

The Politics of Timetable Planning: Comparing the Dutch to the Swiss

F. Avelino Dutch Research Institute for Transitions, Erasmus University Rotterdam, avelino@fsw.eur.nl

M. te Brömmelstroet Universiteit van Amsterdam, M.C.G.teBrommelstroet@uva.nl

G. Hulster Railforum, hulster@railforum.nl

Bijdrage aan het Colloquium Vervoersplanologisch Speurwerk 2006,

23 en 24 november 2006, Amsterdam

Inhoudsopgave

1	Introduction	4
2	Asking Phonetic Research Questions	4
3	Nuts and Bolts of Timetabling	6
4	Timetable Politics in the Netherlands	7
4.1	Context of the Dutch Railways	7
4.2	The Story of Dutch Timetable Planning	8
5	Timetable Politics in Switzerland	11
5.1	Context of Swiss Railways	11
5.2	The Story of Swiss Timetable Planning	12
6	Comparing the Swiss and the Dutch Politics of Timetabling	15
6.1	Characterising Dutch Timetable Politics	15
6.2	Characterising Swiss Timetable Politics	17
6.3	Characterising Differences	18
6.4	Conclusion	19
	References	20

Samenvatting

De Politiek van Dienstregeling Ontwikkeling: Nederland en Zwitserland Vergeleken

In dit paper staat een vergelijking van de Nederlandse en Zwitserse politiek rondom de ontwikkeling van treindienstregelingen centraal. Dit onderwerp wordt vanuit een sociaalwetenschappelijk oogpunt benaderd, met behulp van onderzoeksmethodes voorgesteld door Bent Flyvbjerg. Het theoretische en methodologisch raamwerk bestaat uit (I) het vertellen van de ‘verhalen’ (narratives) van de Nederlandse en Zwitserse dienstregelingen zoals ze zijn ontwikkeld in de laatste decennia, waarna (2) de fronetische onderzoeksvragen voor de twee cases worden behandeld; (II) waar komen we vandaan en waar gaan we heen met de dienstregeling; (II) wie wint en wie verliest, en door middel van welk machtsmechanisme; (III) is deze ontwikkeling wenselijk en; (IV) wat, zo nodig, doen we daaraan? Door de antwoorden voor de twee cases te vergelijken, kan in de conclusie van het paper een antwoord gegeven worden op de hoofdonderzoeksvraag; wat zijn de karakteristieke verschillen tussen de Nederlandse en Zwitserse dienstregelingpolitiek en wat kunnen we in Nederland leren van de Zwitsers op het gebied van dienstregelingontwikkeling?

Summary

The Politics of Timetable Planning: Comparing the Dutch to the Swiss

This paper addresses timetable politics by comparing the timetable planning approach in the Dutch rail sector to the Swiss rail sector. This issue is approached from a social science perspective, with the aid of research methodologies as presented by Flyvbjerg. The theoretical and methodological framework will consist of first telling the ‘stories’ (narratives) of the Dutch and the Swiss timetables as these have developed over the past few decades and subsequently asking four ‘phronetic’ research questions about these two cases: 1) where are we coming from and where are we going with planning, 2) who gains and who loses, and by which mechanisms of power, 3) is this development desirable and 4) what, if anything, should we do about it? By comparing the answers given for each case, the conclusion of this paper provides an answer to the following main research question: what are the most characterising differences between the Dutch and the Swiss timetable politics and what can the Dutch learn from the Swiss on timetable planning?

Keywords: Dutch & Swiss rail sector, timetable politics, phronetic planning research

1 Introduction

This paper aims to increase understanding of the politics surrounding timetable planning in the rail sector, and to develop useful planning recommendations on the basis of these insights. We will do so by comparing the timetable politics in the Netherlands to the timetable politics in Switzerland and questioning what the Netherlands can ‘learn’ from Switzerland. We will follow Flyvbjerg’s (1998, 2001, 2004) methodological approach to social sciences. In the next paragraph we explain why we choose to take this ‘phronetic’ approach and we also present our theoretical framework to do this systematically. In the third paragraph we present some basic ‘timetable concepts’. The fourth paragraph will tell the story of timetable planning as approached by the Dutch Railways, and the fifth paragraph will do the same for its Swiss counterparts. Subsequently we analyse and compare both cases by answering the four phronetic research questions for each case. Comparing those answers will lead to conclusions in which we will discuss the lessons that the Dutch timetable planners could draw from their Swiss colleagues.

2 Asking Phronetic Research Questions

A large part of the literature on the rail sector focuses on technological, institutional and economic considerations of existing infrastructures and organisational structures. Policy recommendations are often given at the end of such studies and are often based on conclusions regarding cost efficiency. Even though many of these accounts are based on quantitative data and ‘hard’ figures, authors still seem to disagree on various fronts in their conclusions and recommendations: when there is a debate about what to do or not to do in the transport sector, opinions on both sides of the debate can be ‘backed up’ by some technological or economic report (see for example Bosnall, 2004, Brink & Van Wee, 2001, Ierland et al., 2000, Rienstra et al., 1999 and Wortelboer van Donselaar & Linde, 1999). A sociological researcher, Flyvbjerg has elaborately illustrated how this ‘phenomenon’ works within public administration processes in his book on ‘Power and Rationality’ (1998). On the basis of a in depth case study of transport planning policies, the author demonstrates how ‘rational’ arguments are used to *rationalise* decisions that have already been taken *beforehand*, and rarely the other way around. As such, the author claims that public planning and decision-making is mostly based on interests and relations of power, while ‘rational’ arguments such as economic or technological considerations are only used afterwards to ‘legitimise’ the decisions. Therefore, technological and economic cost-benefit analyses carry an aura of ‘rationality’ and ‘objectivity’ that may be overestimated.

From these insights it follows that in order to research the policy choices regarding public systems such as the rail system, it is necessary to first understand the relations of power underlying this rail system. As such Flyvbjerg argues that it is crucial to understand existing relations of power, and that it should be the task of social scientists to research the effect of power in planning processes. Furthermore Flyvbjerg stresses that social scientists shouldn't be afraid of making 'normative judgements' about their object of study, as long as such judgements are based on the right research questions. In an attempt to 'making social science matter' (2001) Flyvbjerg criticises the tendency of social scientists to 'imitate' the natural sciences by trying to develop 'laws' and 'theories'. The author proposes *phronesis* as a way out of this positivistic trap. 'Phronesis' is a concept variously translated as practical wisdom, practical judgement, common sense or prudence.¹ Phronesis is contrasted with pure scientific knowledge (episteme) and technical knowledge (techne) by involving values and "the art of judgement" (Flyvbjerg, 2004: 284). On the basis of the phronesis concept, Flyvbjerg and other authors call upon social scientists to make practical judgements on the basis of their observations.

In order to do so Flyvbjerg has developed a method for 'phronetic planning research' (2004), which basically means the research of (public) planning on the basis of the phronesis principle. At the basis of 'phronetic planning research' Flyvbjerg mentions three principles:

First, the rationalism typical of most of the schools of planning thought that influence planning research should be given up, from the rational planning paradigm to the knowledge/action theory of planning to the communicative paradigm. The taken-forgranted 'truths' about the rational and progressive promise of planning should be replaced by an analysis of these truths, and of planning, in terms of power. Second, the problems that matter to groups in the local, national, and global communities in which we live should be addressed, and this should be done in ways that matter. Finally, the results of research should be communicated effectively and dialogically to fellow citizens and their feedback should be carefully listened to. (Flyvbjerg, 2004: 284)

Furthermore, there are four basic questions to be asked for 'specific instances of planning': 1) where are we coming from and where are we going with planning, 2) who gains and who loses, and by which mechanisms of power, 3) is this development desirable and 4) what, if anything, should we do about it? (Flyvbjerg, 2004:290). However, before one can ask such questions about a case, one must first give a proper description of the object of study. To do that, Flyvbjerg (1998) uses the method of "narratives", described as a way to gather information on events and practices and then structure these into a storyline in terms of actors,

¹ The phronesis concept has been elaborated on by various authors besides Flyvbjerg, such as Anna Loeber (2004) who refers to Arendt, 1968; Beienr 1983; Hoppe 1983, 1993; Jennings 1987; Van de Graaf & Hoppe 1989; Torgersom 1995, Ruderman 1997

place, time and context. These story lines are in first instance ‘told’ *without* theoretical judgments or conclusive analysis.

As presented in the introduction, we wish to gain understanding of the politics surrounding timetable planning in the rail sector, and to develop useful policy recommendations on the basis of our insights. In order to allow some relative perspectives, we compare the timetable politics in the Netherlands with the timetable politics in Switzerland. We will use the abovementioned method of narratives to describe our cases, and we will use the four phronetic research questions to analyse and compare our cases.

On the basis of that comparison we finally answer our main research question; in which case does timetable planning function ‘better’, what can the two cases ‘learn’ from one another and which policy / planning recommendations can we develop on that basis? This paper is based on evidence from policy papers and interviews. In the Netherlands M. van Witsen who worked on *Spoorslag 70* and *Rail 21*, and A. Bruijn who works on timetable 2007 were consulted and in Switzerland Dr. M. Giger Head of department Railway network of the Swiss ministry of transport. The interviews were taken after the cases had been described. Respondents were asked to give their opinion about what we saw as the politics of time tabling, and our description was adapted on the basis of their comments. In this way we tried to leave interpretation to the respondents, who can be considered as sociological experts themselves (Latour, 1996).

3 Nuts and Bolts of Timetabling

The introduction of a new railway timetable is always controversial news. The recent discussion following the proposed timetable 2007 in the Netherlands are no exception². Every new timetable will reshuffle what connection to which cities in what frequencies and speeds are to be expected. Some will gain and others will loose.

Before we introduce the two cases, we will unravel some of the building blocks of timetabling. The Dutch and Swiss timetables are used as examples of *regular & integrated* (R&I) timetables³. *Regular & integrated* (R&I) may seem much more complicated than *conventional* timetables. In R&I time tabling trains have to depart all at regular intervals and arrive at regular intervals. Secondly, as trains have to arrive at nodes at the same time in-between journey times between nodes has to be the equal. Therefore alignment or driving speeds between nodes have to be adjusted. For R&I time tabling not only travel times

² Only in NRC 20 articles were published in the first half of 2006.

³ Hansen (2004), Johnson (2006), Wardman (2004) en Werner (1983)

between nodes have to be exact, but also the distribution of train sets, train drivers and attendants should be fixed. A delay on each of these factors will affect many other trains. Chance has to be diminished, control almost complete. Therefore devoted staff competent to repair irregularities is crucial. R&I time tabling means coordinating such diverse variables as: infrastructure, safety equipment, accelerating characteristics of train sets, and staff in a context of optimizing economical viability, political- and public opinion. Economical viability depends on the amount of passengers and commercial speed – which optimizes the use of trains and staff. The amount of passengers depends on the travelling time (as little stops as possible) and the amount of people within reach (as much stops as possible). Public opinion demands reliable and frequent trains with as little transfers and in between stops as possible. But most of this can be said for conventional timetables as well. Connections are also common ground in conventional timetables. But as trains are not patterned – or are patterned in daily or weekly routines – it is much more difficult to compare one situation to another. In R&I routines are exactly the same every hour - or half an hour. This makes the development and maintenance of such a pattern relatively simple: you only need to draw the scheme for one hour and then copy it to the rest of the day.

Much of the discussion in timetables is concentrated around *capacity*. Capacity is the amount of traffic a given infrastructure can handle. A certain amount of capacity is necessary for a certain timetable. But it works the other way round as well. Capacity will increase when the timetable is less complex. The differences in speed between trains with many stops and trains bypassing stations are the main factor. On metro lines, where all trains stop at every station, intervals up to 90 seconds are possible whereas in-between time increases dramatically on lines with mixed traffic. Extra tracks or bypasses may decrease the interval time. Capacity therefore is dependent of the configuration of the infrastructure and the timetable.

4 Timetable Politics in the Netherlands

4.1 Context of the Dutch Railways

The Netherlands are a typical transit country. A substantial part of the BNP is earned by transferring freight from deep-sea harbours back and forth to the hinterland (mainly Germany). European unification plays a crucial role in this – e.g. breaking down trade barriers – and was therefore readily embraced from the very beginning. (te Brömmelstroet 2005, 2006). Moreover, the Netherlands have a long tradition of *polderen* – a way of solving problems by gathering consensus with a primary focus on process. The Netherlands have

approximately 16 million inhabitants, mainly concentrated in the western part of the country called the *Randstad*. The Netherlands are among the most densely populated countries in the world. Its structure is polycentric with many centres at small distances, resulting in dispersed heavy traffic both ways between cities all day long.

There is one incumbent (NS) for the core network for passenger traffic and several for freight. NS is separated in 4 regional passenger units. Only recently did lines in rural areas get tendered out – according to European rule. New TOC's (among which a regional branch of NS) are running trains on these lines. These developments coincide with the de-concentration of responsibilities regarding transit issues to local governments – called provinces or *stadsregio's*, i.e. urban regions. The railway network in the Netherlands is the top three of train frequencies per kilometre track (website ProRail and SBB). Compared to metro networks like that of New York, Madrid or Paris this may seem exaggerated. Comparing the Dutch rail network with metro networks may seem fair considering the scale and amount of traffic but is inconsistent with the provided services. Most metro networks only serve point to point connections with trains driving in the same pattern⁴ whereas the Dutch network provides many different types of services (slow-, intercity and freight trains) each having their own speed, acceleration and stopping characteristics. Dutch railway services are highly interrelated with alternating direct services between many different destinations. Moreover in the Netherlands countless moveable bridges and road crossings take their share on the available capacity. Underlying all this we find a highly sophisticated timetable. The origin of this timetable can be traced back to 1938.

4.2 The Story of Dutch Timetable Planning

In 1938 the Dutch national Railways were the first to introduce a R&I timetable with (1) trains on precisely the same minute every hour (30 or 60 minutes *takt*), (2) interchanges on all big nodes and (3) a clear division between 'slow' and 'fast' trains. Until then timetables were like flight schemes with separate trains running to specific destinations. R&I timetables are advantageous for travellers as they don't have to remember every single train, but just need to learn one and by that know every train⁵. Besides, the amount of *possible* travels (Kaufmann 2002 calls this *motility*) is increased enormously. On the other hand individual trains run

⁴ In New York fast metro services are provided. But these are running on separate tracks.

⁵ From a psychological perspective, increased clarity lowers travel impedance and thus (at least theoretically) will result in more people choosing this mode of transport (Annema 2002).

slower⁶. The introduction of R&I decreases journey times for many people as transfer time is reduced (Johnson, 2006). Based on (positive and negative) experiences from the Netherlands, other countries also planned – or considered - R&I timetables.

In the late 1960's railways throughout Europe were in need of structural state funding. (van den Noort 1989). At the same time it became clear that railways still played an important role in national mobility. Even before the two oil crises of the early 1970s, the Dutch government decided to invest in the Dutch Railways on a large scale. The NS had been independent of state funding until then (van den Noort 1989). As economical viability was the main objective to the general director of NS it was a common practice to close down lines and shrink service. In the late 1960's it became clear that NS wouldn't survive without state funding. As the Dutch government decided to fill the cap NS policy shifted from economic targets to social targets. Public transport and rail transport were seen as an important condition for the development of individuals (van den Noort, 1989). NS proposed a further enhancement of the 1938 timetable – called *Spoorslag 70* (Nederlandse Spoorwegen, 1969). In one year the amount of daily running trains rose by a staggering 40%. Because most of these extra trains ran during off peak hours no new infrastructure and no new trains were needed. For the first time half hour intervals were introduced.

In the new timetable all trains met at symmetry point .17 and .47⁷ at intercity stations like Utrecht, Zwolle, Leiden etc. This facilitated seamless transfer possibilities with other modes of public transport. A clear distinction between fast and slow trains was further enhanced as the first stopped at all stops while the latter stopped only at major stations.

In the middle of the 70's growth following the introduction of the new timetable flattened. In 1977 NS considered a yearly shrinkage of 1% inevitable (Nederlandse Spoorwegen 1982), as more and more people bought a private car. In 1979 patronage started growing again and plans for new infrastructure were developed and accepted by the Dutch Government. In the 80's some major improvements of the network were taken up, to improve capacity and reliability (Nederlandse Spoorwegen 1982). The next important phase coincided with the 150th anniversary of railways in the Netherlands (van den Noort, 1989). In 1989 NS proposed a speed increase of intercity trains from 140 to 200 km/h. To realize this speed increase improvements of power supply and safety systems were necessary. In policy paper

⁶ Compare the high speed trains in France to that in Germany. There are only a few daily trains from Avignon to Paris but most of them are direct – passing Lyon the second largest city in the country. German ICE's are interconnected and regular. None of them will pass a city the size of Lyon and therefore services are slower.

⁷ The symmetry point was pinpointed on the opening intervals of the *Koningshavenbrug* a moveable bridge in Rotterdam. This bridge is been replaced by a tunnel (*Willemsspoortunnel*) in 1993. When other countries introduced R&I they picked .00 and .30 as symmetry points.

Rail 21 (Nederlandse Spoorwegen 1988) the rough outline of the needed measurements for speed increase were sketched. To increase speed, the amount of stops for intercitytrains were brought down. To connect the stations bypassed by the intercity trains a new service layer called *sneltreinen* was introduced. Rail 21 would be finished in 2015. By then intercity trains would connect 10 major cities in the Netherlands; about 60 cities would be connected by fast-trains and the rest by stopping-trains. Level free crossings, doubling and quadrupling of existing lines were deemed inevitable, all of which was believed to be possible for 10 billion guilders (worth about to 10 billion Euros in 2006).

Only the first stage of Rail21 (Prorail 98) has been built. The costs of the project had increased whereas effects had to be shown (Railned 2001). Costs had risen because the embedding of new infrastructure in urban areas had become far more complex and therefore also much more expensive. Second, new regulations for safety and noise reduction rocketed investments (Railned 2001). Plans were launched on a national scale and then more or less forced upon local authorities. When confronted with these plans local governments raised their demands. National government was in no position to negotiate these demands down so most of them were just accepted (see for example the aquaduct under the Gein: a 7 metre wide river in Abcoude).

In the mean time NS was separated into a Transport Operating Company (TOC) on the one side and infrastructure manager ProRail on the other. This had great impact on the Rail 21 project. In the new constellation NS had to be economically self sustainable, whereas the infrastructure manager was fully funded by tax money - and for a small share by a usage tax paid by the TOC's. Therefore NS squeezed out every penny they could from train services. Accordingly slow trains were almost neglected for over a decade. Most of the extra capacity from the Rail 21 scheme was used to speed up fast trains. Whereas patronage growth is on slower services as more and more people in the Netherlands moved to suburban garden towns.

When public and political support for Rail 21 dropped, the aim shifted towards maximising the use of existing infrastructure. This resulted in a shared programme of the rail industry called 'Benutten & Bouwen' (NS, ProRail en Railion 2003). In the new plan six slow trains and six intercity trains per hour were proposed. Fast trains were left out. Because of the high frequencies interchanging would become less vulnerable to delays. Therefore direct alternating trains are stretched to point to point connections. The government decided to invest in maintenance of existing infrastructure. Soon it became clear that "Benutten & Bouwen" would be about exploiting existed infrastructure and little to none building. A new timetable has been developed that will start running in 2007. Four intercity trains and four

slow trains will run instead of six. More trains, more transfers and longer journeys, but more trains will be on time (www.ns.nl).

At the same time transport issues have been increasingly delegated to local governments. Provincial governments and stadregio's (cityregions) have started developing plans to match the railway system to the newly built urban environment. Many of these plans asked for infrastructure upgrading as had been proposed in Rail 21. As local governments don't have enough resources to built these projects, many of them are still waiting for approval from the central government.

Stedenbaan is an example of a project developed by local governments (Bestuurlijk Platform Zuidvleugel 2006). Many of the old tracks between Leiden and The Hague (Rijswijk) and Rotterdam and Dordrecht are being quadrupled in the late 80's and the forthcoming opening of a dedicated high-speed line will mean an increase of capacity on the *old line*. Local authorities wish to use the infrastructure to improve the frequency of service of slow trains. Therefore NS is asked to increase train frequency of slow trains to 4 or 6 trains per hour. To run extra trains new housing is needed. At the same time road capacity in this corridor has reached its limit. Haaglanden, Stadsregio Rotterdam, Provincie Zuid Holland and Stadsregio Drechtsteden joined to solve this mismatch between capacity and patronage. For the first time local governments are actively involved in making the timetable - by building houses along the line.

5 Timetable Politics in Switzerland

5.1 Context of Swiss Railways

Switzerland is a landlocked Alpine country in the centre of Europe. It has a long history of military and political neutrality and is not a member state of the European union. It has a unique political system, closest to direct democracy then any other country in the world. Since 1848, all important laws and decisions have to be accepted by its citizens through referenda. Any citizen may challenge a decision made by the government and can provoke a national referendum if more then 50.000 signatures are collected. Switzerland has approximately 7.4 million inhabitants, mainly concentrated in the northern (less gradient) part of the country.

There are a large number of railway companies operating throughout the country (56 in 2000, now less due to some mergers (is it possible to find how many there are now?)). They have established a system of shared use of infrastructure, and through-ticketing, famous for its high degree of coordination (van de Velde 1999, p. 191). The Swiss Federal Railways

(SBB) is by far the biggest. This company is structured in 6 regional divisions, each responsible for the regional passenger transit and marketing. The regional divisions form a 'hinge' between SBB and the Cantons. Each canton in Switzerland has its own public transport related legislation. The general juridical framework is set by federal legislation. In accordance with European guidelines, Switzerland has financially separated infrastructure management from the TOC's.

5.2 The Story of Swiss Timetable Planning

Swiss railway companies always had a good reputation, both within their country as throughout the world. The availability of a significant number of Swiss postcards picturing a train in scenic landscape supports this argument. But, as all over Europe, the Swiss railway companies suffered from the seemingly unlimited rise of private motorization after World War II; the car. When the negative impacts of this development showed its ugly face in the 1980s (through congestion, pollution and insecurity), the Swiss decided to improve and revitalise the rail network (which had remained virtually unchanged for the previous 100 years) by allocating disproportionate financial resources⁸. Swiss government decided to invest equally in rail- and road infrastructure, although the modal split in passenger-kilometres was 15 % rail versus 80 % road.

A first attempt to boost the railway network, entitled *Neue Haupttransversale (NHT)*, was based on a concept of a High Speed Network throughout the country (following the success of the TGV lines in France), but this costly scheme received so much critique that it never went on a popular vote. In an effort to revise the plan and to gain support from the people, a new concept emerged, which still aimed at reducing travel time but not by adopting the French point to point high-speed trains but by adopting a R&I timetable and looking to the complete transport chain. This was a reaction on the biggest critique on the NHT project, that it only increased speeds on certain rail sections between big cities. Travel time is reduced by supporting seamless interchanges. This meant far less expensive infrastructure, but in stead a better use of the existing one. And even more important to the Swiss it didn't mean the construction of new lines which would put a lot of environmental pressure on the Swiss mountains.

In 1987, this so-called *Rail 2000* concept (in German: *Bahn 2000*) was approved by the Swiss population, as were the following governmental bills on transport policy, which all

⁸ Already prior to these investments the number of passengers and the average passenger-kilometre consistently climbed (see www.sbb.ch).

aimed a modal shift from road to rail. The project had a planning horizon of 20 years and would cost approximately CHF 30 Billion. In this time period, railways had to be fundamentally modernised, the network had to be linked to the European high-speed network and noise disturbance had to be remediated. The main catchwords were ‘more frequent, faster, more direct and more comfortable services’, with the overarching goal of attracting new customers. In practice, this was translated in shorter travel times, better conditions in the hubs, and a half-hour patterned timetable (Halbstundentakt) in long-distance traffic.

The general idea was that the travel time between the most important railway stations (so-called hubs) for passenger traffic are around one hour. This enables them to function as a hub where all trains arrive a few minutes to the whole hour, passengers change trains and leave a few minutes past the hour. At the east-west corridor, the frequencies are doubled to half-hour services. Appropriate measures on rolling stock (e.g. tilting trains), on track slots and on physical infrastructure should eventually lead to such a situation (Stadler 2005, p. 1). Rail 2000 claimed to be an integrated concept between infrastructure and timetable management with minimal investment and with the benefits of an increased market demand, higher productivity and an optimisation of rolling stock usages (Stadler 2005, p. 3). As shown in figure 1, the Rail 2000 concept follows a straight-forward, yet innovative approach to timetable making. It starts with demand and considers the timetable before considering the infrastructure and rolling stock issues.

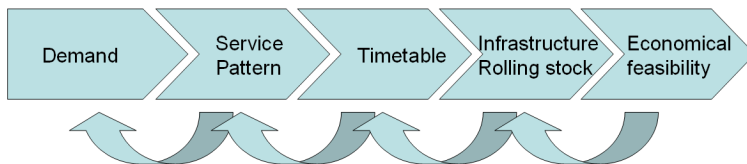


Figure 1: The sequence of the design process of Rail 2000 (edited from Stadler 2005, p. 2)

The first of the two phases of the Rail 2000 project was finished in 2004. This phase was primarily focused on infrastructure extension as a function of the timetable. Due to local interests and new environmental restrictions, the phase failed to meet its 2000 deadline. Also, the costs of it were massively underestimated. Already in 1991, the government had ordered a re-dimensioning and scheduling of the 140 subprojects to cut back the costs (from CHF 16 billion to CHF 7.2 Billion). Also newly available techniques (e.g. tilting trains) were included. Since 1997, small projects of the first phase gradually came into being. This modified first phase was realised in December 2004, which marked the start of phase two, which was the discussion stage.

Concerns about the efficiency of the Swiss passenger transport system resulted in a legal and regulatory reform in 1996, primarily reorganizing subsidisation of regional passenger services. This opened up the railways for competition and separated infrastructure from operations (van de Velde 1999, p. 191). Strong government regulation remained, in particular on the long distance passenger services. Convenience for travellers was never given up in favour of company interests. Train tickets for example are valuable on services of all operators. In 1998, the long-distance national services were reformed, with a focus on freight transport. There was a common concern among the rail operators and providers that increased competition would erode the existing cooperation structure and the resulting high quality of the rail services. Therefore, it was agreed that some open access is desirable, but this should fit in with the requirements of the Rail 2000 programme. This means that only limited capacity would be available for the introduction of free competition - especially at the main station (van de Velde 1999, pp.246-247).

Rail 2000 focused on the (inter)national rail network. Yet, regionalisation of railway services has become of more and more relevance, in compliance with developments in other European countries. A leading example is the S-Bahn network of Zürich. The concept was launched in 1990 on existing lines in the Zürich canton and two neighbouring cantons and followed the same market-oriented approach as Rail 2000. Again, the citizens of these cantons voted for this plan (costing approximately 560 million Franks). One central actor, the Zürcher Verkehrsverbund (ZVV), coordinates the development and functioning of the system, which is operated by several (private) companies. The lines of the network functioned since the beginning on a R&I timetable; half-hour patterns throughout the network and quarter-hour ones in the Zürich urban area. Recently, this has been upgraded to respectively quarter-hour and eighth-hour sequences. Since its introduction, the number of passengers in the area show an annual 7 percent increase.

In the second phase of the Rail 2000 project, that still has to be prepared, the focus is again on small incremental projects that are in line with a long term goal, instead of big monumental ones. The main goal is to cater for a further expected growth of passenger numbers of about 20% in 2020. The projects should be market-oriented, meaning that first the demand for certain services has to be estimated (figure 1 above). The east-west corridor and the inclusion of the middle-large cities of Lausanne, Biel and St. Gallen in the patterned node structure are main operational objectives (optimisation of nodes-network). Moreover, the removal of bottlenecks on the main lines (especially cargo lines) and extension of agglomeration networks (S-Bahnen) are issued in this phase. The time horizon of this phase is

2030, with the first projects to be realized from 2010 onwards. The costs are estimated on approximately CHF 6 Billion (price level of 1995). In a reaction from the Swiss Ministry of Transport, it was stated that the discussion on how to go from here is still ongoing. The main point of discussion is the role of regional transport in the Rail 2000 project. It is not clear yet, how these should be integrated. Within six months after the completion of phase one of Rail 2000, travel demand increased on average with 7, 5 percent (within the core network this figure was even 15 percent). These growth figures are foreseen to continue during the coming three years (Stadler 2005, p. 3). Also, the regional projects (at least the one in and around Zürich) show remarkable growth figures.

6 Comparing the Swiss and the Dutch Politics of Timetabling

As announced in the second paragraph, we now turn to analyse and compare the narratives about the Dutch and the Swiss developments in timetable politics by keeping in mind the following three questions: 1) where are we coming from and where are we going with timetable planning, 2) who gains and who loses from these timetable developments and 3) to what extent is this timetable planning desirable? We will first shortly answer these questions for each case specifically and subsequently we will compare the cases by discussing the most characterising differences in the Dutch and Swiss timetable politics.

6.1 Characterising Dutch Timetable Politics

In the Dutch narrative on how timetable planning has developed in the past decades, a few things stand out. First, R&I timetables were introduced quite early in the Netherlands and refined in the 1970's when other countries in Europe weren't even considering it. The emphasis therein was on total travel time, resulting from seamless transfers. In 1989 a new step was taken by adding a new layer of services, resulting in three layers of 'slow trains', 'fast trains' and intercity trains. In a way the importance of optimising the total travel time was exchanged for increasing travel speed. Because of different political and social circumstances Rail 21 failed.

In the meantime the Dutch rail sector has embarked on a new programme called 'Benutten & Bouwen' (Exploit and Provide), including a new timetable 2007 about to be implemented. Four intercity trains and four slow trains will run instead of six. Travellers will get less alternating trains. More people will have to change trains more often, but more trains will be on time. The target of high frequencies is at least in part changed for the goal of "reliability".

Increasing the frequencies will have obvious advantages. It means that the Dutch railways can move closer towards a metro system, where missing one train would mean only little extra waiting time. As long as trains run every 15 minutes R&I seems a pretty good idea, as missing a train can mean waiting an extra 14 minutes. On the other side it is questionable to what extent the focus on reliability is desirable. In a way, reliability is a strange objective as it has an inherent tendency to be dissatisfying. If reliability is to be the main attractor of the rail modality, many travellers will leave as soon as they experience some form of unreliability. If railway companies are to attract more travellers they have to come with something better than just “reliability”.

In terms of power relations, we have seen in the Dutch narrative that in the timetable 2007, local governments have been actively involved in timetable planning for the first time. Now local parties are at demanding and buying services - by building houses along the line. This means that new parties are at the table deciding what the timetable should look like. With the arrival of new parties at ‘the table of timetabling’ much of the infrastructure projects from Rail 21 are back on the agenda again but the underlying propositions have disappeared. With that timetabling in the Netherlands moved away from a solely technocratic project to a more political project. Now train operating companies, infra providers, the government, provinces, cities and real estate developers are all involved in the politics of timetabling. It may seem positive as new parties gain power and rail transport is brought “closer to the people” – both literally speaking (more station and higher frequencies) as figuratively speaking, as these local parties are politically closer to the habitats of citizens.

The disadvantage of this ‘decentralisation’ however is that each of these parties will have different objectives concerning optimizing the use of infrastructure. This again makes the objectives less clear. There is no overarching goal and none of the parties is trying to describe what the goal should be. As a result the consistency of the rail network is at stake. It has become very difficult to produce a R&I timetable in the Netherlands. Partly for that reason, there are (many) calls for a metro like network with high frequencies without the need for seamless transfers (NS, ProRail en Railion 2002). At the same time high frequencies are only economically viable when patronage is high. And patronage will only rise when frequencies rise. This results in a situation best described as a vicious circle, in which nobody wants to lose anything and therefore nobody gains either. As a result travellers mostly lose in terms of the train services provided to them.

6.2 Characterising Swiss Timetable Politics

One thing that immediately stands out from the Swiss development in timetable planning is the consistency of the overall goal. Punctuality, connectivity through a node structure and R&I timetables are stable and paramount factors over time⁹. It represents a technocratic approach that establishes a long-term goal (in this case for 2030) and then weighs every project on the basis of that goal. Due to the multitude of parties involved, it is of key importance here to state a clear but simple long term goal. On this, consensus can be reached, but it is still open for manoeuvring along the way. Because of the context of direct democracy, the citizens have to agree with this strategic long term goal. The current discussions on how to proceed with the second stage of the Rail 2000 project can be seen in this light. The R&I goal of 2030 is still clear, but there are several ways to get there.

A goal that concerns the services on the network, thus related to the timetable, can be a goal that can be understood by citizens and can be structuring for the parties involved. This means that timetable management is one of the actions that have to be done in the strategic realm of the process, while in most other countries, it is an operational decision. Yet, this still does not come as easy as it seems. Strong leadership, in this case by the federal and the canton authorities, is needed to keep all the parties in line. The planning freedom of the railway companies is therefore always subordinated. That is also why van de Velde concludes, that there is not much real competition to be seen on the Swiss railway tracks, but that such competition is only desired if it doesn't jeopardize existing cooperation and quality of the system (van de Velde 1999, p. 247).

Decisions in the Swiss railways are primarily made through discussions and consensus seeking activities among the companies, providers, regulators, the cantons, the Federal government and so on. Yet, the main goal is already set on forehand (through a popular referendum) and functions as a framework for these decisions; Rail 2000. It is the Federal Office for Transport (part of the Ministry of Transport and Energy), that is the key actor in this process. As in every consensus process, there are winners and losers (or big and small winners for the optimistic). Here, on first sight, there seem to be no big losers among the existing operators and regulators. It can be said however that possible future operators seem to have lost. The sitting parties have agreed to avoid a free competition model, making it hard for potential operators to enter the Swiss market. One big loser in the first stage of Rail 2000 can be considered to be the city of Luzern, that has now become a main hub and the city of St.

⁹ Although the Swiss Ministry of Transport admits that a primary orientation on this goal is hard to maintain over time.

Gallen, which is still somewhat more than 60 minutes away from Zürich and is thereby not a pure functioning hub. It is foreseen that these ‘losers’ will receive more attention in the second phase of Rail 2000.

6.3 Characterising Differences

When comparing the Dutch and the Swiss cases of time-table planning, we distinguish several differences on various levels. First, the Swiss have a clear and straight forward R&I timetable whereas this R&I approach seems to be crumbling in the Netherlands. Second, the Swiss have a clear ‘timetable’ goal for 2030 that was set in 1982 and is still adhered to, whereas the Dutch timetable objectives have shifted and keep shifting again and again. Third, the Swiss timetable is geared towards optimising the total travel time in the entire chain, i.e. the travel time ‘from door to door’, whereas the 2007 Dutch timetable seems to improve frequency and optimize punctuality in stead. The latter making travel time longer again.

All these differences are related to much broader differences underlying the political process of timetable planning in the two countries. The first concerns the level and type of privatisation. On the one hand the Swiss case seems to be ‘more’ privatised as there are dozens of operating companies competing with each other, whereas in the Netherlands there is only one monopoly-like TOC on the core network. On the other hand, however, the Swiss federal government is much more involved in safeguarding an optimised travel time over the whole chain, by setting certain requirements and making ‘hard’ agreements with all companies by also using financial stimuli. Whereas the Dutch national government does not and even can not do this and is much more concerned with safeguarding that the NS is economically ‘independent’ from the government and that the development & exploitation of the infrastructure is done in the most economically efficient manner.

This difference in turn is related to the different way in which timetables are thought about in the democratic process. There is a certain similarity between the decision-making styles in the Dutch and the Swiss rail sector, as both are based on discussion and consensus seeking activities among the companies, providers, regulators and governments. However, in Switzerland the main goal is already set on forehand through a popular referendum which functions as a framework for these decisions. This referendum and popular support gives the Swiss government the necessary authority in relations to the other actors in the rail industry, something that the Dutch government lacks since Rail21 is put aside in relation to the NS.

All these differences together amount to one large overarching difference between the Dutch and the Swiss timetable politics, which can be best illustrated on the basis of the schematisation in figure 2.

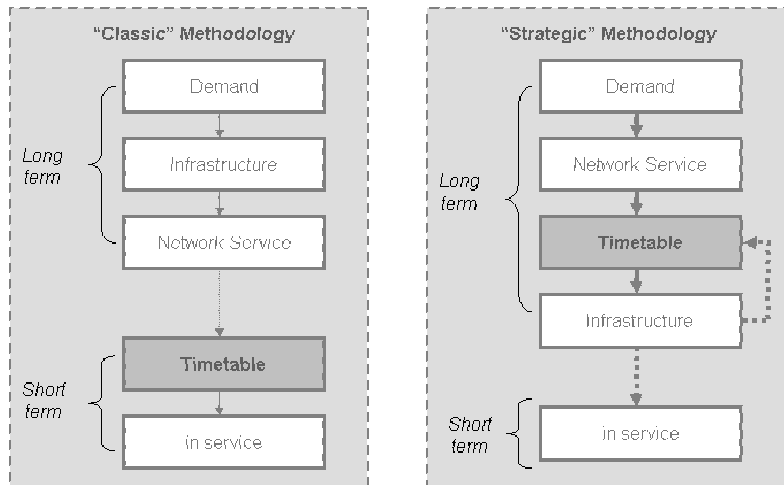


Figure 2: Classical and Strategic Methodology of Timetable Planning¹⁰.

Following the above figure one could state that Swiss timetable planning is based on the ‘strategic methodology’ whereas Dutch timetable planning follows the ‘classic methodology’. For the Swiss, setting the objectives of the timetable and developing it in accordance with infrastructure, is part of a strategic process in which the long-term goals are decided upon. The development of the timetable in the Dutch case is in many ways ‘predetermined’ by the outcomes of the strategic discussions on infrastructure and network service. The timetable depends on a short term planning process geared towards operationalising what has already been decided upon and is therefore less flexible and less adaptable to public opinion to political developments.

6.4 Conclusion

We address the fourth and last phronetic research question as posed by Flyvbjerg on what we should do and improve about planning, by answering the following question: what, if anything, can the Dutch learn from Swiss time-table planning? The importance of this comparison is illustrated by Didier van de Velde’s words: “When I worked on Changing Trains in the 90’s I went to Switzerland to ask how they thought about the success of Bahn2000 in order to draw conclusions for the Dutch situation. This confused the Swiss. All they thought they were doing was copying the Dutch model from the 70’s.” This anecdote

¹⁰ Taken from a presentation held by W. Stöhler en Giuliano Montanaro (SMA) at the ETH University of Zürich within the framework of the Jonge Veranderaars Studiereis 2006

illustrates part of our conclusion. Going back to an R&I timetable for the Dutch railways – as old fashioned as it may seem – still seems a good idea. Of course, we should not just go back to the 70's or blindly copy the Swiss approach, especially since the Dutch are in the process of making improvements in the field of regional differentiation for rail transport, something that the Swiss have not succeeded in yet and are currently struggling with. Our point in emphasising R&I however is that the Dutch rail sector should consider moving away from the obsession with reliability and instead focus on optimising the total travel time and the overall comfort of the entire public transport chain. The Dutch Ministry of Transport may take the Swiss Federal Office for Transport as an example for how to interact efficiently and effectively with the rail industry while showing more leadership in safeguarding the proper services for its travelling citizens, without it being top-down or without undermining the consensus-seeking culture. In addition to that, the Dutch could learn from the Swiss in making timetabling part of a strategic process in which the citizen-travellers are more directly involved in setting the long-term goals. Such participation and long-term involvement could perhaps avoid the endless squabbling and media controversy over timetables as is currently going on in the Netherlands. The Netherlands could learn together with the Swiss how to optimize timetables on the regional scale. As most growth will be here and separate infrastructure is too expensive real cleverness is needed.

It is of course beyond the scope of this paper to propose drastic democratic reforms in the Dutch political system or to call for the introduction of the referendum. However, this paper does aim to illustrate how much timetable planning is not a merely operational process to be left to engineers or economists. The interaction between infrastructure, capacity and timetable planning is an inherently strategic process, the outcome of which depends on the political and social context. In order to plan a timetable that can satisfy travellers as well as public and private parties, one needs to be aware of this political context and dare to challenge it when necessary. We hope that by asking phronetic research questions and by making a first attempt to answer them, we will contribute to a fruitful and open discussion on timetable politics in the Netherlands.

References

- Annema, J. A. (2002). "Weerstand van verplaatsingen: tijd, kosten en moeite." Verkeer en Vervoer in hoofdlijnen, B. v. Wee and M. Dijkstra, eds., Coutinho, Bussum, 97- 117.
- Bosnall, P., "Traveller Behaviour: Decision-Making in an Unpredictable World" Intelligent Transportation Systems, no.8, 2004, 45-60
- Bestuurlijk platform Zuidvleugel (2006) Regionale verkenningen stedenbaan. Den Haag.

- Brink, R. van de and Van Wee, B. "Why has car-fleet specific fuel consumption not shown any decrease since 1990? Quantitative Analysis of Dutch passenger car-fleet specific fuel consumption." *Transport Research Part D*, nr. 6, 2001, pp.75-93
- Brömmelstroet, M. te (2005) *European transport Inc.;* the history, present and future of the European transport policy domain, master thesis, RUG, Groningen
- Brömmelstroet, M. te (2006) *Europees transportbeleid in ontwikkeling*. *Rooilijn* 39, 3, pp 121-126
- Castells, M. (1996). *The rise of the network society*, Blackwell Publishers, Cambridge, MA.
- Flyvbjerg, B. (1998) *Power and Rationality: Democracy in Practice*, The University of Chicago Press, Chicago
- Flyvbjerg, B. (2001) *Making Social Science Matter: Why Social Inquiry Fails and How it Can Succeed Again*, Cambridge University Press, Cambridge
- Flyvbjerg, B. (2004). "Phronetic planning research: theoretical and methodological reflections." *Planning theory and Practice*, 5(3), 283-306.
- Hansen, I.A. (2004) Increase of capacity through optimised timetabling. In: *Advances in Transport*. Volume 15, 2004, Pages 529-538
- Ierland, E., Graveland, C. and Huiberts, R. "An environmental economic analysis of the new rail link to European main port Rotterdam", *Transport Research Part D*, nr 5, 2000, pp. 197-209
- Johnson, D., Shires, J., Nash, C. & Tyler, J. (2006) Forecasting and appraising the impact of a regular interval timetable. In: *Transport Policy*. Volume 13, Issue 5, September 2006, Pages 349-366
- Kaufman (2002) *Re-thinking Mobility*. London: Ashgate
- Latour, B. (1996) *Aramis or the Love of Technology*. Harvard University Press, Cambridge.
- Loeber, A. (2003) *Practical Wisdom in the Risk Society. Methods and Practice of Interpretative Analysis on Questions of Sustainable Development*, Dissertation University of Amsterdam, Ipskamp, Enschede
- Nederlandse Spoorwegen (1969) *Spoor naar '75: Plan voor de toekomst van NS in de Nederlandse Samenleving in de jaren 1970-1975*. Utrecht: Nederlandse Spoorwegen.
- Nederlandse Spoorwegen (1982) *Spoor Verder. Plannen voor de jaren 80*. Utrecht: Nederlandse Spoorwegen.
- Nederlandse Spoorwegen (1988) *Rail 21: sporen naar een nieuwe eeuw*. Utrecht: Nederlandse Spoorwegen
- NS, ProRail, Railion (2003) *Benutten en Bouwen: het plan van de spoorsector*. Utrecht
- Noort, J. van den (1989) *Gemengde gevoelens: Vijftig jaar in de relatie NS-Overheid*. In: J.A. Faber (red.) *Het Spoor, 150 jaar spoorwegen in Nederland (Amsterdam/Utrecht, 206-249, 370-375)*.
- Railforum Nederland (2001) *GroeiSporen; Alternatieve dienstregelingsmodellen en kleinschalige aanpassingen aan de infrastructuur ter vergroting van de vervoerscapaciteit van het spoor* Stadler, O. "Reorganisation of processes to gain competitive advantages: The case of RAIL 2000 and beyond." 9th International conference on competition and ownership in land passenger transport, Lissabon.
- Railned (2001) *Evaluatie Prorail: Nieuwe infrastructuur, nieuwe mogelijkheden*. Utrecht: Railned.
- Rienstra, P., Rietveld, A. and Verhoef, E. "The social support for policy measures in passenger transport. A statistical analysis for the Netherlands", *Transport Research Part D*, no.4, 1999, pp.181-200
- Schotanus, B. & H. Thomassen (2002) *Visie op de spoorwegsector: Ontwikkeling in ons denken sinds Rail 21*. N.V. Nederlandse Spoorwegen. Rotterdam / Utrecht
- Velde, D. van de (1999). "Switzerland." *Changing trains: railway reform and the role of competition: experience of six countries*, D. van de Velde, ed., Ashgate Publishing Limited, Aldershot, 191-254.
- Wardman, M., Shires, J., Lythgoe, W., Tyler, J. (2004) Consumer benefits and demand impacts of regular train timetables. In: *International Journal of Transport Management*. Volume 2, Issue 1, 2004, Pages 27-37
- Werner, W. (1983) Man-machine dialogue and timetableplanning. In: *Rail International* Volume 14, Issue 3, March 1983, Pages 8-25
- Wortelboer- van Donselaar, P. & Linde, G. van der, *De Relatie Transport en Economie*, 2005, Raad V&W