a competition between the Reichsbahn and the road haulage industry was beneficial for the quality of transport¹⁶. As a consequence of Todt's intervention at Hess and Hitler, the draft of the Ministry of Transport never came on the agenda of the cabinet meetings. But the bypassing of the cabinet was not a particular achievement of Todt, but rather a symptom for the dissolution of formal decision-making procedures. The function of the cabinet was more and more hollowed out through Hitler's interventions and the emerging practice of circulating drafts among the ministers.

As a consequence of Todt's intervention, the Ministry of Transport was compelled to set up a new draft with less rigid restrictions for the road haulage industry. The new draft of April 1935 abandoned the idea of a Reichsbahn monopoly for land transport and proposed a mandatory association of all road haulers instead. This new draft met Todt's expectations and was passed on June 26, 1935 in a cabinet meeting¹⁷. The core of the new road haulage law was the institution of the "*Reichs-Kraftwagen-Betriebsverband*" (Reich Trucking Association) with a mandatory membership for all road haulers. The purpose of this association was to prevent any undercutting of the Reichsbahn rates. From this time on, road haulers had to send their invoices to the freight forwarders via the Reich Trucking Association. The function of the Reich Trucking Association was to serve as a clearing agent between the road haulers and the freight forwarders and to prevent any illicit undercutting of the official freight rates.

The Road Haulage Law of June 26, 1935 also introduced a fixed maximum number of trucking concessions for long distance haulage. The first intention of the Reich Ministry of Transport was to prevent bankruptcies as a consequence of a potential gap between supply and demand. The second and more important purpose of the concession limit was to avoid a significant growth of road haulage capacities. Fritz Todt's complaints that this restriction was primarily designed to prevent any competition between the lorry and the train were serious and demonstrated that his political power to implement a motorization-friendly transport policy was limited.

These obstacles for long distance road haulers stood in a strong contrast to the omnipresent National Socialist rhetoric of motorization as a primary political objective. The National Socialist government spent more than 3 000 million Reichsmark for the *Autobahn* construction between 1933 and 1942, but stunted the growth of the road transport. Even the German Armed Forces criticised the negative consequences of the restrictive road transport policy for the supply of lorries¹⁸. The Reichswehr respectively Wehrmacht had a particular stake in growing numbers of heavy trucks that could be

¹⁶ Minutes of the Standing Committee (Arbeitsausschuss) of the DRG, November 27, 1934, in: Bundesarchiv Berlin, record group R 5 (Ministry of Transport), no. 9187.

¹⁷ Draft of the Ministry of Transport for a road haulage law, April 3, 1935, in: Bundesarchiv Berlin, record group R 43 I, no. 1076.

¹⁸ Minutes of *Ministerialrat* Schönleben (Deputy of Fritz Todt) about a meeting in the Ministry of Transport, February 26, 1937, in: Bundesarchiv Berlin, Generalinspektor für das Straßenwesen, record group R 46.01, no. 584.

drafted for military use in war times – trucks of a size that was predominantly used for long distance transports.

Under these conditions, even the construction of the extensive *Autobahn* network did not generate a significant incentive for road haulage companies to invest in heavy lorries. Lorry operators certainly benefited from the shorter travel distances and the higher average speed on the *Autobahn*. Test rides indicated that lorry drivers saved about 30% of travel time and fuel compared to regular roads and reduced their expenses on fuel, tires, wear and tear by about 6 RM for every 100 kilometres¹⁹. But the freight rate legislation prevented the commercial lorry operators from turning these external savings into rate cuts for their freight forwarders and a competitive edge against the rail. Road haulage enterprises had to apply the Reichsbahn freight rates one to one and, in addition, had to use the railroad – and not the road distance – for their price calculation, even if the road distance was more than 30% shorter²⁰.

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The price system for road haulage was static, not flexible, and rather discouraged than encouraged innovations in trucking technology and management. On the Generalinspektor's urgent request, the Ministry of Transport finally abolished the mandatory surcharge for house-to-house-delivery by trucks. This was a common surcharge for rail transports that did not make any technical or economic sense for the road haulage²¹. But this modification could not change the unfavourable trend for the road transport: The annual turnover of the long distance road haulers dropped from 175 million RM (1935) to 150 million RM in 1936²². In a research publication on the vehicle frequency on the *Autobahn*, an official of the Generalinspektor could not help to admit that the "lorry traffic can currently not fully exploit the facilitation of traffic due to certain restrictive measures"²³.

3. Aesthetic and economic objectives of the *Autobahn* from an international perspective

From the perspective of today, the construction of the *Autobahn* network looks like a visionary endeavour. Road transport would never have emerged as the dominant transport mode without the extensive infrastructural capacities of motorways. As demonstrated before, political constraints inhibited the *Autobahn* from becoming a powerful catalyst for road transport and the growth of the trucking industry.

There are several significant arguments that the *Autobahn* was primarily constructed for cars, motorcycles and buses, with only a subordinate priority for lorries. In an attempt to apply Richard Wagner's concept of a comprehensive artwork (*Gesamtkunstwerk*) on a large technological artefact, Todt designed the *Autobahn* as a

¹⁹ Ostwald (1938), pp. 25-31, 59-65; Hoffmann (1938), pp. 29-42.

²⁰ Letter from the Reich Trucking Association to the General Inspector for Road Building, February 5, 1937, in: Bundesarchiv Berlin, record group R 46.01, no. 584.

²¹ Ibid.

²² Letter from Scholz (Reich Trucking Association) to the Ministry of Transport, November 4, 1936, in: *ibid.*

²³ Hoffmann (1938), pp. 36f.

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comprehensive technical artwork (*Technisches Gesamtkunstwerk*) with an artistic adaptation to the landscape and carefully designed bridges, rest stops and maintenance buildings. Todt and his architects and civil engineers aspired for a staged driving experience, allowing the drivers to enjoy the full variety of German landscapes and scenic vistas from behind the windshields of their cars. Therefore, the *Autobahn* between the start and the end of a single motorway segment (e.g. between Munich and Salzburg)²⁴ was not meant to be the most efficient route in terms of construction expenses, travel time and convenience, but the aesthetically most appealing and demanding route. But the concept of staging a driving experience was not Todt's invention and no exclusively German achievement. In the late 1920s, the Italian road planner Puricelli designed the rather recreational than commercial motorway (*autostrada*) between Milano and the resort town Como, and American planners built parkways for recreational travel purposes both on Long Island and in the Blue Ridge Mountains. But the German *Autobahn* was never built as a recreational parkway for excursionist and vacationers, but as a motorway for universal purposes. Apart from this, the first Italian *autostrada* was a privately funded toll road project. Private investors – and not the government – ran the risk of wasting money for an erroneously designed infrastructure.

The *Generalinspektor für das deutsche Strassenwesen* did often, but not always pursue aesthetic objectives. In some cases, he opted for the shortest and most cost-efficient route. In instances like this, e.g. the *Autobahn* between Frankfurt and Mannheim and between Hamburg and Bremen, the motorway ran through lowlands with no particular vistas. In these cases, the landscape and the topography did not invite the planners to implement a rhythmic road design or to open spectacular vistas to the drivers.

The case was different when Todt's engineers routed the *Autobahn* through a hilly or a mountainous terrain. Todt and his engineers took the necessary adaptation to the topographic conditions as an aesthetic challenge and an aspiration for the most scenic route. In many instances, the beauty of the route ranked higher than the search for the lowest gradients or the widest curve radius.

The objective of aesthetic routing often resulted in steeper gradients than necessary. On some stretches of the *Autobahn* like between Munich and Salzburg and between Frankfurt and Göttingen, occasional gradients of 1 in 14 (7%) were not adapted to the limited engine power of lorries. Gradients of 1 in 14 slowed lorries down to 10 km/h. In these cases, the scenic routing over hilltops voided most of the time and fuel saving effects of the *Autobahn* for trucks²⁵. The technical shortcomings of the *Autobahn* design and the restrictions of inter-modal competition were the most important reasons why the traffic frequency of lorries stayed behind the road planners' expectations. From October 1936 to September 1937, traffic counts registered a daily average of 360 lorries on the *Autobahn* and 200 lorries on the *Reichsstrassen* (reich roads)²⁶. These numbers

²⁴ Vahrenkamp (2010), pp. 169-215.

²⁵ Ostwald (1938), pp. 52-61.

²⁶ Hoffmann (1938), p. 38.

testified the fact that the *Autobahn* was lagging behind the objective to foster a revolution in motorized transport.

Still in the early 1950s, lorry drivers on the heavily travelled way from Cologne to Frankfurt preferred the longer, but gradient-free road through the Rhine valley to the shorter, but steeper route on the *Autobahn*. From a purely technical point of view and from the perspective of commercial users like lorry operators, lower gradients definitely had a higher priority than the beauty of the driving experience. But in Todt's hierarchy of objectives, the prosaic needs of professional lorry drivers occasionally ranked behind the desires of the pleasure-oriented car driver and the passengers of tour buses. The omission of the lorry traffic on the *Autobahn* in Todt's official journal *Die Strasse* (The Road) was not a coincidence, but represented the status of commercial transports among the planners' objectives.

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In the political discourses of Nazi Germany, Fritz Todt never needed economic arguments for the justification of the *Autobahn* project. As the political propaganda elevated the *Autobahn* to the prestigious status of "roads of the Führer" (*Strassen des Führers*), any kind of criticism was informally outlawed, no matter whether criticism emerged from a technological, a regional planning or an economic point of view. The National Socialist modernity in road building and transport was non-reflective and lacked any traits of an open and free expert discourse.

Todt deliberately ignored all doubts about the scale of the *Autobahn* project. He did not even respond to the counter arguments of the expert association *Studiengesellschaft für Automobilstrassenbau* (Research Association for Motorways) that the *Autobahn* was oversized and overly expensive for a country with a low motorization like Germany²⁷. Even unpublished criticism by a professional expert triggered a stiff reprimand from Todt. Todt threatened the renowned university professor for road construction Georg Halter (Technical University of Munich) with the dismissal from his office if he continued to send critical memos about the *Autobahn* route from Munich to Salzburg to cabinet members²⁸. Professor Halter dared to question the demand for high-speed roads in a nation where even a full professor like him did not dispose over a sufficient income to maintain a car. He considered Todt's favourite route from Munich to Salzburg as wasteful, as this more scenic route claimed additional expenses of eight to ten million Reichsmark. Halter's political biography was far from being suspicious. He had joined the National Socialist Party already 14 months before the Nazi seizure of power and started his memorandum with the disclaimer that he did not mean to "interfere into the Führer's intentions". But Todt charged Halter of having "inciting class hatred" and equated the professor with the outlawed Social Democrats.

Unlike most transport economists, Todt based his plans on a very long time line and did not expect a reflow of profits on his investments before the end of the decade. Like many other public construction projects of the Nazi Era, the *Autobahn* was meant

²⁷ Letter of the Studiengesellschaft für Automobilstrassenbau to Todt, May 17, 1933, in: Bundesarchiv Berlin, record group 46.01, no. 779.

²⁸ Schütz/Gruber (1996), pp. 20f.; Vahrenkamp (2010), pp. 203f.. See Halter's memo in Bundesarchiv Berlin, record group 46.01, no. 1307.

to be built for eternity. Todt considered the question of short-term and even medium-term profitability as inadequate for the secular significance of the *Autobahn* project

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In spring 1936, the Ministry of the Treasury (*Reichsfinanzministerium*) raised some doubts about the economic efficiency of the *Autobahn* and commissioned the *Reichsstelle für Raumordnung* (Reich Agency for Regional Planning) to write an expertise. Todt's unwillingness to cooperate caused a delay of several months before the *Reichsstelle für Raumordnung* could even start their research. The expert opinion was not completed before June 1937 – and contained some critical remarks about the (ir)rationality of road planning under the Nazi regime. The regional planners testified that Todt's office had sometimes given priority to *Autobahn* routes with a lesser importance for spatial development and transport (like from Munich to Salzburg and from Elbing to Königsberg) because a deficit in rational planning²⁹. Aesthetic reasons and the ambition to build a model *Autobahn* had certainly influenced Todt's decision to prioritize the route between Munich and Salzburg despite the low traffic frequency and the limited importance for the regional Bavarian and for the Reich economy. Todt was in such an unchallengeable position towards the *Reichsstelle für Raumordnung* that he did not even bother to mail a response³⁰.

The traffic frequency on the *Autobahn* between Munich and Salzburg was even rather low in 1938, the last year of a continuous motorization growth before the war started. Even on the four peak days around Whitsuntide, traffic surveyors of the *Generalinspektor für das deutsche Strassenwesen* only counted 45 000 motorized vehicles respectively a daily average of 11 250³¹. Todt's traffic surveyors had deliberately chosen Whitsuntide for counts, since Whitsuntide was the prime time for excursion traffic. The traffic frequency on regular workdays ranked 50% below the peak days around Whitsuntide. The average workday load of 5 000 to 6 000 vehicles was certainly not sufficient to justify the *Autobahn* between Munich and Salzburg. The traffic on the *Autobahn* between Elbing and Königsberg in the remote province of Eastern Prussia was ridiculously low and only amounted to 3 000 vehicles on the four Whitsuntide days. Hitler's and Todt's decision to prioritize the route between Elbing and Königsberg was certainly influenced by the intensive lobbying of the East Prussian Nazi *Gauleiter* Erich Koch who had aggressively rallied for a full-fledged job creation programme in his province. The provincial lobbyist Erich Koch exploited the fact that the economically backward Eastern Prussia owned the status of a potentially vulnerable border province in the far east of the Reich – and had scored the highest results for the Nazi Party in the last free general elections in March 1933. Therefore, some priority decisions for the construction of the *Autobahn* network are only explicable by non-transport related rationalities and by the specific structures of power in Nazi Germany.

²⁹ Expertise of the *Reichsstelle für Raumordnung* „The importance of *Autobahn* routes for regional planning“, June 1937, in: Bundesarchiv Berlin, record group 46.01, no. 2176.

³⁰ See the draft of a written response of Schönleben (*Generalinspektor für das deutsche Strassenwesen*) to the *Reichsstelle für Raumordnung*, undated (1937), in: Bundesarchiv Berlin, record group 46.01, no. 1356.

³¹ Vahrenkamp (2010), pp. 234f.

Only a few transport economists like Professor Carl Pirath (Technical University of Stuttgart) did research about the economic effects of the *Autobahn* network. As Todt and his fellow road planners did not consult experts in transport economics in the course of their decision process, most of their publications passed unnoticed by the decision makers. One of Pirath's publications about transport and regional planning demonstrated the beneficial effects of the *Autobahn* for road transport in rural areas, but had no impact on the planners' bounded rationality³².

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4. The Volkswagen: A National Socialist success story?

Like no other project apart from the *Autobahn*, the Volkswagen (VW) epitomized the Nazi regime's ambition to foster individual mobilization. From a retrospective perspective, the Volkswagen looked like the most successful and the most persistent achievement of national Socialist motorization policy. As close to 50% of all Volkswagen cars were exported in the 1950s and 1960s, the Volkswagen emerged as the most visible and the most popular world wide symbol of West Germany's post-war "economic miracle" (*Wirtschaftswunder*).

Between 1946 and 1978, more than 15 million Volkswagen were manufactured in the VW main factory in Wolfsburg. The manufacturing of the Volkswagen in the Mexican VW subsidiary even continued until the 1990s. These facts testified the longevity of its technological concept and the visionary power of the Volkswagen founders and contributed to the popular image that the Volkswagen was one of the few untainted success stories of the National Socialist rule.

The idea to adopt the fordist concept of a mass-manufactured, robust and inexpensive car for the broad mass of the people was certainly a brainchild of Hitler. Hitler was the first prominent German who publicly suggested to develop and build a peoples' car (literally translated: *Volkswagen*) for the German market. The more recent historiography has presented profound evidence that Hitler was both moved by his fascination for Henry Ford and his concept of the Ford T (respectively Ford A) and by the visionary impetus of an inexpensive car. The realization of the Volkswagen should support the National Socialist propaganda concept of a German *Volksgemeinschaft* (community of the German people), a society where traditional class barriers were overcome by equal opportunities – with a characteristic limitation to socially deserving, able-bodied and pure-bred "Aryans".

After his public announcement of a peoples' car at a prominent occasion - the opening ceremony of the International Car Fair in Berlin in March 1934 -, Hitler commissioned the German Association of Car Manufacturers (*Reichsverband der Automobilindustrie*, RDA) to develop a car at a retail price of 1 000 Reichsmark, a fuel consumption of not more than five litres per 100 km, overall operation costs of only 0.06 RM per 100 km, a seating capacity for three adults and one child and a maximum speed of 80 km/h³³. As Hitler's idea of a price limit of 1 000 RM was based on political sym-

³² Pirath (1938).

³³ Mommsen (1996), pp. 56-63.

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bolism and wishful thinking and not on rational price calculations, the RDA found itself in a hopeless position. The RDA picked the independent car engineer Ferdinand Porsche to set up a concept for a peoples' car. Porsche equipped his first prototype of 1936 with an air cooled four cylinder four stroke rear engine and a characteristic beetle-like body, a technological concept that was already close to the future Volkswagen. But even a calculated price of 1 600 Reichsmark did not prompt Hitler to cancel the Volkswagen programme³⁴. Hitler demonstrated his characteristic ignorance and contempt for sober calculations of businessmen and still believed that the mass production of Volkswagen at a price of 1 000 RM could be achieved by a "triumph of the will", the proverbial title of the acclaimed film of his favourite film director Leni Riefenstahl.

Hitler's decision to go ahead of the Volkswagen project was partly based on his faith in the power of self-fulfilling propaganda, partly on his admiration for Ferdinand Porsche. The "Führer" regarded Porsche as a technological genius and visionary maverick. As Hitler rediscovered his own personality in Porsche, he considered the car engineer as a spiritual soulmate with a specific predestination that others were unable to see. The whole Volkswagen project would have died if the National Socialist organization *Deutsche Arbeitsfront* (German Labour Front, DAF) and its affiliate "*Kraft durch Freude*" (Strength through Joy, KdF) under its equally ambitious and assertive leader Robert Ley had not adopted the Volkswagen for the vision of becoming Germany's biggest car manufacturer³⁵.

But the calculated price of the Volkswagen even rose to 1 750 RM, despite the fact that the KdF designed a state-of-the-art car factory with the most modern equipment for a fordist manufacturing. The projected capacity of 300000 cars per year was sufficient to use the potential scale effects and not too high to skim off the calculated demand for a car with a price tag of 990 RM³⁶. Until 1941, the Volkswagen sales organization sold off delivery contracts for 300 000 cars. This was certainly a sufficient number to ensure the start of a full-scale production after the expected "final victory" of Germany. But the bosses of the DAF were notoriously ill prepared to cope with the self-inflicted gap between highly underrated costs and fixed revenues. The future Volkswagen owners had signed savings plans with an obligation to invest five Reichsmark every week until the amount of 990 RM was reached. But the inflowing money was already invested in the construction of the expensive factory and the new company town called "Stadt des Kdf-Wagens" (renamed Wolfsburg after the war). The idea to build a separate city in a rural area in the geographical centre of Germany had nothing to do with anti air raid protection. Due to its location along the Mittelland Canal, British bomber fleets did not face significant problems when they navigated their way to Wolfsburg in 1944 and 1945. The DAF had to provide housing for the future workers – and was ridden by the ambition to create a perfect city for the envisioned classless *Volksgemeinschaft* (community of the German people).

³⁴ Ibid, pp. 71-113.

³⁵ Ibid., pp. 133-154

³⁶ Ibid, pp.191-197, 203-226,

The ambitious plan to locate the Volkswagen factory in a rural area with no significant industrial manpower compelled the KdF to significant investments in infrastructure and required higher overhead expenses than usual. Like in a Ponzi scheme, the KdF needed a constant inflow of fresh money to ensure that their organisation was not running out of funds before the factory was completed. The Volkswagen saving plan saved the KdF substantial expenses on interest, but seduced their management to mortgage the financial solidity of the whole enterprise.

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As a consequence of the war, none of the 300 000 Volkswagen savers ever received a car – let alone for the promised price. Ironically, the gradual conversion of the Volkswagen plant into a jeep manufacturer prevented the KdF from a public oath of manifestation and from filing for bankruptcy. The procurement rules of the *Wehrmacht* permitted suppliers to charge the full cost price plus a calculated profit of four percent. The military version of the Volkswagen – the “Kübelwagen” (VW 82) – that went off the assembly lines from 1941 was sold at a cost-equivalent price of 4 000 RM, four times the envisioned price of a civilian Volkswagen. Despite all disclaimers that a counter-factual argumentation is always risky and methodologically questionable for historians: There is a high probability that a substantial number of Volkswagen savers would have cancelled their saving plans if the KdF had charged a realistic, cost-equivalent price of 1 750 RM after a German “Endsieg”.

5. Conclusions

The case of the road haulage demonstrates that the National Socialist transport policy set ambitious goals for the motorization of the German society, but squandered parts of the potential success in polycratic conflicts and incoherent policies. The transport policy of the “Third Reich” was divided between competing agents that could not agree on a common motorization agenda as a consequence of conflicting economic interests. Even the National Socialist *Autobahn* planning was not free of irrationalism despite the visionary horizon of planners. The construction of a motorway network came rather premature if the low degree of motorization in Germany even in the last years before the war is considered. A breakthrough of the individual motorization required far more time than the Volkswagen managers had expected. As the demand for new Volkswagen at a realistic cost price of 1 750 RM would have dropped significantly under *ceteris paribus* conditions (no other variables changed), the individual mass motorization required a substantial rise of real incomes – which the Nazi regime was incapable to achieve.

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