

The Pedelec Market in Flanders

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EET-2007 European Ele-Drive Conference
Brussels, Belgium, May 30 - June 01, 2007

Abstract

The worldwide pedelec (Pedal Electric Cycles) market has been growing fast during the last ten years. Many bicycle producers came along with a motor assisted bicycle model and launched it under a promising 'e-name'. Earlier pedelec performance analysis and collected consumer comments brought to light that these products were not always meeting the expectations. Moreover, a pedelec buyer needs to be well informed about his purchase. An important role should be played by the bicycle dealers: a pedelec buyer needs correct information to avoid a lot of misconceptions and a good service point to prevent the pedelec from falling into disrepair. A pedelec questionnaire was sent to more than 400 Flemish bicycle dealers, to find out how they deal with the new technology. Their pros and cons were compared with the most important consumer comments. This paper will discuss the following questions: What are the main reasons for (not) selling pedelecs? Are dealers satisfied with the pedelec performance and with the technical support from manufacturers? What are the present-day prices and how many units have been sold? Which manufacturers operate in the Flemish region and how many local producers have been found? How do they communicate the new technology to potential buyers?

Keywords: Bicycles, Market analysis, Demonstrations, Training.

1 Introduction

According to the National Institute of Statistics of Belgium [1], there are about 4 million bicycles in Flanders. Compared to a total number of 6 million inhabitants, Flanders might be called a bicycle region. The number of new bicycle buys per year is estimated at 400 000. 30% of the commuters in cities use the bicycle, 53% of the displacements to school are done by bicycle. So there is a potential market for pedelecs. Research by a Flemish consumer organization for bicycles showed that 82% of the Flemish cyclists bought their (conventional) bicycle in a specialized bicycle dealer shop [2]. This means that Flemish people trust the advice and service of these dealers for making their bicycle choice. In december 2005, 450 of these dealers were asked to fill in an electronic questionnaire about their pedelec experiences. 102 of them were prepared to answer and helped sketching the market situation. The answers also clearly show how dealers ap-

preciate today's pedelec generation. Next to this questionnaire 110 websites of bicycle shops were checked for data about pedelecs (websites of responding dealers were excluded). The data of the dealer inquiry and the websites are collected in this paper.

2 The Affirmative Answers

The electronic inquiry was kept simple, to raise the change for answers. Table 1 shows the queries. The next sections inform about the answers to the question 1-4.

2.1 Brands on the Flemish market

In table 2 all occurring brands are alphabetically listed in the first column. The second column mentions whether this brand represents a full mounted pedelec, a power kit or both. Also two

Table 1: The questionnaire

Do you offer pedelecs or power kits to your clients?
Yes
1. Which brands/types do you offer?
2. What is the shop price of these products?
3. How many pedelecs did you roughly sell in the past year?
4. How many common bicycles did you sell in the same period?
5. Do you get enough information of the manufacturer to be able to repair/test the electric parts (motor, controller, battery,...) in your own garage?
6. Are you satisfied yourself about the performance of these products?
7. What could be improved to the technology?
No
What is the main reason for not offering pedelecs?

folding bicycles are mentioned. The third column contains a link to the website of the manufacturer, or a link to a website where the discussed pedelec can be found.

The total number of contacted dealers was 212 (102 via inquiry, 110 via website). Figure 1 gives the absolute number of contacted dealers selling these brands. Brands that only occurred once were deleted. Also some brands were put together because of the similarity in their electric drive system.

Table 2: Alphabetic list of pedelec brands found in flemish bicycle shops

brand	type	website
Antec	pedelec/kit	www.antec.nl
Batavus (Ion)	pedelec	www.onzichtbaremotor.nl
Bertin/Sparc	pedelec	www.fietsenvanneste.be
Binbike	pedelec/kit	www.euromoto.be
Bionx	kit/pedelec	www.bionx.be
Eazy movv	pedelec	www.eazymouv.com
EBD	pedelec	www.ebd.be
Enik/bionx	pedelec	www.elektrischefiets.be
Enik/sparc	pedelec	www.elektrischefiets.be
E-zee bike	pedelec	www.ezeebike.com/home.htm
Flyer	pedelec	www.flyer.ch
Gazelle	pedelec	www.gazelle.nl/www2/easyglider
Giant	pedelec	www.lafree.com
Heinzmann	kit/pedelec	www.heinzmann.de
Joris E-bike	pedelec	www.joris-e-bike.com
Koga Miyata (Ion)	pedelec	www.koga.com/nl
Kynast	pedelec	www.extraenergy.org
l'Avenir	pedelec	www.lavenir.be
MBK	pedelec	www.mbk-cycles.com
Panasonic	folding bicycle	www.pocketsoul.com/evstart
Piaggio	pedelec	www.piaggio.com
Powabyke	pedelec	www.powabyke.com
Renault zapping	folding bicycle	www.pocketsoul.com/evstart
Sachs	pedelec	www.sachs.be
Schachner	pedelec/kit	www.elektrobikes.com
Sparta Ion	pedelec	www.sparta.nl
SRAM sparc	kit	www.sram.com
Swizzbee	pedelec	www.swizzbee.ch
Thompson/bionx	pedelec	
Venturelli	pedelec	www.venturelli.be
Yamaha	pedelec	www.yamaha-motor.co.jp

The most occurring brand in the inquiry was Electronic Bike Developments, a flemish firm offering the pedelecs called E-move and E-manuel. EBD is followed by two dutch firms, Sparta and Batavus, who both use the same electric drive technology. In the top ten, also two other dutch firms, Gazelle and Antec are represented. Remarkable is also the presence of 2 american products: Bionx from Canada, and Sram from the USA. The only other belgian manufacturer in the top ten is l'Avenir. Giant and the Yamaha PAS system are representing Asia in the top ten.

70% of the brands have their origin in Europe.

Although the pedelec is far more popular in many Asian countries (i.e. China sold 1 million pedelecs in 2002 [3]) only 13% is from Asian origin.

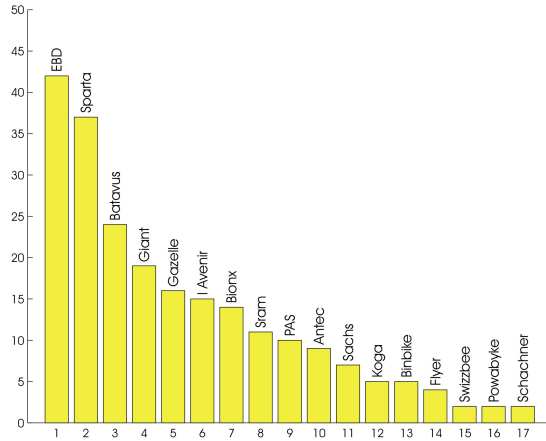


Figure 1: Number of dealers per pedelec

2.2 Dealers and pedelecs

Table 3: Sales figures of the year 2005 for the pedelec offering dealers

Average number of pedelecs per dealer	13.4
Average number of conventional bicycles	402
Max number of pedelecs for 1 dealer	200
Average number of brands per dealer	2

85% of the responding dealers were offering pedelecs or power kits. 33% of the dealers offer one single brand. 51% offer at least 2 different brands of pedelecs. The maximum number of brands for one dealer was 8! Most of them were selling full mounted pedelecs. The main reason may be that most of the occurring brands were only offering pedelecs. But even the power kits of the manufacturers were mounted in a common bicycle by the dealer. Only two dealers were mentioning the sale of power kits without bicycle.

Only 38% of the visited websites were mentioning pedelecs. This is much less than what would be expected from the results of responding dealers. Whether the 85% is too much because dealers who do not offer pedelecs did not take trouble to answer the inquiry, whether the dealers find it unnecessary to make publicity for these products on their websites. This may mean that most dealers are not actively promoting the pedelec. Their main concern is the ordinary human powered bicycle.

The last reason is understandable if one looks at the average sales number of pedelecs and common bicycles in table 3. For pedelec offering

dealers, only 3.3% of the sold bicycles are pedelecs. And as 3 dealers did not want to offer pedelecs because of the small profit margin, the profit part coming from pedelecs sales will be even less than 3.3% of the total dealer profit.

Of course there were some proverbial exceptions: one respondent stated to be specialized in electric bicycles and two visited websites were only offering electric bicycles.

However, the conclusion may be that one cannot expect a market boost by the marketing efforts of the dealers. They seem not to be waiting for a breakthrough. The marketing has to be done by the manufacturers or by the government.

The pedelec offering dealers in Flanders were divided in 4 categories:

1. dealers who sold less than 5 pedelecs in 2005
2. dealers who sold less than 10, but at least 5 pedelecs in 2005
3. dealers who sold less than 20, but at least 10 pedelecs in 2005
4. dealers who sold more than 20 pedelecs in 2005

Table 4 shows the percentage of dealers belonging to each of these categories, and the relative number of pedelecs that they represent.

Table 4: The division of pedelec offering dealers in 4 categories

Category	Dealers percentage	Pedelecs percentage
1	29	6
2	29	13
3	24	21
4	18	60

So 15% (18% of the 85% offering dealers) of all responding dealers represent more than 60% of the described pedelec sales.

2.3 The number of pedelecs in Flanders

An idea of the total number of pedelecs (TNP) sold in Flanders in 2005 is obtained by a combination of the following data

- 82% (p_1) of Flemish cyclists buy their bicycle in the specialized dealer shop [2]
- There are about 950 (dn) bicycle dealer shops in Flanders [4]
- 13,4 (pn) is the average sales number of pedelecs per dealer in 2005
- 402 (cn) is the average sales number of conventional bicycles
- 61% (p_2) of the dealers offer pedelecs (combined data of visited websites and inquiries)

$$TNP = \frac{dn \cdot p_2 \cdot pn}{p_1} = 9470 \quad (1)$$

Verification of this total pedelec sales number of 9470 in Flanders in 2005 can be done by calculating the number of common bicycle sales (TNC) in the same way:

$$TNC = \frac{dn \cdot cn}{p_1} = \frac{950 \cdot 402}{0,82} \approx 466000 \quad (2)$$

This number is close to the number given by the national institute of statistics [1].

In the Netherlands, the year 2005 was good for 1,2 million conventional bicycle sales and 30000 electric bicycles. For the latter category, this was an increase of 50% compared to 2004 [2]. So, the Netherlands as well as Flanders have about 1 pedelec for 600 people (1/540 for the Netherlands, 1/630 for Flanders). The Netherlands seem to have a small lead to Flanders.

2.4 Pedelec prices in Flanders

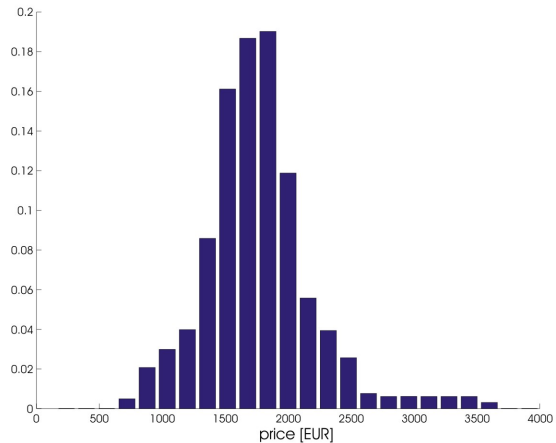


Figure 2: The distribution of offered pedelec prices in Flanders

Many dealers gave detailed customer prices of their products. Other dealers only gave minimum and maximum prices. For the latter category, all prices between the minimum and maximum were also included, in order to get a distribution of prices between the all dealer minimum (see table ref 5) and the all dealer maximum. This distribution is presented in figure 2.

Table 5: The market price of pedelecs in Flanders

Minimum price	€ 695
Maximum price	€ 3600
Average price	€ 1691

Compared to the international prices given in table 6 these prices seem to be at the high side. Another conclusion may be that pedelec prices are increased the last years, or that the prices for Europe in reference [3] are a bit underestimated.

Table 6: The market price of pedelecs in the world in the year 2003 [3]

Region	Average price	Sales 2003 [x1000 units]
China	€ 260	1000
Japan	€ 650	180
EU	€ 900	65
USA	€ 1300	35

3 Main reasons for not distributing pedelecs

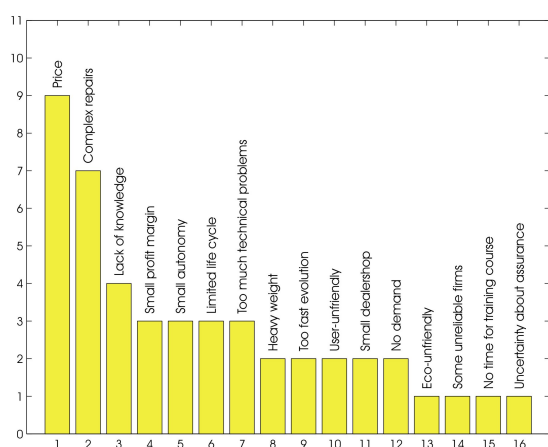


Figure 3: Reasons for not distributing pedelecs

The 15% respondents who told not to offer pedelecs gave many different reasons for this absence. These reasons are collected in figure 3 in order of importance.

These reasons are subdivided in 4 categories shown in table 7. More than one half of the rea-

Table 7: Categories of reasons for not distributing pedelecs and number of occurrence

Reason	Occurrences [%]
Distrust in pedelec technology	52
Price	26
Practical reasons	11
Lack of pedelec knowledge	11

sons deals with a distrust in the pedelec technology. A lot of work is left to be done by manufacturers to convince the dealers of their product quality. Although we have to admit that sellers of the best selling pedelecs were quite content of the two-wheelers and the support of the manufacturers (see 4).

4 Satisfaction about the technology and the manufacturer support

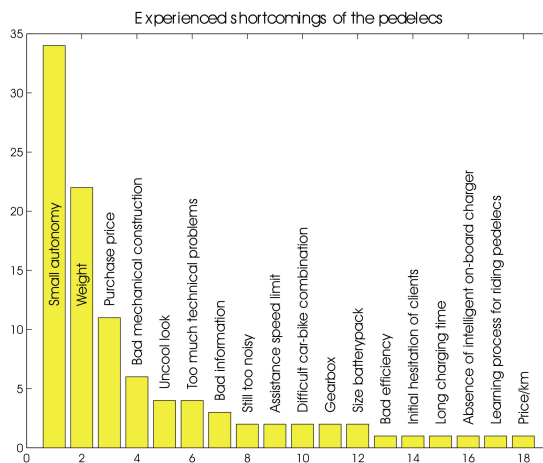


Figure 4: The shortcomings of the pedelec through the dealers eyes

Generally the pedelec offering dealers are satisfied about the performances of their pedelecs. Although only 11% was really disappointed about the technology, a lot of possible improvements were given as an answer to question 7. For the matter of the shortcomings, the dealers quite agreed with the answers of earlier users inquiries [5]: also dealers would like to see a higher autonomy and a lower weight and price. All answers are bundled in figure 4.

Table 8 split up the mentioned shortcomings in 4 categories.

Table 8: Categories of shortcomings and relative number of occurrence

Shortcomings	Dealers	Users
Technical shortcomings	81%	55%
The high market price	12%	7%
The lack of information	5%	4%
The external barriers	2%	34%

The second column is the percentage of dealers that mentioned the shortcoming specified in the first column. The third column of table 8 is the percentage of test persons from the lending service at the 'Vrije Universiteit Brussel' [5] that mentioned the same shortcoming.

More than 80% of the mentioned remarks by dealers are complaints about the imperfect technology. Although only 7% of the given remarks by the test persons is a complaint about the price, still 20% of these persons would like to see a lower price. Only 11% of the dealers think a lower price is needed to convince the client.

Concerning the external barriers, only the legislative speed limit was mentioned by the dealers. Users had much more remarks about external barriers as infrastructure problems, fear of theft and weather dependency... This could be an indication of the lack of riding experience of the dealers with the pedelecs.

79% of the dealers was satisfied by the support of the manufacturer. Most manufacturers are aware of the need for support, looking at the positive feedback that many dealers gave about service points, education and the ease of getting spare parts. 21% was disappointed about the service of the manufacturer. Part of them decided on this base to stop the cooperation.

5 Misunderstandings

Another conclusion withdrawn from the answers of the dealers is that there are still a lot of misunderstandings about the technical working principle of the pedelec. Some dealers persistently deny the first law of thermodynamics and wonder why one has to reload the battery from the grid, while a simple dynamo could do the same during cycling.

Other dealers suggest a financial intervention of the National Health service, to help disabled people to purchase their pedelec.

6 Conclusions

Three years of organized test rides with pedelecs lead to a lot of feedback from the users [5]. The electronic questionnaire to the dealer shops learned a lot about the pedelec penetration in the Flemish market and the dealers point of view on pedelecs.

The results of this market study could be concluded as follows:

- Appreciation of the tested pedelecs is highly dependent on the site specific mobility culture and the previous history of its user.
- The electric bicycle is certainly not a simple alternative for normal bikes, but a new mobility means, especially suited for distances between 5 and 15 km.
- Negative remarks about pedelecs concern the sometimes disappointing performance and high purchase costs.
- Pedelecs are suitable for commuting as well as shopping and leisure.
- A lot of people find them too heavy, not attractive enough and are frightened by uncertain battery lifetimes. Although the last generation of pedelecs solved a lot of the complaints, still prices and weights stay above the clients wish.
- Cycling infrastructure still has to be optimized for a real breakthrough.
- The condemnation as 'bicycle for disabled people' is never far away.

- Some persistent misunderstandings about the working principle (by users as well as dealers) still have to be removed.
- Although most dealers are won for the electrical assistance, they are not actively promoting the pedelec.
- However, promotion of pedelecs is justified and necessary, because
 - they might be a possible solution for the traffic congestions within cities, as far as they move people from car-driving to cycling.
 - frequently cycling on a pedelec can also improve physical condition of a sedentary population [6].
 - they move people with light physical constraints to (re)discover the benefits of cycling.
 - and they could deliver us from road unsafety, noise pollution, CO_2 -emissions, alienation amongst people, corpulence, lack of space, oil problems,...

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