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Think electric - a successful branding of sustainable mobility?

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TH!NK ELECTRIC - A SUCCESSFUL BRANDING OF SUSTAINABLE MOBILITY?

1. Introduction

Arguably, the Norwegian car manufacturer TH!NK, as of January 2000 an enterprise of Ford Motor Company in the Th!nk Group, has adapted its vision of mobility from what we with three words could label the environmental, technical, experimental and industrial to the urban, trendy and informational. This shift is the difference between the 1970 and the 1990s. Now they are trying to sell a vision of mobility as urban experience, an endeavour not without its pitfalls. But the process has been a long one, and the connotations of driving electric have not been easy to change. The following is an analysis of the tensions between the trendy and the technical, the urban and the environmental aspects of the electrical vehicle as a product, using the case of TH!NK and the parent company Pivco. It traces the R&D efforts, trends and take-overs that brought policy out of the office and back to the street.

Electrical vehicles (EVs) have been perceived as a sustainable alternative to the conventional motorcar. This is of course debatable, since sustainability will depend on how electricity is produced as well as the potential for recycling of the vehicle. Nevertheless, EVs are important for environmental reasons, partly because their emissions approach zero, partly because they represent a different idea of a car. Also from the point of view of technology policy, EVs are very interesting, in particular because they challenge a dominant, existing technology. Is it at all possible to challenge the regime of the strongly embedded, gas-driven motorcar, and if so, under what circumstances?

In the Intepol case study of Danish EVs (Munch 2001), it is argued that the ideology behind the construction of EVs has changed from representing an alternative technology in the 1970ies to be a high-tech niche in the 1990ies. Fogelberg (2000), who has studied one Californian and one Swedish EV project, observes that the resulting artifacts aptly could be described as techno-political designs because of the need to simultaneously construct the technological and the political dimensions of the EV. The study of Th!nk will in particular pursue the latter point, which seems very relevant when one regards the vast task of challenging the traditional motorcar regime.

In the analysis of the Th!nk story, I use the three notions industrial paradigm, branding and informationalism to define the changes in visions of mobility occurring in the process of positioning the electric vehicle as a product in the period from 1970 to 2000. These concepts are then interwoven with the empirical observations of actors and actants in the mobility field in the same period.

The industrial paradigm is taken to be a major entrenched mental attitude and social systemic infrastructure in place in most advanced nations in the 1970ies. It implies a focus on large-scale technology and was very influenced by government regulations and big business priorities. In Norway this took the form of a corporate dominance of oil companies like Statoil and Norsk Hydro, influencing investment policy as well as debates about mobility.

In management literature, a brand is a carefully constructed set of relationships that ties a certain product to a certain market segment. Branding means adding a meta-value to a product, playing on associations inherent in the family of products it re-enters. Adding the knowledge of possible brand personality, user imagery, emotional benefits, symbols, organizational associations, country of origin, self-expressive benefits and brand-customer relationships gives the product itself scope, attributes, quality and uses (Aaker, 1996:74).

Informationalism is a label sociologists of contemporary society (see Castells, 1996) use to describe the current situation of business, society and culture on a global scale. Due to massive information flows, society is constantly restructuring itself, through networks of individuals, organisations and technology.

The co-evolving user practices cannot be understood separately from the development of visions, but are somewhat detached on an empirical level. This is because the scale of the Pivco experiment, as it were, has drastically changed. Now we are not talking about 100 pilot users in Norway with a California pilot study, but of a major global launch.

The study draws on field research and interviews conducted between 1998 and 1999 in Norway, correspondence with industry and government officials, and available documents. In Norway, we did interviews with the corporate level, TH!NK R&D department, and sales department. Interviews varied in length from twenty minutes to several hours, and in form from relatively structured to informal. Interviewees were purposively selected, with extensive 'snowballing'. A total of 10 interviews have been carried out, with additional fieldwork both in Norway and the US. Available data include internal reports from TH!NK, as well as earlier research reports on electrical vehicles in several other countries (Italy, Denmark, the Netherlands). Newspaper papers written about TH!NK in various stages served to focus the eye on what types of cultural packaging the product has had - from the visions of the inventors to the corporate visions of Ford. The empirical work was completed in March 2000, which means that later developments have not been mapped.

2. Th!nk oil crisis - The story begins in the 1970s

When social entrepreneur Rindal in the 1970s started Pivco industries, he had no idea what was going to happen with his idea of a »personal independent vehicle». His plant was situated in Aurskog way out in the Norwegian woods, and far from the global urban centres (San Francisco, Paris, Rome, Copenhagen, and Oslo) that now are a main target of compact vehicles of that sort.

Rindal started from a conviction that is was necessary to argue against the traditional car-based system of mobility. In fact, entrepreneur Rindal divided the traditional concept of a car into two separate needs, based on range. He thought that the traditional car still was best suited for long trips. What he in a public presentation in 1999 coined »the urban experience» as a dominant trend that will encourage stop-and-go solutions instead of large, impractical Highway cruisers, was in fact born back in the 1970s as the core idea behind PIVCO.

To understand the radicalness of his ideas at that time, we have to bear in mind the context of his entrepreneurial efforts. The first problem was seemingly one of industrial concentration. Norwegian car industry is virtually non-existent. We produce car parts and that's it. We have had a failure of a car called Troll. The «not invented here» notion was prevalent, both among contemporary industry players and government in Norway. There was the notion that «we simply can not make cars ... only Sweden can, but there it is different». And indeed it is, they have SAAB, Volvo and Scania. They have a culture for big industry. The culture is important here. Not only did Norwegians not have a car industry. They were determined not to have one either. Thus, the vehicle Pivco City Bee spent 25 years at the idea-stage and further 7 years as a project, before it became the sizeable company TH!NK, a Ford Motor Company partner that subsequently was bought completely by Ford, and raised into the core brand circle, side by side with giants like Volvo and Jaguar.

Now, why did Rindal succeed at all, given the national opposition against his project? The first answer has to do with shifts in political climate due to the energy crisis of 1973. While only securing basic government and corporate financing, Pivco's thinking in terms of alternative fuel cars was given some legroom. There was a growing concern that energy supplies would not carry the needs of a modern and modernizing society.

But the R&D took time, and Pivco needed time to build their prototype. Thus, the years went on, without the big commotion. They were virtually invisible in the industrial arena, apart from contacts with the Norwegian University of Science and Technology. Then came the 1980s, with the general concern about greenhouse gases, the ozone layer, as well as the mounting mobility and transport problem in the largest cities. One would think this gave more reason to back up Pivco's efforts, but the opposite happened. According to Jan Otto Rindal of Pivco, most national critics only reinforced their view that it was «almost ridiculous» to try to make a Norwegian car. At this point,

the thought of international backing through partnerships or financing seemed out of the question. The reasons for this are probably rooted in the Norwegian industrial culture. Throughout the post-War era, Norwegian industry has had an enormous success, but has remained within clearly defined sectors like oil and gas. In addition, attaining venture capital from abroad has never been a Norwegian asset, except for military and university R&D, where the contact with the US have been important stimuli and where the level of national expertise has been high, considering the size of the country.

So, to sidetrack a little bit, other projects were allowed room, and slowly entered the area. In November 1990, the first Norwegian hybrid car, a transformed Renault Espace with electric current and natural gas as fuel, saw the light of day. The product emerged through collaboration between EFI, SINTEF and MARINTEK (research institutions in Norway). It remained at the experimental stage, and never became industrialized.

The year of 1990 was also when Pivco was established as a company. Due to political signals like legislation on zero emission cars in California (1998-2004), the climate had changed. The technological concept as well as the first prototype was ready in 1992. The next prototype, CityBee, was on the road the year after. During a frosty 1994 Winter Olympics at Lillehammer, 10 CityBees were tested with good results. The year after, it won the Scandinavian Electric Car Rally, and in 1996 100 prototypes were delivered to test programs in Norway and the US. Today's model, TH!NK, was essentially developed between 1996 and 1998, although it is continuously improved to meet safety standards.

California is a key to everything that has happened to Pivco since. Although the car industry is fighting back, constantly trying to modify the strict zero-emission legislation, the California effect has had «an enormous momentum», according to Rindal. California is a powerful government that sets the standards in this domain. Not only does it have strict emission policies, it was the first state to «buckle up» by introducing compulsory seat belt legislation, to introduce the catalyst, and to make the airbag standard safety equipment.

But although legislation can alter the direction and type of mobility, mobility needs will still be high, according to the initiator of the Norwegian electric vehicle company. «To reduce the individual needs of transportation is an illusion», Rindal states. The approach must be different. «Stop-and-go city driving is on a steady increase, at the same time this is what ordinary cars do worst». The old argument from the car industry is that old cars must be substituted by new cars. But the number of cars will rise anyway, thus emissions will augment, too. TH!NK is adapted to the «new use of cars». 30% of European cars average 30-50 km/day. So goes Rindal's argument.

Thus, the establishment of Pivco implies a claim that a new paradigm is on the rise, called sustainable mobility, focusing on the threefold structure of transportation needs, resource utilization and adaption to the environment. This demands new types of specialization and focus. The Pivco vision was to create a modern city car, fitting only a segment in the market. However,

symbolically, they went even further. Constructing the difference between the traditional car (4-5 persons, designed for speeds like 150-200 km/hour) and the small electrical vehicles (stop-and-go driving, one person), TH!NK tries to create a new space, that takes up less space. Less noise, volume, emissions, and adaptable and innovative small-scale production methods. Some rumors say this is the real reason why Ford bought Pivco - to obtain experience in small-scale production.

Pivco's motivation was based on setting up «milestones». One of these was at the Lillehammer Olympics, where they literally finished the last prototype on the set. These trials were successful. Another was EVS-16, the electric vehicle symposium in Brussels of October 1st 1998. Here, timing was crucial. And we see how much Pivco balanced on a thin edge.

> «By the fall of 1997 we were looking for 50 million NOK, but were too late. The Asia crisis hit the venture market with full strength. Therefore Brussels was our last chance to get financing as well as an international collaboration partner. We always had the attitude that this is fun, but in the end of October, when we had to stop, it was tragic. We went to court, fired employees, and some of us tried to save the concept by taking over the rights and trying to get further financial support.[1] The 40 employees were important assets but private venture capital was not willing to support us».[2]

It was at this time, in Brussels, that Pivco got in touch with Ford - but also VW, Fiat, Toyota and Volvo. They all said; «ok, nice technology, but you have to show that you can come up with a vehicle». Still, though, there were no concrete plans for going global. In fact, »We don't believe in exporting it from Norway,» Pivco technical director Egil Mollestad said at EVS-15 in Brussels. »The business concept is to enter into agreements with local partners,» Mollestad told F&F.[3] But even so, car producers like Honda and VW have been in Norway to get updates on the developments.

When Ford finally decided to enter, Pivco saved the concept and even got a global dimension on distribution and technological development. Central people at Ford were John Wallace,[4] Director of Alternative Fuel Vehicles, CEO of Ford Europe Ingvar Sviggum, Frode Moseidvåg, as well as the newly

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[1] In November the employees, together with CEO Per Lilleng, car gründer Jan Otto Ringdal and the then bankrupt Bakelittfabrikken and started a new firm; Pivco Industries as.

[2] Rindal, op.cit.

[3] Fall '98 EVS-15 Special Report, Fleets and Fuels, http://www.augustpacific.com/ffuels/media/EVS_15.txt, 20.04.99.

[4] Wallace reports that the Norwegian people, from the Prime Minister to taxi cab drivers are "ecstatic" about the deal. "I don't think its possible to overstate how positive the reaction has been in Norway." He observed that not only does Ford's investment boost Norway's position as an automotive manufacturing nation, but it helps foster their commitment to the environment. "It's also important to understand," he went on, "how committed the Norwegian people are to environmental protection. I mean they are very, very enthusiastic and energetic in trying to protect their environment". http://evworld.com/interviews/wallace.html, 20.04.99.

appointed CEO, Jack Nasser.[5] As we can see, many Norwegians were already at Ford.

In the spring of 1999 there were alternatives to TH!NK. Other actors also existed in the alternative vehicle market in Norway[6]. Peugeot had already launched its Peugeot 106 and the station wagon Partner with electric engine. Customers buy cars the traditional way, but they lease the batteries. Peugeot explains their initiative with environmental gains, lower prize and easier parking access. Their approach is totally different from Pivco. Their initiative is a normal car, adapted to electric power. They do not claim to have reinvented the car, and rather try to understate and minimize the change: «First and foremost we think that the el-car must be identical to other cars, both in the way it is used, and in its appearance. We have come further than people realize. From March 1999 we will deliver el-cars like any other car. Whether you want diesel, petrol, or sunroof...you can also get el-power as an option on your car».[7] It seems Peugeot sees a great market in small delivery wagons, for instance electrically powered pizza delivery. Apparently, two of these are running in Oslo (1999).[8]

3. Th!nk mobility – a new national notion

The public debates around mobility issues are often overlooked in expert discussions on the subject. This is not only a problem of commercial credibility, but also stands in sharp contrast to the visions about transparent political processes (Brinn, 1998). Transparency stands as a powerful alternative to secrecy in political economy debates these days. Transparency means deliberately revealing secrets. The trend towards transparency is driven by NGOs, or technology that is rendering snooping more effective, but really by globalisation and democratisation generally. In a way transparency is regulation by revelation, control through letting out control mechanisms to the public, in short, allowing for the public's right to know. Now what are the problems with transparency? Principally that it works only when revelation sparks action (Florini, 1999:50).

In Norway, there has been some debate about electric vehicles for decades, although it is not until recently (in the period from 1998 to 1999) that it has reached national news attention. Pivco industries ltd., now Th!nk

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[5] "I have to think that the person most responsible is Jack Nasser, who as you know, is trying to make the company more nimble, more quick, more entrepreneurial, more innovative. He encouraged us to be very aggressive in terms of exploring this arrangement, in terms of the speed with which we were able to close it.", Quoted from EV-World's interview with John Wallace, available at http://evworld.com/interviews/wallace.html

[6] Internationally, numerous prototypes exist, for an overview, gathered at the EVS15 in Brussels in October 1998, view the web-site of Avere, founded in 1978 as a European network of industrial manufacturers ans suppliers for electric vehicles. It is a non profit-making association created under the aegis of the European Community. http://www.avere.org/today/en/VE_results_1.asp

[7] Sverre Fordal j.r, Vice CEO at Prøven Bil, claiming they "thought differently", in the debate about el-cars and TH!NK, Technologycafé, Studentersamfundet, 11.02.99.

[8] Fordal, op.cit.

Nordic, did, from the beginning, try to change the definition of what a car is. Their task has been to create a product that is culturally acceptable, and that fits in with the changing mobility discourse. The name of the game has come to be «sustainable mobility»[9], although current transport systems violate it (Höjer, 1998:445). Pivco has both supported sustainability, and worked to integrate this notion in the Norwegian society. And that task is not easy, given that the car, as such, is culturally embedded (Østby, 1995). It is, of course, a means of cultural and political expression, as well as a means of transportation.[10]

Developments of EV prototypes have lead to a constant environmental disturbance to the car manufacturing industry since the 1970s. But a new stage was reached in 1998, with the exposition in Brussels, the EVS16. There, the two-passenger electric city car received widespread acclaim from the automotive and environmental press. It seemed evident that there is a race among the great players in the industry to be first to have a deliverable zero-emission product.

Visions are good, but you have to deliver what you promise. The electric adventure almost came to a close without resolving anything. The Norwegian firm that designed and built the electronic vehicle TH!NK, went bankrupt in the fall of 1998. Many national critics now left them in the dark. The concept was, apparently, dead. But someone was working behind the scenes. Ford Motor Company bought Pivco January 5th of 1999. This was a great surprise to the Norwegian establishment.

In the following months there was some public debate in Norway around electric vehicles. In particular, it is worth to note that the environmental aspect always was a subtext, so to speak accepted by most commentators, especially official ones, whereas more attention was devoted to R&D issues – how would this vehicle work?

The environmental concerns were important. Several spokespersons have acted together to create a process, a push towards a more sustainable mobility discourse. Pivco have been active from the 1970s and onwards, pushing their point of view, and trying to make space for its «concept idea». PIVCO (Personal Independent Vehicle Company) PIVCOs vision for their work has been the «creation of a clean and friendly concept for personal mobility».[11]

«We've had to think conceptually», Jan Otto Rindal, chief entrepreneur of Pivco stated in a public presentation in Oslo, March 1999[12]. This is a rather peculiar comment from an industrial innovator in the traditional sense. By

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[9] Triandafyllidou & Fotiou, 1998.

[10] CarPoint surveys have consistently shown that we are deeply bonded to our cars (65% tell us that their car is a member of the family!. http://carpoint.msn.com/autoshow99/drwill/newadvances, 20.04.99.

[11] http://www.think.no/mainframe.htm 19.04.99

[12] *"Pivco - el-bilen"*, meeting arranged by Waterhole (Norsk Oppfinnerforening, Norske Sivilingeniørers Forening, NITO and Nyskapings- og Etableringsforumet), Ingeniørenes Hus, 05.03.99.

conceptual he does not only mean an industrial concept, but rather a cultural one. It is a new concept of mobility. He claims this has been a guiding vision from the very beginning. Thus, if this is true, TH!NK is a fair name to the venture.

And one has to admit the name «TH!NK» is a stroke of genius. It gives associations to a rational act - thinking - and at the same time transcends that category. Maybe we are not the ones who have to think. The car does. We are invited to enter a car that not only thinks about the environment, but also proves to be intelligent. TH!NK is currently installed with an intelligent car system called INCA, and is believed to be up do date with industrial trends in communicating transportation systems, things that think research (MIT), and other hype concepts like «smart cars», «intelligent roads» etc.

Visions are powerful, but often misleading because they are unrealistic. Let's look at these visions for a moment, from the Norwegian popular science journal *Natur & Vitenskap*. «Computers take the wheel...environment friendly hydrogen cars take the wheel...a car that does not pollute, that talks and thinks, that presses the gas pedal, brakes and steers by itself. A car that makes away with the driver, or at least provide surveillance and corrects the most severe mistakes? .... when we reach the year 2000 plus something, the mass deaths of the 19th century will seem like the Middle Ages ... the technology already exists».[13] «Platooning» is the name for intelligent monitoring of highway queues, developed at UCLA. This way the popular scientific visions based on some experiments exist and are spreading rapidly. The paper features the technology behind fuel cells, and does not leave much space for the pure electric vehicle, and claims American car manufacturers have «given up on this long ago».

4. Th!nk politics – performing Norwegian values in the 1990s

Given the resistance, we will take a closer look at what happened in the crucial 1990s. Essentially, it is filled with praise after-the-fact. Looking at the triangle Pivco, politics, and the Press, we could start with the emblematic statement of Norwegian Prime Minister Bondevik, right after Ford announced they came in:

> «The Norwegian government welcomes the fact that Ford Motor Company now goes into PIVCO Industries AS. In particular, we find it interesting that Ford has chosen to support the development of Norway's electric car «TH!NK», and the environmentally more positive transport alternative which this project represent. (...) Through Ford's technological resources and global sales network, PIVCO has now been offered a possibility for its electric car «TH!NK to become a success».[14]

[13] Natur & Vitenskap, April 1999, p.39-40.
[14] Press release number 1/1999 from the Office of the Prime Minister, January 6th, 1999.

In light of the limited political support received by Pivco in the months before it went bankrupt, the Prime Minister's statement might seem like a compulsory retreat. But since this is all «positive», environment and all good things together, nobody seems to react. If we look at the general governmental attitudes to new alternative technology, we find that it has been, at best, passive. Political pressure for alternative energy has never been strong in Norway. There have been no considerable public programmes and it has been hard to sell the EV as a part of Norwegian industrial policy. Instead, only a few isolated projects have been supported (Gjøen, 1996:9).

The governmental attitude towards transportation has generally been characterized by a faith in economical discourse. The concept of "real costs" has, for instance, entered policy documents of the 1990s. There is the sense that motorists should pay the real societal cost through local economical incentives or other regulations.[15] One example is road pricing. "The main purpose of road pricing is to internalise the external costs that are created by road traffic".[16] To this end, the Ministry of Transportation has proposed a substantial fee for the drivers unlucky enough to pass through during rush hours. According to an experiment, this will reduce traffic by 17% in that time slot. This has spurred a public debate about social issues, control and lack of intelligent incentives in the quest for sustainable development. For instance, what happens with the 17% - do they come in late for work? Who are they? What groups are unable to avoid rush hour? Will this incentive affect area planning, choice of dwelling, make some suburbs less attractive? These questions do not come up. What the political advisors call "a car-based life style" is intrinsically linked to "problems with queues, environment and accidents". To resolve the problems, we need to ensure that public transport is perceived as cheaper than the use of cars, according to this view.[17]

Traditionally, Norway has created independent plans for roads, railways, air traffic, and sea transport. In 1998, the Parliament decided that there should be made a national plan that covers all kinds of transport. This is a new way of thinking in Norwegian transport planning. The first of this national plan will cover the period 2002-2011. The challenges and the goal of this plan is to consider all aspects of transport, independent of sectors, and to find the optimal allocation of means and resources. The main subject is to enable a more efficient transport system and use of resources by treating the sectors together. A main focus of the plan is transport systems in major city areas.

The city incentives are a key to governmental thinking about alternative transport. They strongly believe in this. According to the Junior Secretary of Transport: "In Norway people want to live in their own house with their own

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[15] Speech by Political advisor to the Ministry of Transportation, Atle Hamar, January 5th, 1998. http://odin.dep.no/sd/ataler/ah980107.html

[16] Speech by Torild Skogsholm, Junior Secretary, Ministry of Transport and Communications "Evaluating international policy objectives and regulatory approaches to urban traffic control", held in Berlin, December 10th, 1998. http://odin.dep.no/sd/ataler/ts981210e.html

[17] Speech by Political advisor to the Ministry of Transportation, Atle Hamar at the LOKTRA-conference in Sandvika, January 21.st, 1998. http://odin.dep.no/sd/ataler/ah980121.html

little garden and close to nature. Land is not a problem in Norway. Until recently, only specially interested and socially deprived people wanted to live in the cities more than for a few years. Recently we have seen a change, and also we see this as a way to reduce the traffic problems related to major cities."[18] Quite a powerful statement, this, and maybe a bit revealing about the Ministry's thinking in this area.

We have already noted the existing advantages like free public parking, no road-pricing, and reduced taxes given to Norwegian EV users. Will additional subsidies and tax-reductions (traditional Norwegian measures) be considered for the EV-users? In February 1999, former Minister of Transportation, Odd Einar Dørum said: «Norway can, if we want, make an electrical car concept work. The only tax there is on the EV is IVA. I have personally driven through regulations that say EV-users can drive freely through toll rings wherever they might be, and I have personally signed the agreement that the EV can park for free on all public parking spaces in Norway. There are a lot of economic incitements. So far they are not dangerous to the Government, since there are currently only 200 EVs running on our roads, 100 of which are running in Oslo ... but if it be a threat, then let it be, to say it that way».[19]

«From 1992 onwards and until 1998 the Norwegian Government have invested 100 million NOK to develop the Pivco project. Only last year, we provided 20 million NOK», says Division Director Bjørn Normann Hansen of SND. He is not too happy about the money the Government has lost on el-car development: «We do not like to loose money. But it is easier to accept when projects are continued than when they die», says Normann Hansen. The SND-Director is concerned about whether Ford will continue to produce in Norway. «In that case, it is positive», he claims.[20]

After the February 5th announcement, there was a meeting at the Ministry of Trade and Industry, «in support» of Pivco. Governmental infrastructure programmes and purchase of el-cars were among the incentives they were contemplating. According to Finansavisen,[21] they claimed that they would do everything they could to ensure that Ford got in touch with Norwegian R&D in this area.

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[18] Skogsholm, 1998, op.cit.

[19] Quoted from Dørum's speech at Technologycafé, in Studentersamfundet, Trondheim, 11.02.99.

[20] The National Fund for Regional development and Industry (SND) has ensured a shareholder status, with 1 million NOK in Pivco Industries, having cashed in a convertible loan from October 1998. The conversion rights were used the moment it was clear that Ford went in on the owner-side. SND has used 120 millioner NOK on the development of EV-production since 1992, of which 33 million NOK is a loan, and therefore in demand in the bancruptcy (konkursboet). One million of the 35 million NOK loan that SND Pivco Norden in June 1998 was transfered to the new company Pivco Industries with conversion right for shares within a year. (DN)

[21] "Statlig Ford-støtte", by Are Haram, Finansavisen, 04.02.99.

5. Th!nk to get trendy, trendy to th!nk? – The late 1990s

With the imperative of 4 percent zero-emission vehicles on Californian roads by 2004, the sustainable alternative has become a market niche. The Californian push has been formidable. Now policy-making pushes zero-emission technologies all over the world. But so far most EV-projects have been purely prototypes, and it seems to be hard to get commercial success. Thus, the mass-produced electric vehicle has been but a dream, both in Japan, the Netherlands, Denmark, Norway and the United States. For this reason, the TH!NK users have been significantly involved from day one. From a station-car experiment with electric vehicles in San Francisco, TH!NK learned that even American users love the concept of a stop-and-go car with limited range.

However, from loving it to buying it is another doorstep mile. Of all commodities, the car is probably the most powerful indicator of life-style choice, status and socio-economic profession. As Levfebre (1971:102-103) points out, it also spells out how we react to issues like comfort, power, authority and speed. You own a Ferrari or a BMW - we know a lot about you. Your are rich, stylish, and macho - and love to drive fast. You own a Volvo - you value safety over everything else, and are definitely a family man. 'Tell me what car you have, and I will tell you who you are'. The industry tries to find a segment for everyone, and satisfy your needs, your wants and even your desires. In the 1970s, if you owned a Pivco City Bee, you were part of an environmentally conscious, nerdy crowd of 100 people mainly in the Eastern part of Norway. There can only be a limited number of those people, at least in a small country. Since the ambitions, and the reference group, were so geographically restricted, the City Bee was bound to be a special interest phenomenon. The introduction of branding and market thinking changed all this. TH!NK aspired to the same crowd as those who buy the Smart, or the New Beetle – the Drum&Bass generation X-ers.

The sociology of electrical car owners has another feature. Tell me *how* you own it, how you relate to your car, and I know even more about you. Maybe you belong to what Muniz and O'Guinn (2000) call a 'brand community', an owner's club. Maybe you are unconsciously part of a society of cars, an industrial society like the US? Or you might not own a car at all, opposing the whole idea of polluting the environment, of risk, or of industrial society altogether? The car is not an isolated phenomenon. The type of cars that are around tell a whole lot about the environment you are in, or about the historical epoch. In fact, the car is a composite of technology, culture and society - entrenched in our everyday life. I will give one example. The Trabant, the archetype of an East German automobile, was »shoddy, noisy, polluting, badly designed and unreliable», but illustrated, just like the opening of the first McDonald's in Moscow symbolised the victory of capitalism, the failure of the Marxist experiment (Turner, 1998:3). Advertisements also show that selling cars, in a way, is about trying to define a worldview. In a 1999 ad for Chevrolet Blazer, the catch-line is «Civilizing a barbarous world». Chevrolet makes a claim, and they have the answer. The world's a messy place

and you need a powerful machine to get through. In fact, the ads for four-wheel-drives dominate the scene at the turn of the Millennium.

Recent industrial trends like industrial mergers and restructuring also holds true for the car manufacturing industry. The power is in the hands of giants like Ford, GM, VW, Daimler and BMW. Ford owns Aston Martin, Jaguar, Mazda, Kia, Norwegian Pivco, and the latest addition, the Swedish locomotive Volvo. In a way we could see this as «Detroit strikes back». The most important reason, an integral part of current capitalist managerial discourse, is the importance of innovation. In times of increasing costs, limited growth and increasing competition in parts of the market new market niches become particularly important.[22] In contrast to low-emission vehicles that only demand incremental development of established technologies, zero-emission vehicles create bigger problems for the industry (Pilkington, 1998:211). Therefore, there have been many different responses to the vehicle emission regulation in the US. One of them is to refocus on hybrid-cars, trying to interpret the legislation «lightly».

According to the MIT International Motor Vehicle Program: »Twice in this century [the auto industry] has changed our most fundamental ideas of how to make things. And how we make things dictates not only how we work but what we buy, how we think, and the way we live» (Womack, Jones and Roos, 1990:11). The way we use our cars, is the way we configure the matrix, the way we use our world. The car then, is a powerful programme that society is tuned-in to. Changing this program would require a considerable effort. Taken together, at individual, community or societal levels, the car traditionally signals technological development, progress, and freedom. Where does TH!NK fit in this picture?

Let us look at the 1990s version of TH!NK, the one that spurred Ford's interest. We have mentioned the idea that the traditional car was made for long distance driving. Well, obviously, the thought was then to let the limited-range, electrically powered vehicle TH!NK in turn take care of everyday, urban business. But the »car or not car» issue was a constant concern. The manufacturers did not want TH!NK to be 'less of a car' just because it's electrically powered and has limited range. Thus, great attention was devoted to portray its car-like characteristics. For instance, this concern is visible in the design. Many prototypes and concept cars have futuristic designs, but TH!NK designers were more minimalist. The result is a car that looks surprisingly alike the new Ford Ka. This is a significant coincidence.

If TH!NK is more than a prototype, more than a fantastic idea, what does it represent? What do the consumers think of it? How is it perceived within the firm, and how is it marketed? «The quiet, emission-free TH!NK can meet the needs of urban customers looking for distinctive, earth-friendly transportation,» said Jack Nasser, CEO of Ford on the occasion of the first Ford take-over. At the PIVCO web-page, we are informed that TH!NK is

[22] "Edderkoppene i bilindustrien", by Helge Hveem, Motor, March 3rd, 1999, p.56-57.

«cool, fun and simple to drive».[23] «TH!NK is viewed as funny ... and somewhat trendy», claims Pivco CEO, Jan Otto Rindal.

Part of the reason why it is considered trendy is due to the attention devoted to exterior and esthetic design solutions. Scanorama, magazine of Scandinavian Airlines System (SAS), featured TH!NK in their design-section. «We wanted to create an attractive, dynamic and innovative car with a distinctive personality. But we also wanted TH!NK to be perceived as an ordinary car. That's why we were careful not to give it too radical a look», says Stig Olav Skeie, chief designer at car manufacturer TH!NK Nordic.[24] Their strategy has been slightly modified in the process. Two years earlier, the same Skeie had stated:

> »It's going to be a bit more cocky and future-oriented than the prototypes...the design is agressive and friendly».

Industrial designer Katinka von der Lippe had co-worked on the interior of the car, and a team from the British Lotus Design had also been involved.

"Our job is to create the car's spirit. We have to give it character and life", explained chief engineer Peter Rawlinson from Lotus, who came from working with Jaguars to the small thermoplastic TH!NK. "This is going to be an individualistic and sporty car for the future. At the same time it is very different. People expect shiny, polished cars, but get opaque plastic. [This] is innovative, the enthusiastic Englishman proclaims".[25]

Virtual Garden, TH!NK's advertising agency, made in July 1999 a largely environmental and technical reading of what TH!NK is all about. This is clear from their 'English map 2000 - a guide to the car, the concept and the company behind it'. Made to fold out like another road map, their glossy, mosaic brochure is focused on words like 'zero-emission', 'pollution', 'energy', 'recycling', 'safety', 'constructed', 'minimal', 'thermoplastic' - all from an entirely technical version of their vocabulary. This stands in sharp contrast to the equally new, Norwegian brochure, which has a trendy, stylish, and innovative design, playing on the contrast between tiny characters and large, white surfaces that fold out and become colorful illustrations of urban, congested areas. Thus, the pure, innocent TH!NK saves you from the 'cities where the cars rule'. Although this brochure also is technocratic in its wording, it gives a totally different impression. Running across one page, for instance, are verbs like: 'live', 'run', 'sell', 'eat', 'bring', 'park, 'play', 'work', 'dream' and 'smell', that work like imperatives and trigger your imagination. Finally, this wraps up a much more urban, trendy image.

It now becomes evident that TH!NK tries to ride two horses: to step out of the 'car-program' and to stay within it at the same time, wanting the advantage of both. For this reason, TH!NK is more than a car, and less, still. Wanting to incorporate a car-like identity, it appeals to the eye. It is seductive, modern, and trendy. Wanting to be personal transportation rather than a greedy power tool from the industrial age, it is environmentally friendly,

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[23] http://www.think.no/mainframe.htm 19.04.99.
[24] Quoted from Scanorama, March 1999, Scandinavian Airlines System's magazine, p.25.
[25] Quoted from Aftenposten, 25.03.97, p.15.

small, and practical - a city car. The major problem, however, has been to balance the need to transmit independence, with the need to point out that what has come of urban car use is the stop-and-go-car. This due to the obvious limitation of range (currently you can only drive 80 kilometres before recharging batteries). But why the need to stick to independence as part of the identity? The answer to this is entrenched in the logic of modern marketing.

According to Aaker (1996), a brand system consists of brand identities, so-called sub-brands that overlap and intertwine. In the western Industrial society the car not only is a powerful symbol, it provides the material for several powerful brands. It stands at the center of what we could label a cultural brand system. Using this elaborated version of Aaker's terminology, we are able to read the car both as a symbolic and as a symbolizing artifact. That is, we reveal the construction of car meanings, be it through careful commercial branding as in advertising and consumer communication, or in elaborate user perceptions and emotions that transcend the boundaries of brand management.

Although each car aspires to it's own brand identity the common denominator is freedom. A car is an element of individual freedom, it is noisy, and it even pollutes the environment. Everything else is a bad copy. This is the challenge to every attempt to introduce an electric vehicle. Therefore, this is a story about a cultural struggle, seen from the angle of a firm who has worked hard to change, and, they believe, upgrade the culturally embedded concept of 'car'.

Their attempt to develop a vendible electric vehicle (EV is no different from other EV-projects. They all have this ambition. But in a way we need to read this story as a new one. TH!NK is not really a car, it is a concept of our times, from our times, and quite possibly an 'environmental' brand for the future (regardless of the total environmental impact, which is another story altogether). TH!NK[26], arguably the first ever mass-producible electric vehicle[27], is something as unusual as a car concept from Norway. Given the harsh environment for car business in Norway, they always had to think conceptually, rather than only in terms of managing the challenges of industrial innovation as such.

This is not the usual story about an EV prototype. The innovation as well as the company needed to cope with a hostile cultural climate. We are not talking about the traditional protests against electrical vehicles. The problem is another. Norway has never produced a decent car. After the failure of the Troll

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[26] TH!NK is a brand developed by the Norwegian advertising agency Virtual Garden. They lost 250 000 NOK on the bancrupsy of the car producing company Pivco, but are now »back on the road» as they proudly state on their web-page.

[27] According to Ford Europe CEO Ingar M. Sviggum, quoted from Norway Now, No.1, 1999, found on http://odin.dep.no/html/novovalt/depter/du/publ/nn/1999/01/busi.html, 02.02.99. There are competitors, though. The David-and-Goliath battle to produce the first commercially successful electric car continues between General Motors, with its EV1 (dubbed Impact), and James Worden's Solectria. GM's version is currently only available by lease; last year about 300 persons leased the Impact through Saturn dealerships in southern California and Arizona. Source: http://www.amazon.com/exec/obidos/ISBN%3D0195094794/macwareA/002-0530752-0371659, 20.04.99.

project in the 1950s, nobody believed it would happen either. In fact, the Norwegian car has been a foreign, finished artifact, only partly made our own, or 'domesticated' (Sørensen, 1990:11).

On the other hand, in the late 1990s the time is right for their approach. The joint themes of environmentally friendly and urban have considerable market power. But it almost went very wrong. Only luck and good contacts saved TH!NK in the last minute. In fact, the business itself went bankrupt, but arose like Phoenix.

Every period, each decade, has its own cultural logic with a certain discursive structure, where some arguments count more than others. A high-tech start-up like Pivco industries in 1973 has had to work itself through different discursive settings. Overcoming these discursive challenges is the task of genuine entrepreneurship. Such a skill could "enable people to make historical change by producing both a product that solicits people to change the style of their everyday activities and a company that instantaniates the new way of life the product establishes» (Spinosa, Flores & Dreyfus, 1997:34). In no product this is more visible than in TH!NK. Pivco gründer Leif Rindal, and his son, Jan Otto Rindal seem to have been able to voice their opinions, manage the opposition and guide the firm through all these phases. As Michale Gage at CALSTART said to the Norwegian Press during the tough times in 1998 when Pivco could not attract investors: "I don't believe Rindal will give up".[28]

In order to do this, however, you most «hold on to an anomaly and [produce] something that reduces a disharmony by changing the style of the disclosive space» (op.cit., 173). The anomaly, of course, is the fact that TH!NK is not a car in the ordinary sense. The disclosive space in question is the Norwegian policy-makers, press, and public, and subsequently, the World, as investors, public and consumers. In the end, the final cut is whether the consumers want the product.

6. Th!nk technology today

The automobile industry is essentially an assembly industry, bringing together an immense number and variety of components, many of which are manufactured by independent firms in other industries. TH!NK consists of some 370 parts from over 180 subcontractors all over the world. The TH!NK philosophy is to leave a lot of details to specialized subcontractors, but specify the product themselves. In fact, the chassis is the only part that is produced in Norway.

TH!NK is a two-passenger electric city car. The basic innovation behind TH!NK is the way the frame is glued to the chassis. By combining a thermoplastic frame with an aluminum and steel frame developed in collaboration with Norsk Hydro and NTNU, they have revolutionized car production, taking out an international patent. There is no corrosion and no

[28] Aftenposten, 30.10.98, http://www.aftenposten.no/nyheter/okonomi/d57596.htm

need of paint. The wheel support system is bought from Peugot. In contrast to Peugot, Th!nk is built as an electronic vehicle from the beginning. Their Peugot 106 is a normal car strengthened and redesigned for el use. This makes it heavier and clumsyer.

TH!NK, the first car with rotomolded exterior body panels, is the latest entry in the electric-vehicle project of Ford Motor Co., Dearborn, Mich.[29] A short list of essential characteristics is made in table 1. One of the most unusual features of the car is its matte finish, and it's thermoplastic body panels. This makes the car ding and dent-proof and nearly rust-proof. The lower frame of the car is steel while the upper frame is extruded aluminum. According to PIVCO, the TH!NK was collision tested by PARS GmbH in Germany and meets stricter 1998 European safety standards.[30]

Table 1. Essential characteristics of TH!NK.

TH!NK is an electric car with two seats, suitable for city driving and smaller communities.
TH!NK has a plastic body that is recyclable.
TH!NK is an environmental car with no emissions and low operating cost.
TH!NK is 10 feet long and weighs about 2,000 pounds.
TH!NK has a top speed of about 55 m.p.h and its range is 50-60 miles.
TH!NK has a security frame of steel and aluminium. The battery is located in a separate steel case underneath the car.
TH!NK's 1999 model will include airbags.
TH!NK is scheduled to be launched on the U.S. market in the year 2000.[31]

7. Sidewalk talk - is TH!NK a car, after all?

What are the possible markets for TH!NK? Will it ever become a «mass produced car», as both TH!NK and Ford claim?

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[29] The rotomolded body panels, averaging 6 mm thick, offer light weight and corrosion resistance, Kristi Hegna Svendsen, marketing v.p. for the firm, claims. The one-piece hood/bumper, two doors, two back panels, rear panel, and rear bumper are all molded of a medium-density (0.934 g/cc) metallocene-catalyzed polyethylene (Borcene ME 8169) from Borealis AS, Lyngby, Denmark. The roof is made of thermoformed ABS. The entire body is molded in one operation, says Eirik Topp, project engineer for plastics molding at TH!NK Nordic. The tools to produce all the panels are mounted on one machine. Some moldings are later cut apart into separate panels. The PE is colored, eliminating painting, and receives a matte finish from the textured mold. http://www.plasticstechnology.com/kuw18.htm, 20.04.99.

[30] http://evworld.com/reports/ford-th%21nk.html

[31] According to Mirzet Hasanovic, 02:41:43 3/08/99
http://des3.sw.cc.va.us/wcb/schools/001/003/bsurles/12/forums/forum13/messages/61.html

> «For others in the industry, the deal between Ford and PIVCO could have far-reaching ramifications, and serve to energize the market for small electric cars. In moving to acquire the Norwegian firm-and presumably bring the vehicle to market-Ford has decided to proceed where OEMs like Toyota (with their e-com) and Nissan (with their Hypermini) have at least hesitated. Even DaimlerChrysler recently decided against a hybrid-electric version of their mini, the Smart (News Notes 11/5/98). In an era of mergers, overproduction, and limited markets, a new niche market with one aggressive manufacturer might just force the others to bet-or leave the table» (*Guy Mangiamele, Analyst*).[32]

Th!nk is safe, noiseless, elegant, and does not pollute. But can it knock out Toyota RAV4, four wheel drive, but marketed as a city car, where the city is a jungle with holes in the street, cobble stones and cable car tracks?[33] «Power to the city», a TH!NK brochure aimed at the American market states proudly[34]. But isn't TH!NK too nice, too safe, too babylike to be a car? This is not a far-fetched comment, as the sale of so called «sport utility vehicles» (SUV) has exploded. February 1999 showed a 12 % increase of SUV sales. «GM sends warm thoughts to the market genious who was mad enough to assume American housewives would need four wheel drive to do the groceries», writes DN journalist Geirr Aakhus from New York.[3536] In this context, this TH!NK advertisement appears almost too Mr.Bean-like to take up the fight: «You see the little car parked alongside? Have you seen one before? Where's the exhaust pipe? Can you hear anything...? Nothing?». And this might actually prove to be the real challenge - coping with the loss of 'carhood'. According to the trained psychiatrist, ordained minister, now CarPoint's cultural analyst Dr. Will Miller, the challenge is «to break the barrier with a vehicle that will be gas free but satisfy our need for power». But as he explains »in contrast to the stunning aesthetic and performance accomplishments in the traditional automobile, it's quite a different story when it comes to delivering on the promise for an alternative power source...our disappointment with new engine technologies is psychologically revealing about our culture. It tells us what we have *become* as much as what we *come to expect*».[37]

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[32] http://www.calstart.org/calindex3.html, 19.04.99. Guy Mangiamele, Publications Manager, is responsible for creating content for WestStart - CALSTART's *Connection* newsletter, Web site, and annual report, as well as writing press releases and developing marketing materials. He is also project manager for the organization's *Conference Digest* and special publications in WestStart - CALSTART's *Prospectus* series. To contact, e-mail message to: gjm@calstart.org.

[33] Advertisement in DN, March 6th 1999, p.13.

[34] Colorful, English brochure in A3 format, produced by Virtual Garden for TH!NK, 17.09.98.

[35] Dagens Næringsliv, 10.04.99, p.23.

[36] There is also the alternative explanation that this is the feminist revenge now "driving masculinity home". The sale of SUVs could also give rise to such thoughts. The contrast to traditional 4WD vehicles is stunning "This is the home of Buffoalo Bill, John Wayne – and Chevrolet Blazer." (advertisement in Adresseavisen, 1999).

[37] "More than just a pretty face", analysis of the latest automotive advances, by Dr.Will Miller, http://carpoint.msn.com/autoshow99/drwill/newadvances, 20.04.99.

Is TH!NK a concept car, a prototype, or is it ready for serial production? As of fall 1998, TH!NK was a finished product with about 20 prototypes built. Because of destructive testing only 4-5 cars exist today. By the fall of 1999, TH!NK will be available in limited stock on the Norwegian market, and by January 2000 on the American market, backed by Ford, and sold through their retailers.

8. Th!nk outreach - Catching the attention of the Norwegian public in 1998

The fate of TH!NK, as of any product, depends on its interaction with the concerns related to innovation, regulation and infrastructure . Neither of these concerns could be understated. TH!NK will need to innovate to keep up with competitors, and to satisfy the increasingly demanding consumers. They will need to follow, influence and comply with basic regulatory frameworks in each country of entry. Thirdly, TH!NK is not an isolated product, but is part of an overall infrastructure of mobility. Thus, it must monitor other developments, like trends in telecommunications towards telework, or towards nomadic personal communications, possibly altering mobility needs in society.

Regulation and infrastructural concerns, on the other hand, are matters the government can stimulate and influence directly. They do this by passing laws and incentives that point towards sustainable mobility in general, but also by giving specific advantages to EV-users. As we have seen, the Norwegian government has been pro-active in the funding of R&D, but has to a lesser degree been willing to go all the way. The Ministry of Trade and Industry, as well as the Norwegian Research Council (NFR) both issued after-the-fact statements and promises, but they added money to these claims even later. It seems clear that the fate of TH!NK is dependent on the cultural, political, and in this case most important, economical tools, available. Car industry is for big players. Even EV's are within this logic.

The reception of TH!NK on the Norwegian market was not really been felt in the beginning of 2000, as TH!NK was launched for real in December 1999. The expert evaluations, however, have been mixed. The important automotive journalist Knut Moberg of the tabloid Dagbladet fell, quite unexpectedly, completely in love with the car. Under the headline «My next car», Moberg states Th!nk gets a six on the dice, «a city car for two, plus two kegs of beer». But after a splash of an paper, Moberg concludes it is a car «for the enthusiasts» ... since «the car is different».

In general, however, Norwegian media was hesitant towards the whole discussion about electric cars. Kåre Valebrokk, editor of the influential business paper Dagens Næringsliv wrote on the day of the Ford take-over announcement:

> «How many wish for a tiny second car for in-city driving out of environmental idealism?...Is TH!NK really saving the environment? How about the rising electricity needs? ... There's

> a lot of fuzz about it now, but what about later? The distance between enthusiasm and decision to buy is long. We certainly hope for the best, but ... how far we will know only when the cars are out on the market. In this market TH!NK is far from alone. EV is not a particularly Norwegian invention, like the paperclip and the cheese slicer. Above all it is the chassis that get critical acclaim. We shall not say whether this is enough to invade the market, but together with most people, we hope for success».

His editorial statement is interesting for many reasons. For one, the focus on the «Norwegian-ness» of the invention points to a fact many have wondered about. Why cannot Norwegians produce cars? Since the failure of Troll in the 1950s we have only produced parts, while the Swedish car industry has flourished. In many ways, then, this could have been the beginning of a Norwegian industrial adventure. The market for el-cars appeared probably among the better ones for test-production on a semi-large scale. But was it really? Wasn't there something lacking? Will there ever be a Norwegian car? Critics could also point to the fact that there is nothing «Norwegian» about the car, except the chassis that really was developed at Norsk Hydro, in collaboration with NTNU and SINTEF, as well as the battery technology they bought from somewhere else.

Journalist Trygve Larsen put it this way:

> «Whether Th!nk is a real car remains to be seen. It is no secret that all of Dagens Næringsliv's commentators have been critical to the car from day one. The construction concept is interesting enough, and it is first and foremost this aspect, and the patents surrounding it, that has been major reasons behind the Ford take-over. The product as it stands today *is totally uninteresting.* It is far from a normal car, and I dare say this without having tried the car. Considering the car is so small and simple it is not particularly cheap with a price of NOK 130 000. The most serious problem with Th!nk is that it is based on traditional battery technology. The range, or rather, the lack of range, is also negative. On the positive side, this car, as opposed to many others, was constructed as an electric vehicle from the beginning, and that is weighs little. But this also makes it more dangerous in collisions with other cars, when the average car weighs the double of a TH!NK».[38]

9. Th!nk global – Ford, Pivco and the Millennium

Many have wondered how Pivco got Ford on the hook (or was it the other way round)? About Pivco's relations to the US, Pivco CEO Jan Otto Rindal told that:

[38] Quoted from an e-mail interview, 25.03.99.

> «It is mostly due to a single person, Michael Gage.[39] We met him at the Lillehammer Olympics [where Pivco was tested under extreme conditions]. He quickly became one of our enthusiasts, and he has helped us further».

This includes the shipping of 45 prototypes, the City Bee, as they were called back then, to a station car project outside of San Francisco.[40] However, the vision is a door-to-door solution where you «drive electric the whole way». «That the Americans got interested in our concept has helped us a lot also in Norway and Europe».

Another international link was Lotus Engineering. From 1996 onwards Pivco sent men from their development team on five-month sojourns, and 12-15 men from Lotus came to Pivco for 1-1,5 years time. «That we had these engineers engaged, gave us momentum», Rindal claims. And momentum is needed. Car industry is made for big investors. Estimations are it costs around 20 Billion NOKs to develop and produce a new model. This means a need to produce 100 000 - 200 000 cars from the start. The el car is an exception, and is therefore an innovation to the car industry. But many prototypes exist on the market, also among garage-firms.

Ford is a large corporation, and the purchase of Pivco industries was a tiny conquest in the large picture. »Companies like Ford and General Motors have a world-wide network of assembly plants, component supplying plants, joint ventures and other strategic relationships with a variety of other companies throughout the world, resulting in a complex, ever-shifting pattern of component flows both within and between continents» (Turner, 1998). Now, what is the status of TH!NK in this picture?

At the beginning of 1999, Th!nk Nordic AS was 100% owned by PIVCO Industries AS, where Ford Motor Company owned 51%. The main office and the factory were situated in the municipality of Aurskog-Høland, about 50 km from the Norwegian capital, Oslo. Product development and sales departments were to be moved to Oslo. At this point, TH!NK Nordic had 43 employees and several consultants working full time.

According to a Ford press release (Detroit/Oslo, 6. January 1999), Ford could learn a lot from the Norwegian company: «The silent and completely pollution free TH!NK can cover the needs of customers who want environmentally friendly transport. But this car does not only give us access to a totally new segment of the market. It also gives us, through the active cooperation with the development team at PIVCO Industries AS, a well of

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[39] Mr. Michael J. Gage, President and CEO, WestStart - CALSTART, Inc., a group of American high-tech firms intent on promoting environmentally friendly transport in California. "Give me ten cars and I can get investors in the USA - no problem. This car is a stroke of genius. In ten years it will have forced the automotive industry to think production in a completely new way", said an enthusiastic Michael Gage in the critical month of October 1998, the month everything went wrong at Pivco, and two months before Ford announced they bought 51%. Quoted in Norway Now, ultimo October 1998, at http://odin.dep.no/html/nofovalt/depter/du/publ/nn/98/20/scince1.html, 02.02.99.

[40] Commuters use small battery-powered electric cars between home and a mass transit station or a mass transit station and work. They also use the vehicles for errands during the day or for short trips evenings and weekends. http://www.stncar.com/ , 19.04.99.

ideas that we can work with, and take further. We are both interested in new methods for the production of plastic chassis and flexible small-scale production», says Executive Director of Ford Europe, Ingvar M. Sviggum.[41]

"Recently, car-makers have been attracted to electric cars because it does not produce harmful emissions, even if the power stations that generate the electricity sometimes do", writes Jonathan Wood in his colorful book *Concept Cars*.[42] And the electric vehicle has to date been a concept car, a car doomed to oblivion after colorful exposure at motor car shows like the Geneva exhibition. Concept cars are visually stunning, colorful and sometimes zany, because the stylist and engineer have been given free hands - liberated from price and the restrictions in normal manufacturing processes. The concept car was born in the US in the 1950s, with inspiration from fighter planes, space rockets and aquacultural imagery (fish, whales etc). Today's concept car is far closer to tomorrow's serial produced car, because it has become easier to use the same platforms and frames. Trends shown in a concept car tend to get out on the market within 3-4 years.

But TH!NK has aspired to be something more than a concept car. In an attempt to allude to the famous «Letter from America» Ford stated the following: «TH!NK is not a blue-sky prototype or an expensive toy designed for the very few. On the contrary, TH!NK is a practical, affordable option that will be available to the many. It also underscores our commitment to the environment with another excellent electric vehicle option» (Jacques Nasser, President and CEO of Ford Motor Company).[43]

As we pointed out in the introduction, the Ford purchase of Pivco was a small sign of a global tendency - the growth of a few large car corporations like Ford, GM, Daimler, VW and BMW. On the one hand, this was part of a deliberate strategy. Large firms assume they have to buy smaller innovative companies before they pose a real threat. At the same time, these garage companies give valuable impulses to the larger corporations that have difficulty stimulating innovation within their system. «This car not only will give us immediate access to a whole new market niche, it will provide a wealth of new ideas for us to develop. We are particularly interested in new concepts in the use of plastic body components, as well as low-volume and flexible manufacturing» (Jack Nasser, Ford President and CEO).[44]

Some analysts are confident in success:

> «The TH!NK - or some variant - will assist Ford in meeting AFV mandates, and almost immediately prepare it to compete globally in the minicar niche. To Ford's credit, the company has

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[41] In Oslo, CEO Ingvar Sviggum of Ford Europe stated the Norwegian electric vehicle fulfills the demands to be affordable to most people. For the first time in history, Norway becomes a producer country of serial produced cars, he maintains, underlining the unique chassis and production solutions. He does not want to comment upon how much Ford will invest in Pivco. Existing Norwegian owners will have 49 percent of the company, and has not sold any shares to Ford. Ford will develop the product further together with Pivco designers before US launch.

[42] Wood, Jonathan, *Concept Cars*, Paragon, Bristol, 1998.

[43] Th!nk Nordic advertisement in Dagens Næringsliv, Wednesday March 10, 1999.

[44] Quoted from the Th!nk web-pages, at http://www.think.no/press.htm, 19.04.99.

> profited from these alliances in its past acquisitions of Jaguar and Aston Martin-without succumbing to the temptation of changing those companies' management, product focus, or originality» (Guy Mangiamele, Analyst).[45]

According to a Ford press release: «A central focal point on Ford's stand on the international car exhibit in Genève will be the Norwegian electric vehicle TH!NK.[46] This is in sharp contrast to how Journalist Trygve Larsen of Dagens Næringsliv saw it: «TH!NK in Geneve was put far behind and away from the real Ford exhibit[47]. The car did not appear like a Ford, but as a half-finished TH!NK, a product that is far from up-to-date and with a finish below any standard. On the Geneva exhibit it became quite clear that the car is going into production and sale from the fall of 1999, but the whole of Ford's presentation seemed somewhat halfhearted».[48] In fact, TH!NK was not alone among the Ford collection of electric vehicles[49]. A day after the announcement that they would take over Pivco, Ford made another announcement, the P2000 Prodigy Sedan fuel cell concept car that would match Ford Taurus. Here we are talking considerably more power, and a totally different range.[50] But there are others, too, that have already arrived at the sales desk. Ford Motor Company's successful truck line is «electrified» in 1999 with the electric Ranger pickup. The Ranger Electric Vehicle is Ford's 1999 production electric vehicle based on the best-selling compact pick-up in the U.S., the Ford Ranger. This car is marketed as «safe and convenient...designed and tested to be Build Ford Tough».[51] Ford will continue to sell the Ranger EV, an electric-powered compact pickup intended primarily for fleet use.[52] The question is whether TH!NK will be able to match these standards.

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[45] http://www.calstart.org/calindex3.html, 19.04.99.

[46] Ford press release, Kolbotn/Oslo, March 5th 1999.

[47] An alternative interpretation is given by a German autoclub on the web, who already talks about the Ford TH!NK: "Der Ford "TH!NK"...In kompakter Bauweise präsentiert sich die Konzeptstudie "TH!NK". Die Besonderheit: Der Wagen wird durch einen Elektromotos angetrieben und erzeugt selbst keine Schadstoffe. Gebaut wird das Elektroauto von der Ford Tochter PIVCO. Das norwegische Unternehmen gehört seit Anfang 1999 zur Ford Werke AG". To be found at: http://www.autocity.de/rahmen_ohne.phtml?ra=http://www.autocity.de/terminal/presse/test/fordthink.html

[48] Quoted from an e-mail interview, 25.03.99.

[49] TH!NK: A two-passenger electric city car manufactured by PIVCO Industries, a Norwegian company, in which Ford has purchased a majority interest. Ford Annual Report 1998, Glossary, found on: http://www2.ford.com/finaninvest/stockholder/stock98/glossary.htm#THINK

[50] DETROIT, Jan. 6, 1999 - The newest member of Ford Motor Company's ultra energy efficient P2000 family is a true zero-emission vehicle, powered by advanced hydrogen fuel cells. " A direct hydrogen fuel cell offers real promise as a zero-emission vehicle with competitive performance and driving range," said Bill Powers, vice president Research. "Fuel cells have several advantages over batteries, which currently have range and durability limits. Hydrogen, on the other hand, is a renewable resource." Quoted from The North American International Auto Show in Detroit in 1999. This influential Detroit gig is the longest running auto show in the United States, running every year since the first show in 1907 (with the exception of four war years). http://www.wxyzcars.com/naias_99/p2000.html, 20.04.99.

[51] Ford Fleet Information on the web; http://www.fleet.ford.com/vehicles/afv1rangere.asp, 02.02.99.

[52] In a way it is timely, since GM has both its EV1 and S10 electric pickup. http://evworld.com/reports/ford-th%21nk.html, 20.04.99.

However, moves was made to improve TH!NK, making it ready for the American market. *TH!NK Electricar,* a reborn California firm specialising in electric vehicle drive-trains, worked to support Ford on U.S. version of the TH!NK EV from former Pivco.[53]

Representatives from Ford Motor Company - including John Wallace, the company's director of alternative-fuel vehicles - visited PIVCO's facilities in Norway in 1999 to work out details of their accord, and to start finalizing plans for the future[54]. We know there were plans for a 4-door, compact EV.[55] In a press release, we learnt that Hertz was going to serve as the distribution network for TH!NK, allowing them to use the existing infrastructure, rather than building a new one. Equally, the Volvo service stations were trained to take care of TH!NK.

In the beginning of January 2000 Ford Motor Company announced the creation of Th!nk group – a division for alternative transportation (www.thinkmobility.com). Th!nk has suddenly become a major brand in Ford's portfolio, with products like Th!nk City (our case in point), Th!nk Neighbor, and Th!nk electric bikes. We are talking a major marketing effort on a global scale (and we cite from their website):

> »Environmentally responsible personal mobility. It's not a theory. It's a well-engineered reality. Welcome to TH!NK Group. A fresh global automotive brand dedicated to ingenious transportation solutions that care about the environment. Affordable, personal mobility. From whisper-quiet, 25mph bicycles and advanced design vehicles to the fuel cell powered automobiles of tomorrow».

[53] Fleets & Fuels, April 12, 1999 http://www.augustpacific.com/, 20.04.99.
[54] http://www.calstart.org/calindex3.html, 19.04.99.
[55] According to Dørum, op.cit.

10. Th!nk production – The market launch of Year 2000

The first manufacturing plant was sited outside Oslo and had the capacity to produce 5000 vehicles annually. As of 1999, the development division at TH!NK Nordic AS was working hard to make TH!NK ready for serial production. Most of the production in 1999 was reserved for large organizations and public institutions With the announcement that Telenor, the Norwegian telecom, would buy 700 vehicles, this definite priority was clearly spelled out. Private citizens could get access to TH!NK in the second half of 1999. The idea then was to target families in need of a second or third car.

The question of market niches has always been central to the visions of electric car use. The Dutch, for instance, have opted for this strategy. Their experiments show that fleet owners like taxi companies, service companies, and wholesalers are the most likely user groups (Eltzen, Schot & Hoogma, 1993:237). Key market for TH!NK is believed to be firms and organizations with a lot of in-city driving. The cars probably also fit the needs of social workers, delivery services, «food package driving»[56] etc. But selling the el-car is not only about finding a market it's about changing the perceptions of mobility within the market. The electric vehicle does something to the users. Results from European research projects have shown that users are happier with their cars than they expected themselves. They feel the el-car is secure, that they have become more careful and attentive drivers.[57] In fact, even the problems attached to recharging batteries are balanced by a «positive feeling of belonging to a pioneering group of urban innovators» (Gjøen, 1998:4). Once this group becomes a bit larger, it might develop into what Muniz & O'Guinn (2000:1) have analyzed as a 'brand community' - "a specialized, non-geographically bound community, based among a structured set of relationships among users of a brand". Car clubs are examples of such communities, which are enforced by the use of Internet and e-mail. Often, strong connections evolve, based on the brand identity.

Rudiments of such a brand community could be found on the web-site of Virtual Garden, TH!NK's advertising agency in Oslo, Norway. They had apparently developed an emotional attachment to the project. When the news of the bankruptcy reached them, there was a news posting: '...but what about the government involvement? This is bitter, pitiful and tragic for Norwegian industry'. When there was hope again: 'we cross our fingers', and when the champagne bottles were out; 'we're happy on behalf of the PIVCO employees that just wanted this success...let us just avoid giving the politicians the honor, because they probably don't deserve it." And finally, 'we're on the road again', after they once more were signed on to new tasks for the promotion of TH!NK. After this, Virtual Garden reopened their virtual TH!NK-store - a list

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[56] The idiomatic expression for the fact that most cars are driven by one person back and forth from work. The "matpakke" is the traditional Norwegian home made lunch, consisting of three slices of bread with brown or white cheese, wrapped in paper.The matpakke, of course is a cultural institution, and so counts for a "passenger".

[57] Researcher Heidi Gjøen, NTNU, quoted from Adresseavisen, 12.02.99, p.20, and 27.02.99, car-section.

of 26 VIP-customers to the new car. Full of male, trendy art directors, the list showed that so far, TH!NK is a show-off, trendy brand name.

In the affluent consumer markets, signs of segmentation and fragmentation may lead to a more consumer-driven choice of car (Womack et al, 1990), customized versions of general models, or even for particular types of car for particular uses (e.g the four-wheel-drive recreation vehicles). But as we have seen, these uses can not be predicted. Consumer tastes are not completely rational, as car is partly lifestyle, partly transportation. The environmental concern calls for, and indeed allows, the revitalization of apparently mature products. It is in this light we have to analyse the advent of TH!NK.

11. Conclusion

The Norwegian car manufacturer TH!NK, an enterprise of Ford Motor Company, tried to sell a vision of mobility as urban experience. They set out to build a strong brand, where TH!NK was *cute, innovative, safe and environmentally friendly*. TH!NK was to be the first mass-produced car in Norway, and the first mass-produced electrical vehicle in the world, aiming for 5000 cars a year. Considering that there was only some 2000 EV's on the world's roads at that time, the impact would be considerable if this came true. This was the official story. The story that the Norwegian press belatedly came to present. The created story. Clever enough. And carefully moulded through three decades of entrepreneurship.

The example of TH!NK show us how the presentation of the EV as a product has gone through many stages. The easy version would be to say, as we stated in the introduction, that TH!NK adapted its vision of mobility from what we with three words could label the environmental, experimental and the industrial to the urban, trendy and informational. This shift is the difference between the 1970ies and the 1990ies. They were trying to sell a vision of mobility as urban experience. But as we have seen, the tensions between the environmental and the urban, the technical and the trendy, between being a car and being something else, a new product, between being a prototype and a finished product – still were not settled after 30 years of product development. In a way, it seems like the EV is doomed to be an unfinished product, doomed to be leading-edge, as it were. For if it becomes the »plastic toy» that many of us would like it too, it will also loose its appeal to policy-makers. You can not change the ways of the world with little toys for the trendy minority. Or can you?

Since the 1980s, and still with Ford on board, TH!NK has targeted business users, a questionable niche strategy, given the focus on *personal* mobility. This is another problem for the introduction of TH!NK in people's minds. On the other hand, the 'urban' dimension to it will probably save the skin of the whole product. 'The urban experience' - that you have no need to

cross the boundaries of the city - is a powerful vision to corporate communities.

Until recently, 'mobility' as a concern has been colonized by governmental technopolitical regimes. The story of Pivco that became TH!NK, then Th!nk group in Ford Motor Company was both an exception to the rule, and at the same time re-entering within the logic. That was the logic of the established actors, which meant that it was taken out of the hands of consumers. It remained an industrial concept. Summing up, what made this happen in Norway? We can at least point to four factors:

- R&D from NTNU
- investments from SND
- fierce management by Pivco
- take-over by Ford Motor company

Few people voice their opinions about what they want. Especially within the bureaucracy, it seems mobility is seen as an area that could 'mobilise' only informed and considerate consumers. But this was before the language of advertising. As this paper shows, it is possible to get people interested in 'alternative' mobility, as long as the alternative is 'cool' or 'trendy'.

Certainly, the preparation of political regulatory regime is not enough in itself. Local policies could and must have a role, people must feel they have something to say, and must want to buy and drive electric. Concluding their study of the possible introduction of electric cars in Amsterdam, the authors claimed flanking policies are a *sine qua non* for a successful introduction of the electric car (Rienstra & Nijkamp, 1998:29). In short, el-cars are about transformation of discursive structures. The Norwegian car manufacturer TH!NK, as of January 2000 an enterprise of Ford Motor Company in the Th!nk Group, adapted its vision of mobility to the "zeitgeist": from the 1970s environmental, technical, experimental, and essentially industrial, to the urban, trendy and informational of the 1990s. This was probably a clever shift. And it moved in the right direction – if interactivity with the users is yardstick.

The main message from this study of Th!nk is the emphasis on the need to combine new technology with new ideology. Probably, any large-scale sale of EVs will demand more than subsidies or regulations, even if we may observe the impact of California's zero emission decision. EVs cannot compete with combustion engine cars on their premises. They need a redefinition of what a car should be and what mobility means. Such a redefinition is clearly difficult to achieve. However, the Th!nk case suggests some possibilities.

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