

## **The Politics of Innovation. Self-service in Amsterdam Trams**

### **Summary**

The introduction of self-service in the Amsterdam trams around 1970 involved the displacement of conductors by several kinds of machines, but at the same time also the emergence of fare dodging. In remedying the weaknesses of the technology the Amsterdam transport company, its customers and the city council got involved in politics of innovation. The democratic content of these politics are examined with insights from both political philosophy and actor network theory. The case shows that in most issues the circumstances impinged on the sense of justice of either company, customers or interest groups, posing a political claim at the Amsterdam city council. However, some issues were hardly treated according to democratic principles, due to different modes of depoliticization.

*Keywords:* Innovation, Politics, Democracy, Public transport

### **Introduction**

Decision-making about innovation occurs ever more in complex networks in which no dominant actors can be identified<sup>1</sup>. Experts, consultants, intermediaries, environmental and consumer organizations and users themselves have acquired considerable influence in the course of innovation processes. Success and failure have come to depend on horizontal links and the capacity to create intelligent alliances with other actors<sup>2</sup>. With regard to public transport the Dutch government has responded to this tendency by granting transport companies more autonomy, creating competition and transform its own role from owner to procedural regulator<sup>3</sup>. However, the shift from established arrangements for democratic politics to hybrid networks of interdependent actors has put a different face on the politics of innovation. Democratic quality is no longer self-evident. This article is part of a larger project aiming at an assessment of the consequences of this shift in terms of democratic legitimization. In three case studies the democratic quality of decision-making will be related to contemporary circumstances and the organization of the decision-making environment. The case study on which this article reports – the introduction of self-service in the Amsterdam trams around 1970 – explores an innovation process in a fairly traditional setting, in which the local government still had a dominant role, but without taking for granted that this political primacy enhanced the democratic quality. The other cases will explore more leveled networks and participatory decision-making. In all cases the central research question is: what constitutes the democratic content of decision-making. In order to answer that question three sub questions will be addressed: What were the issues? Which issues were political issues and why? And were the political issues treated according to democratic principles? The conditions that render answers to the third question feed back to the central question.

### **Democracy and innovation**

Democracy is a social structure that western nations are familiar with. In line with the thoughts of political philosopher Lefort<sup>4</sup> democracy is defined as a social structure that offers the opportunity to represent and solve societal conflicts on a political level. The social history of pluralist societies is composed of conflicting interests: trade unions that protest against the closure of factories, farmers who reject the expropriation of land, women who fight for their rights, etc. Dealing with such conflicts is the major concern of politics. Politics involves the representation, discussion and deliberation of different aspects of conflicts and solutions, taking

the interests of different parties into account. Lefort explicitly rejects the idea of politics as a means for the realization of a future society. Unlike totalitarian social structures, democracy is characterized by its open end. While public interest does indeed motivate politicians, its content remains indeterminate. Democracy means that political representatives pursue the public interest each time anew as the best possible solution to a conflict. Politics is therefore a relatively clear-cut, local and antagonistic activity. It is the art “of dealing with the contingency of history, to respond creatively and decisively to unforeseen circumstances,” as Van Middelaar puts it<sup>5</sup>. Such a conception of politics seems to be in accordance with the assumptions of actor network theory.

Starting point for this study is the assumption of de-facto normativity, turning innovation into a contestable enterprise. Artefacts are not socially neutral; they affect the world into which they are adopted by suggesting or enforcing particular ways of usage. To capture this performative power of technology Akrich and Latour<sup>6</sup> introduced the notion of an *action program*. Designers ‘inscribe’ a program of action in the technical content of the new object<sup>7</sup>. A self-service tram for example suggests that passengers themselves open the doors by using the button, buy a ticket in advance and stamp it in the appropriate ticket-stamping machine. The tram design materializes roles for actors and scenes they have to play. “Like a film script, technical objects define a framework of action together with the actors and the space in which they are supposed to act”<sup>8</sup>. Akrich, however, stresses that action programs get their force from actors willing to take up their roles. Adversely affected people may engage in antiprograms that aim at objection, rejection or adjustment<sup>9</sup>.

I will use the notions of action programs and antiprograms as a descriptive tool to frame the case study. They explicate the Amsterdam public transport company’s major stake: an action program that requires all tram passengers to serve themselves. Moreover these notions make it possible to describe the innovation project in terms of conflicting interests. Each transformation of the action program can be seen as a solution to such conflicts. These solutions are to be explained and their political nature investigated.

## **Case selection and method**

Decision making about collective goods is political almost by definition. Hence, if the democratization of innovation is relevant anywhere, then it is in public services such as tram transport. The case therefore seems appropriate to address questions about politics and democracy as posed in the introduction. The case, self-service in the Amsterdam trams, implied a considerable change in the way passengers used the trams. Conductors were taken off the trams and different kinds of machines were introduced: ticket-vending machines, ticket-stamping machines, and buttons to operate the tram doors. Most of the tasks that had previously been performed by the conductors were redistributed and some of them delegated to the machines. The conductor’s task of total control, finally, was replaced by random checks carried out by no more than eight teams of ticket inspectors. In this new situation fare-dodging posed a serious problem, it threatened to destabilize the self-service system. The concept presupposed self-discipline and if large numbers of passengers failed to appreciate and incorporate this ‘virtue’, the very foundation of the concept would fall apart. How did the Amsterdam public transport company and city council cope with this threat? How did they succeed in creating the self-serving passenger from the mixed bag of tram users? These empirical questions are addressed in terms of the dynamics between action programs and antiprograms. The action program *inscribed* in the tram system can be *described* as: “passengers will take care of their own tickets”. This action program, however, was only brought about after a series of transformations. These transformations are the object of analysis. How are they to be explained? To what extent were these transformations the outcome of a political process? And how should the democratic content of that process be evaluated?

## **Self-service in Amsterdam trams (1965-1973)**

At a press conference in July 1965 deputy director Van der Vos of the Municipal Transport Company (GVB) announced plans for self-service in the Amsterdam trams<sup>10</sup>. He mentioned two arguments in favor of self-service: cutting back on scarce and expensive labor and providing quicker service. Yet there was another, more implicit reason that motivated the GVB to introduce self-service in its trams. Self-service suited the spirit of the day. Councilor Polak said: "in many service-providing companies the customer is being brought in"<sup>11</sup>. GVB director Ossewaarde made an explicit comparison with supermarkets: "I am convinced that it will succeed. [...] Look around: the traditional grocery is disappearing and new self-service shops are appearing everywhere. Why shouldn't it work in our business then?"<sup>12</sup> While supermarkets had paved the way, self-service in the tram raised different questions. Particularly the problem of fare-dodging was to become a recurring agony, even though experience gained in Cologne, Frankfurt and Stuttgart initially led to the expectation that fare-dodging would not be a major problem. Only between 0.03 and 0.3% of all German passengers traveled illegally, depending on the inspection methods used<sup>13</sup>.

Early in 1968 the city council<sup>14</sup> agreed with a proposal put forward by the Mayor and Aldermen in which they presented the first phase of the plans of the GVB. The company had asked for a loan for the purchase of ticket-dispensing and ticket-stamping machines for line 1 and 2. The following extract summarizes how users were represented in this proposal: "Weekly tickets and annual season tickets do not need to be stamped. [...] Tickets bought outside the tram should be made valid after entering the tram by using the ticket-stamping machines [...]. We propose to widen the method of random control by employing ticket inspectors to prevent fare-dodging. [...] We are aware that a great deal of attention should be given to informing the public, emphasizing the advantage of using weekly tickets or annual season tickets"<sup>15</sup>. In this extract at least four different representations of users can be identified. The subscriber, the responsible ticket buyer, the fare-dodger and ignorant members of the public. Fare-dodgers and ignorant passengers had to be dealt with in particular. These passengers were perceived as deviants who should be disciplined and educated.

Fare-dodging emerged at the same time as the introduction of self-service in the tram. Prior to 1968 the task of control was combined with the sale of tickets. All passengers had to pass the conductor. From 1968 on passengers were required to buy a ticket in advance and the task of total control was replaced by random checks on a smaller scale. It was these conditions that enabled the factual emergence of fare-dodging. Its formal emergence occurred just a couple of months earlier. The regulations and tariff system adopted by the GVB did not include the payment of an additional charge if a passenger was found traveling without a ticket. In order to continue the introduction of self-service this omission would need to be remedied. So, the Amsterdam council<sup>16</sup> agreed to include a new article in the public transport regulations obliging passengers to take care of their own tickets. Fare-dodgers were fined NLG 1.50 (roughly US\$ 0.50 in those days). Quite soon this fine was raised to NLG 2.50<sup>17</sup>. Moreover the bylaws were adjusted to allow inspectors to draw up reports of offences and to remove fare-dodgers from the tram.

Meanwhile the GVB ordered and installed ticket machines and prepared measures to tackle practical problems. Ignorant passengers and fare-dodgers had to be dealt with. Education seemed appropriate for ignorant passengers. The GVB organized press conferences, painted self-service trams in different colors, distributed flyers, and placed instruction placards at the stops; it published a special GVB newsletter explaining the different features of the system; and because many foreign tourists made use of the tram, the instructions and flyers were also translated into French, German and English<sup>18</sup>. Nobody was excused for being ignorant of the regulations any longer, everybody without ticket was treated as a fare-dodger. Dealing with fare-dodging, however, called for a somewhat different approach. The GVB employed about eighty ticket inspectors who were responsible for carrying out random checks in the trams. At a certain stop, uniformed inspectors entered the tram in pairs; they checked that the passengers had tickets, got out of the tram and then got onto the next one<sup>19</sup>. This method of ticket inspection was intended to suggest the 'omnipresence' of inspectors.

The inspectors soon identified different types of fare-dodgers. For instance, there were the 'escapers', who didn't stamp their tickets as they entered the tram but did so as soon as the

ticket inspectors made their entrance. “The sound sometimes resembled a machine gun,” said one inspector in an interview<sup>20</sup>. The company thus revised its inspection strategy. One of the inspectors was still uniformed, while the other one was dressed in civilian clothes, the latter attempting to catch the ‘escapers’ as soon as he saw them stamping their tickets. However, there was yet another kind of fare-dodger: the ones who persisted in spite of ticket inspections. Among them were many ‘hippies’ who traveled to the Vondelpark each summer. “To them, paying isn’t an issue at all”, an inspector explained<sup>21</sup>. ‘Provos’ and ‘hippies’ turned their refusal into a political statement. They believed that public transport should be free of charge<sup>22</sup>. But according to the GVB the size of this group was too small for it to be acknowledged as a problem. The company estimated that (only) 350,000 passengers had dodged fares in 1972 (which nevertheless was an increase of more than 50% relative to 1971). A spokesperson explained: “Because many people purchase a season ticket and travel with a pass or transfer ticket, one might get the wrong impression that an excessive number of passengers are dodging fares. In reality the number still does not exceed 1% of the total number of passengers”<sup>23</sup>. He ascribed the problem to wrong perceptions. He nevertheless pleaded for a fine-increase, because apart from the ‘escapers’ and ‘hippies’ there was still another type of fare-dodger: the ‘gambler’. A ticket cost NLG 0.50 and a fine NLG 2.50. Thus not being caught on five journeys meant making a profit. Some people just calculated and gambled. These ‘gamblers’ were quite easy to deal with. They often paid quickly; they already had NLG 2.50 in their hands when asked for their ticket<sup>24</sup>. However, to deal with these ‘gamblers’ the company proposed to increase the fine up to NLG 5.50 (which was still far too low according to the director of the GVB). While a majority of the council<sup>25</sup> agreed, some councilors explicitly supported the claim that public transport should be free of charge.

## Analysis

Action programs are defined by the route the innovator wants his users to follow. The GVB’s original action program, prior to 1968, required transfer tickets and season tickets to be inspected by the conductor, who at the same time sold tickets to the other passengers. During the introduction of self-service, the action program went through several transformations. These transformations were basically additions. More elements were added to the technological system. These elements (organizational, legal, strategic) supported the action program vaguely inscribed on the ticket machines: “take care of your own tickets”. In the course of the process seven transformations of this action program can be distinguished. The first and most important transformation consisted of the replacement of conductors by several kinds of machines. Increasing (labor) costs led to structural shortages which forced the GVB to raise its fares a couple of times in the first half of the sixties. The council discussed each fare increase at great length<sup>26</sup>. In return the GVB promised to increase the efficiency of its services and on one occasion broached the idea of self-service which was thought to save on expensive and scarce labor<sup>27</sup>. This efficiency discussion focused attention merely on the contribution or threat of different kinds of users to the promised level of efficiency, i.e. on the users’ motives for (not) paying. Fare-dodgers for example were repeatedly addressed but not really feared because according to the Mayor and Aldermen “experiments elsewhere show that the number of fare-dodgers will remain considerably below 1%”<sup>28</sup>. Non-financial consequences received very little political attention if any at this stage of the project: blind people might have difficulty with the ticket machines; disabled persons or mothers with children might have problems with the automatic doors; people would have to do without a familiar (and sometimes entertaining) source of information; disabled persons were deprived of guaranteed seats as the conductors had always mediated for this group with other passengers; vandals were offered a number of tempting artifacts to destroy; trams invited pickpockets to widen their territory and to include trams<sup>29</sup>. The council agreed unanimously and without serious consideration of these side-effects, because their commitment was merely with the Amsterdam budget policy. An inefficient municipal company had to be dealt with. Illustrative for this attitude is the following episode from a later city council meeting. In a discussion about starting the second phase – introduction of self-service in the whole public transport network – left wing councilor Ten Brink

addressed some of the possible side effects and pleaded for an extended experimental phase with both machines and conductors. But alderman Hamm simply waved this suggestion aside: "Mr. Ten Brink totally passes over the basics of the proposal, namely the saving of expenses by a company through the disappearance of the conductor from the tram"<sup>30</sup>. In short, money was the only decisive argument in the investment discussion.

In the new situation, after investment and installation of the machines, passengers were required to take care of their own tickets. A moral appeal, summoning passengers to behave responsibly, accompanied the installation of machines<sup>31</sup>. However, some people remained indifferent and the appeal was reinforced by an adjustment of the GVB regulations, making it possible to deal with the good and the bad in terms of legal and illegal activities. This second action program transformation, making it stronger, was the result of political activity *par excellence*, since formulating regulations and laws is what politicians ought to do. But although the decision seemed to concern the mere determination of a small fine, it also legitimized future measures. The ruling declared that it was now illegal to travel without a ticket, which paved the way for other GVB measures to identify and check abuse without renewed political approval. It thus depoliticized the employment of ticket inspectors and the design of inspection strategies (see below). Those measures were legitimized by the mandate implied in the determination of the ruling.

Yet a moral appeal and adjusted laws still failed to encourage all people to pay their fares as long as passengers were unaware of the regulations. A public campaign was added to the action program in order to cease claims of unawareness to be a valid excuse. The need for this third transformation was easily agreed upon in the city council. Councilors only had one valid reason to make an objection, which happened the first year after implementation. The company had failed to address the problem of foreigners as the instructions were in Dutch only. The GVB was subsequently requested to have them translated into German, English and French as well<sup>32</sup>.

But self-service without any form of inspection would still be too much of a temptation. Uniformed ticket inspectors and inspection strategies were therefore added to the system. This fourth and fifth transformation, the employment of ticket inspectors and the redesign of their control strategies (using civilian clothes to catch 'escapers'), had little or no political relevance since the council had already agreed to the incrimination of fare-dodging. But hardly having political relevance the employment of ticket inspectors did have strategic relevance to the GVB. Inspectors detected the 'escapers' who quickly stamped their tickets behind the backs of inspectors; they described the 'hippies' who refused to pay; they caught the 'gamblers' who then readily paid their fines. Through them the board learned about the anti-programs of fare-dodgers and used that knowledge to draw up customized interventions. In this sense the representation of users was a mere cognitive activity: interventions, like the design and redesign of control strategies had been politically approved already through the regulation adjustments.

Random control by teams of conductors wearing uniforms as well as civilian clothes reduced the number of fare-dodgers, but did not affect the antiprogram of 'hippies' who simply refused to pay their fares, because they felt that public transport should be free of charge. The GVB spokesperson could do little more than to marginalize it ("no more than 1%") and reassure the public ("wrong impressions"). However, the press conference can also be seen as the sixth transformation of the action program: as a rhetoric intervention to regain support for the project. With the publication of fare-dodging percentages the problem had increasingly become a subject of public suspicions. Newspapers were eager to comment; journalists co-traveled with inspectors to do participatory research<sup>33</sup>. Particularly the idea of free public transport was given a great deal of attention. Experiments with free transport in Bologna and other Italian cities had raised the discussion. When the Socialist Youth demonstrated for free public transport in reaction to fare increases 24 newspaper articles within three weeks had been devoted to these actions<sup>34</sup>. Moreover, the new State Secretary of Transport, Public Works and Water Management, Van Hulst<sup>35</sup> had recently published his book *Free public transport*. The issue had become more popular and would eventually reach the city council if the opportunity presented itself. This was the case with the seventh transformation.

A last kind of antiprogram was performed by fare-dodgers who simply calculated the cost of the fines imposed against the original fares. At first sight, the subsequent transformation of the action program, an increase of the fine, showed a pattern similar to the fifth. Inspectors not only identified 'escapers', but also the 'gamblers'. Gambling implied another antiprogram against inspection. Similar to the redesign of inspection methods (dressing one inspector in civilian clothes), the board of directors wanted to increase the fine in order to counteract the gambling antiprogram. But dissimilarly, it now had to rely on the local council. To increase the fine, the GVB regulations would need to be adjusted yet again. The Mayor and Aldermen proposed to raise the fine from NLG 2.50 to NLG 5.50 in response to the increased level of fare-dodging: "During the first years after the change of regulations [...] the number of infringements stayed within limits. The last two years however, after implementation of the self-service system on almost all tramlines, the number of passengers without a valid ticket has increased alarmingly. Therefore we think the time has come to raise the fine"<sup>36</sup>. A fundamental objection was made by councilor Van Duijn. He sympathized with 'hippies' and 'Provos', being one of them himself. Van Duijn did not find the increase alarming at all. On the contrary, he supported people who hit on the idea of using public transport free of charge. He referred to the ideas of State Secretary Van Hulten and rejected the fine increase as a further step away from the ideal situation of free public transport. In a muzzling response Alderman Brautigam answered: "If Mr. Van Duijn thinks that it is a wrong step to take, then the only possible reaction is that the wrong step is taken within the existing legal order"<sup>37</sup>. Brautigam's response gave the worst argument in favor of the best solution. The fine had to be raised, simply because fare-dodgers traveled at the expense of fare payers or because free transport would invoke problems of its own. Those arguments convinced most city councilors. But Van Duijn's plea should not have been opposed by making reference to the existing legal order and he should not have accepted this objection, because the legal order (established six years earlier) was the actual issue at stake. Van Duijn wanted to see it changed on behalf of those people who advocated free public transport: a valid ambition, because adjusting legal orders to new circumstances is exactly what politicians ought to do.

## Conclusions

The case shows that the effectiveness of decisions by public authorities in matters of innovation stood or fell with their ability to anticipate the behavior of users effectively. Action programs needed to be adjusted several times. Action programs are the routes that innovators want their users to follow. As a heuristic tool, identification of the subsequent transformations of action programs were used to trace the underlying conflicts: users tended to construct or refine antiprograms in order to obstruct or dodge the GVB's action program. The company in its turn refined the action program in order to counteract antiprograms. The 1973 self-service system was the result of seven action program transformations. These transformations can be seen as solutions to those conflicts that the previous version had either established or continued. At this point an answer can be formulated to the first research question. What were the issues? What kind of conflicts arose during the introduction of self-service on trams? Conflicts emerged from an imbalance between the interests of the users and the innovator. More specifically, conflicts emerged when a certain situation either adversely affected users or, more striking still, enabled a particular usage that adversely affected the innovator. Examples of adversely affected users were the tax payers in the old situation who took the rap for an inefficient provision of services; or foreigners who were wrongly hassled by the imposition of fines. Situations of an adversely affected transport company were brought about by the 'escapers', the 'gamblers' and the 'hippies', who exploited the opportunities of self-service in their own interests.

Following Lefort, politics is conceived of as a process of conflict management in relative clear-cut settings, implying a 'third party' perspective. This third position emerged from the socio-technical controversies as its relevance sprang from the conflicts between action programs and antiprograms. So which issues were political issues and why? What constituted the political nature of an issue? There were five issues addressed within the political context of the city

council. First, the choice whether to start with the project at all was a political issue because the inefficiency of the service was a situation that the Amsterdam municipality and the tram passengers unjustly paid for. Besides, the decision was linked to the tariff system and the demand for general accessibility, for which the city council carried a strong historical responsibility. Second, the adjustment of regulations was an associated political issue because the promised efficiency increase required an incomplete contract between the municipal transport company and its customers to be remedied. Third, the public campaign was politically induced to prevent unfair fine imposition to incidental and foreign users. Fourth, the increase of the fine was a political issue, because 'gamblers' unjustly traveled at the expense of fare payers. And fifth, the discussion about free public transport, raised by the fine increase, was a political issue, because 'hippies' questioned the legitimacy of the legal order. In all cases the circumstances impinged on the sense of justice of either company, customers, tax payers or hippies. The political nature of issues depended on the validity of claims about the fairness of a situation or about a proper distribution of responsibilities. Claims appeared to be valid if they referred to generally accepted normative principles that actors tried to apply to a new situation. Thus both the social circumstances (the actual conflict) and historical circumstances (what is fair?) constituted the political nature of a conflict. Does that also mean that these political issues were treated according to democratic principles? As far as regulations, public campaign and fine policy were concerned the question can be answered in the affirmative. Those decisions were the result of open deliberations in which all relevant stakes were represented in the council, even with hindsight. As far as the other issues were concerned democratic politics don't seem to be the right qualification. Three different modes of depoliticization can be distinguished. Depoliticization occurs when political decisions are taken outside political institutions. The first mode is a common practice in political processes and may be labeled as 'delegation'. The adjustment of regulations provided a mandate to the GVB to solve its 'own' problems with fare-dodgers. The city council thus delegated the employment of inspectors and the design and redesign of control strategies – the two remaining interventions – to the company. These interventions were already politically approved and therefore not contradicting democratic principles. The second mode of depoliticization can be labeled as 'juridification'. Hippies had claimed free public transport. Although 'hippies' were adequately represented in the council, democratic principles were trampled on. The claim was not taken seriously; it was rejected on legal grounds, whereas precisely the legal order was at stake. 'Juridification' happened because the political discussion was foreclosed by displacing the issue to a juridical context (that itself was already perceived as closed). The third mode of depoliticization can be labeled as 'scientification'. The most important political conflict, whether to finance the whole project or not, appeared to be a mere economic discussion in which scientific facts were decisive. Pro's and contra's of self-service were defined in terms of financial benefits and costs: the estimated savings, the costs of investments and the costs involved in dealing with fare-dodging. With regard to fare-dodgers, the GVB easily convinced the city council. Based on German experiments, the company gave its firm assurance that their number would remain "considerably below 1%". The Amsterdam City councilors relied on the results of the foreign-experiment study. They neither contested the number, nor the putative similarity between the German and the Amsterdam public. Sharing the assumptions, focus and conclusions of the study, city councilors generally perceived efficiency as the core issue and its increase already as a matter of fact.

What constituted the democratic content of decision-making about innovation? First of all the issue itself: a (new) situation in the public domain impinged upon the sense of justice of involved actors. Second the way these issues were treated by public authorities: a public debate about all stakes at issue that was not foreclosed by contestable legislation, the reduction of stakes or arbitrary predictions. In addition: laws, regulations and mandates that resulted from prior democratic decisions provided democratic legitimization for depoliticization of new issues only if new circumstance did not give rise to justice claims that were not already addressed.

## Epilogue

In the period after 1972 the self-service system gradually started to destabilize. Based on official GVB monitoring 1% of the total amount of passengers dodged fare in 1972. But it can be questioned whether this was indeed a realistic figure<sup>38</sup>. Many fare-dodgers simply got out of the tram before their tickets were inspected and these people never reached the statistics<sup>39</sup>. Nevertheless, 1% was far higher than the 0.03 to 0.3% seen in various German cities and, more alarming still, the percentage had already started to increase, partly due to the GVB itself. The company stimulated the sale of different kinds of season tickets thus freeing passengers from the obligation to stamp their tickets. This would eliminate queues and improve the service as a whole. After a special discount offer in 1971 a total of 30,000 passengers (15%) possessed a season ticket<sup>40</sup>. However, this also meant that many people entered the tram without stamping a ticket and potential fare-dodgers were openly invited to do the same. In peak hours about eighty percent of the passengers traveled by season ticket. Freeke<sup>41</sup> states with hindsight: "The appearance that nobody paid certainly seduced people to dodge fares". An extensive investigation held in 1974 showed that fare-dodging had risen to somewhere between 2.9 and 3.3%. The investigators estimated the annual loss at 2 million guilders, which was about 40% of the estimated savings through self-service. Meanwhile, the ticket machines and stamping machines regularly started to breakdown, and this was happening all over Amsterdam<sup>42</sup>. How could ticket buyers behave responsibly if the machines wouldn't allow them? A newspaper describes how a tram user had spent two guilders in vain. Kicking and shaking the machines did not help. Other machines nearby were also apparently defective. When the driver whose job it was to sell single tickets refused to open the front door (which was customary during peak hours), the woman unwillingly felt forced to travel clandestine in the end.<sup>43</sup> In 1977 a new zone tariff was introduced. This tariff system gave rise to yet another kind of fare-dodging: people stamped for fewer zones than they actually traveled<sup>44</sup>. This 'partial fare-dodging' was very hard to control because the boundary between fare paying and fare-dodging became blurred. In 1979 the official number of fare-dodgers had grown to 5%. The regular breakdown of ticket machines may be explained by criminal offences, which also became more conspicuous<sup>45</sup>. The ticket vending machines in particular were often subject to vandalism (they contained money). But vandals had entered the scene in more than one respect. People put chewing gum in the ticket-stamping machines, others tried to buy tickets using foreign coins, seats were regularly damaged and pick-pocketing raised questions about security. The tram appeared to be an easy, unrestrained domain for different sorts of offences. In 1977 councilor Meijer pleaded for the comeback of conductors. He said: "The number of fare-dodgers has grown enormously, ticket sales don't function, the service to the public has vanished, pick-pocketing and robbery are a matter of course"<sup>46</sup>. Around 1980 a number of studies were conducted to investigate these trends<sup>47</sup>, the character and motives of fare-dodgers<sup>48</sup>, and also the possible comeback of conductors<sup>49</sup>. However, due to sunk investment and the convictions of authorities, this comeback was considered too costly and undesirable<sup>50</sup>. In those days the project seemed to be difficult to reverse. Not until 1991 was the comeback finally realized, but only on line 4. Meanwhile the number of fare-dodgers had increased to 13%<sup>51</sup>. The GVB wanted to see conductors on all trams, but the company's financial situation was still fragile. Hence, other funding was sought. With the help of a regional program for subsidized labor, long-term unemployed persons were recruited for the job<sup>52</sup>. From 1991 on, conductors were gradually brought back on the Amsterdam trams. In 2002 the GVB had manned twelve out of seventeen tramways with conductors<sup>53</sup>.

## References

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<sup>5</sup> Van Middelaar, *cit.* 4, p. 84.

<sup>6</sup> M. Akrich, 'The de-description of technical objects,' in W. E. Bijker and J. Law, (eds). *Shaping Technology/Building Society: Studies in Sociotechnical Change*, (London: The MIT Press, 1992), pp. 205-224. B. Latour, 'Technology is society made durable,' in J. Law, (ed). *A sociology of monsters. Essays on power, technology and domination*, (London: Routledge, 1991).

<sup>7</sup> The notions of 'scripts' and 'action programs' are used as synonyms in the vocabulary of the Actor Network Theory. In the remaining part of this essay I will use the notion of 'action program'.

<sup>8</sup> Akrich, *cit.* 6, p. 208.

<sup>9</sup> See also R. Kline and T. Pinch, 'Users as agents of technological change: The social construction of the automobile in the rural United States,' *Technology and Culture*, Vol 37, no. 4 (1996), pp. 763-795. B. Pfaffenberger, 'Technological dramas,' *Science, Technology & Human Values*, Vol 17, no. 3 (1992), pp. 282-313.

<sup>10</sup> Trouw, 29 July 1965.

<sup>11</sup> Het Vrije Volk, 24 February 1966.

<sup>12</sup> Het Parool, 12 March 1969.

<sup>13</sup> Het Vrije Volk, 25 July 1967. Representatives of the GVB referred to a study about foreign experiments in a number of press conferences and city council meetings. Although references abound, it remains doubtful whether the study has existed in any written form. An extensive search in four different archives in Amsterdam, as well as personal communication with two then closely involved council members were in vain. Most probably the referred study was an informal report of a study tour by the directors of the GVB.

<sup>14</sup> City council, 'Zelfbediening op trams en autobussen' (Amsterdam: Gemeentebld afd. 2, 1968), pp. 311-314.

<sup>15</sup> City council, 'Invoering systeem van zelfbediening op trams en autobussen' (Amsterdam: Gemeentebld afd. 1, 1968), pp. 191-196, p. 191.

<sup>16</sup> City council, 'Besluit tot aanvulling van het Regelement en Tarief voor het vervoer door het Gemeentevervoerbedrijf' (Amsterdam: Gemeentebld afd. 2, 1967), pp. 1156.

<sup>17</sup> City council, 'Vaststelling Verordening op het zich bevinden in tramrijtuigen of personenveerboten zonder geldig plaatsbewijs' (Amsterdam: Gemeentebld afd. 1, 1968), pp. 1977-1978.

<sup>18</sup> Het Vrije Volk, 7 February 1968. Algemeen Handelsblad, 14 February 1969. Het Vrije Volk, 13 March 1969. *NIEUWS van het gvb*, maart 1969b. Nieuws van de Dag, 19 June 1969.

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- <sup>19</sup> De Tijd, 24 October 1968.
- <sup>20</sup> Unknown source, approx. June 1972. Nieuwe Rotterdamse Courant, approx. June 1972.
- <sup>21</sup> From reports on the work of ticket inspectors, unknown source, 22 January 1972.
- <sup>22</sup> Local activist Hans Hofman to a journalist. Tijd Maasbode, 11 September 1967. See also a note to the city council from left-wing party PSP: City council, 'Nota van het raadslid Ten Brink c.s., inzake het openbaar vervoer' (Amsterdam: Gemeentebblad afd. 1, 1970), pp. 27-36.
- <sup>23</sup> Nieuwe Rotterdamse Courant, approx. June 1972. Similarly quoted in Het Parool, 3 June 1972.
- <sup>24</sup> See note 21.
- <sup>25</sup> City council, 'Wijziging verordening plaatsbewijzen Gemeentevervoerbedrijf' (Amsterdam: Gemeentebblad afd. 2, 1973), pp. 976-982.
- <sup>26</sup> See for example City council, 'Tarieven gemeentevervoerbedrijf' (Amsterdam: Gemeentebblad afd. 2, 1967), pp. 1020-1055.
- <sup>27</sup> City council, 'Vaststelling Verordening op het zich bevinden in tramrijtuigen of personenveerboten zonder geldig plaatsbewijs' , *cit.* 19.
- <sup>28</sup> City council, 'Invoering systeem van zelfbediening op trams en autobussen' *cit.* 15, p. 194.
- <sup>29</sup> De Tijd, 28 April 1969. Het Parool, 29 March 1969. Nieuws van de Dag, 18 Oktober 1969. De Tijd, 20 November 1970. De Waarheid, 21 January 1972. Cocov, *Wel of geen kondukteur in het stads- en streekvervoer* (Den Haag: Vereniging van Nederlandse Gemeenten, 1980).
- <sup>30</sup> City council, 'Zelfbediening op trams en autobussen' (Amsterdam: Gemeentebblad afd. 2, 1969), pp. 355-366, p. 361.
- <sup>31</sup> A picture in 'Nieuws van het GVB', March 1969a, p. 3 shows a woman stamping her ticket. The caption reads: "Did you already use the self-service tram? Then you are familiar with self-stamping like this charming passenger." The newsletter is interlarded with similar statements.
- <sup>32</sup> City council, 'Zelfbediening op trams en autobussen' , *cit.* 30.
- <sup>33</sup> De Waarheid, 21 January 1972. Unknown source, 22 January 1972.
- <sup>34</sup> For example De Volkskrant, 17 February 1969.
- <sup>35</sup> M. Van Hulst, *Gratis openbaar vervoer* (Deventer: Kluwer, 1972).
- <sup>36</sup> City council, 'Wijziging van de Verordening op het zich bevinden in tramrijtuigen of personenveerboten zonder geldig plaatsbewijs' (Amsterdam: Gemeentebblad afd. 1, 1973), pp. 1378-1379, p. 1378.
- <sup>37</sup> City council, 'Wijziging verordening plaatsbewijzen Gemeentevervoerbedrijf' , *cit.* 25, p. 978.
- <sup>38</sup> H. J. A. Duparc, *Een eeuw elektrische exploitatie van de tram in Amsterdam* (Delft: Nivo Drukkerij & DTP Service, 2000).
- <sup>39</sup> Personal communication with a former Amsterdam fare-dodger at the 4S conference (Milwaukee 2002).
- <sup>40</sup> Het Parool, 15 October 1971.

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<sup>41</sup> J. Freeke, *De kunst van het vervoer. Een beeld van 150 jaar Amsterdams openbaar vervoer* (Den Haag: SDU uitgeverij, 1990), p. 138.

<sup>42</sup> Algemeen Handelsblad, 9 November 1970.

<sup>43</sup> De Waarheid, 21 April 1972.

<sup>44</sup> Duparc, *cit.* 38.

<sup>45</sup> Freeke, *cit.* 41.

<sup>46</sup> De Volkskrant, 22 January 1994.

<sup>47</sup> Cocov, *Rapport over de situatie met betrekking tot de verstoring van de orde en veiligheid bij het stads- en streekvervoer* (Den Haag: Ministerie van Verkeer en Waterstaat, 1979).

<sup>48</sup> Veldkamp, *Zwartrijden in Amsterdam* (Amsterdam: Veldkamp Marktonderzoek, 1981).

<sup>49</sup> Cocov, *cit.* 29.

<sup>50</sup> *Ibid.*

<sup>51</sup> N. Visser, *In grote lijnen. Het Amsterdamse openbaar vervoer (1900-2000)* (Amsterdam: Gemeentevervoerbedrijf, 2000).

<sup>52</sup> *Ibid.*

<sup>53</sup> GVB-Nieuws, summer 2002.