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***Case No COMP/M.4854 -  
TOMTOM/TELE ATLAS.***

Only the English text is authentic.

**REGULATION (EC) No 139/2004  
MERGER PROCEDURE**

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Article 8 (1)

Date: 14/05/2008



COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 14/05/2008  
C(2008) 1859

**PUBLIC VERSION**

**COMMISSION DECISION**

**of 14/05/2008**

**declaring a concentration to be compatible with the common market  
and the EEA Agreement**

(Case No COMP/M.4854 - TOMTOM/ TELE ATLAS)

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(Text with EEA relevance)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to the Agreement on the European Economic Area, and in particular Article 57 thereof,

Having regard to Council Regulation (EC) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings<sup>1</sup>, and in particular Article 8(1) thereof,

Having regard to the Commission's decision of 28 November 2007 to initiate proceedings in this case,

After consulting the Advisory Committee on Concentrations<sup>2</sup>,

Having regard to the final report of the Hearing Officer in this case<sup>3</sup>,

Whereas:

<sup>1</sup> OJ L 24, 29.1.2004, p. 1.

<sup>2</sup> OJ C ..., 200..., p....

<sup>3</sup> OJ C ..., 200..., p....

I. THE PARTIES

- (1) TomTom N.V. ("TomTom"), headquartered in Amsterdam, Netherlands, is a manufacturer of portable navigation devices (PNDs) and a supplier of navigation software for use in navigation devices. The company is listed on the Euronext Stock Exchange in Amsterdam.
- (2) Tele Atlas N.V. ("Tele Atlas"), headquartered in 's-Hertogenbosch, Netherlands, is one of two main suppliers, both in Europe and North America, of digital map databases for navigation and other end-uses. The company is listed on the Euronext Stock Exchange in Amsterdam and on the Frankfurt Stock Exchange.

II. CONCENTRATION

- (3) On 2 October 2007, TomTom launched a cash tender offer for all issued and outstanding publicly listed shares of Tele Atlas. The proposed transaction therefore constitutes a concentration within the meaning of Article 3(1)(b) of Council Regulation (EC) No 139/2004 (the "Merger Regulation").

III. COMMUNITY DIMENSION

- (4) The parties to the proposed concentration do not meet either of the alternative turnover thresholds set out in Article 1(2) and 1(3) of the Merger Regulation, since the combined aggregate worldwide turnover of the undertakings concerned does not exceed EUR 2.5 billion and moreover, the turnover of Tele Atlas does not exceed EUR 25 million in at least three Member States in which the combined turnover of the parties concerned must exceed EUR 100 million. Therefore, the proposed transaction does not have a Community dimension.

IV. ARTICLE 4(5) REFERRAL

- (5) The proposed transaction would have been subject to mandatory scrutiny under national merger control law in four Member States, namely, in Germany, the Netherlands, Spain and Portugal.
- (6) On 24 August 2007, the Commission received a reasoned submission by TomTom in which the company requested a referral to the Commission pursuant to Article 4(5) of the Merger Regulation. No Member State objected to the referral of the proposed transaction to the Commission. The proposed transaction was therefore deemed to have a Community dimension and has been examined by the Commission.

V. THE PROCEDURE

- (7) On 22 October 2007, the Commission received a formal notification pursuant to Article 4 of the Merger Regulation by which TomTom acquires within the meaning of Article 3(1)(b) of the Merger Regulation control of the whole of Tele Atlas by way of a public bid.

- (8) On 28 November 2007, the Commission concluded that the notified operation raised serious doubts as to its compatibility with the common market and the functioning of the EEA Agreement. The Commission accordingly initiated proceedings in this case pursuant to Article 6(1)(c) of the Merger Regulation.
- (9) On 18 December 2007, pursuant to Article 10(3) of the Merger Regulation, following a request from the notifying party, the time limit within which a decision must be adopted in this case was extended by ten working days.
- (10) On 29 February 2008, a Statement of Objections was sent to TomTom pursuant to Article 18 of the Merger Regulation. Thereafter, a number of interested third parties were invited to submit comments on a non-confidential summary of the Statement of Objections.
- (11) After sending of the Statement of Objections, the Commission finalised an empirical study, which analyses the merged firm's incentives to engage in vertical foreclosure and the impact of the proposed transaction on the PND market. The robustness of the study's conclusions was thoroughly tested.
- (12) On 17 March TomTom submitted its reply to the Statement of Objections. Subsequently, this reply was examined in depth by the Commission and new factual elements were cross-checked with interested third parties.
- (13) On 26 March 2008, pursuant to Article 10(3) of the Merger Regulation, the Commission decided, with the agreement of the notifying party, to extend by a further ten working days the time limit within which a decision must be adopted in this case.

## VI. RELEVANT MARKETS

### 6.1. Introduction

- (14) The proposed transaction is of a purely vertical nature, since it involves two companies operating at different levels in the supply chain. This merger is a case of "upstream" integration in the sense that a producer of a good acquires its main provider of an important input. The acquirer, TomTom, is principally active in two "downstream" markets for the provision of navigation software and PNDs respectively. Companies active in these markets use the same input, namely navigable digital map databases (the "upstream" market) such as those produced by the target company, Tele Atlas.
- (15) TomTom integrates the navigable digital databases it purchases from Tele Atlas into the navigation software the company produces. The integrated product (software and database) is then either included in the PNDs that TomTom itself sells to end-consumers or is sold to other manufacturers of navigation devices for inclusion in their devices (the navigation software may also be sold separately without the map database). Navigation software is therefore an intermediate product situated between the upstream product (navigable digital map databases) and the downstream product (PNDs and other navigation devices) in the vertical supply chain.

- (16) In order to assess the proposed transaction's impact on competition, the Commission must define the upstream market, the intermediate market and the downstream market.

### 6.2. The Upstream Market – Navigable Digital Map Databases

#### 6.2.1. Definition of the relevant product market

- (17) A digital map database is a compilation of digital data which typically includes (i) geographic information which contains the position and shape of each feature on a map (such as roads, railways, rivers and indications of land use), (ii) attributes which contain additional information associated with features on the map (such as street names, addresses, driving directions, turn restrictions and speed limits) and (iii) display information. Suppliers keep map data in a relational database which is not in itself a digital map<sup>4</sup>. The relational database is used by customers to generate digital maps and provide services based on map information. The map data included in the databases is derived from a multitude of sources such as aerial photographs, satellite images, official government map databases and other government sources as well as from field data generated by field forces using customised vehicles.
- (18) In addition to the core database, several layers of add-on information is provided by the providers of digital map databases. These layers that may be offered are base maps (basic information which enables the display of a digital map), updates, points of interest (POIs, such as restaurants, hotels, petrol stations and landmarks)<sup>5</sup>, phonemes (enabling the provision of vocal instruction), truck-specific attributes (such as height and weight restrictions, lane restrictions and ideal routes), postal codes, 3D landmarks, and Advanced Driver Assistance Systems (ADAS) attributes<sup>6</sup>. However, customers do not necessarily buy all layers offered.
- (19) Digital map databases are sold to manufacturers of navigation devices, producers of navigation software and providers of non-navigation applications (such as Internet maps, various government uses and corporate solutions such as fleet management). Furthermore, they are used for a variety of purposes, the most important being address location, route planning<sup>7</sup> and navigation<sup>8</sup>. To provide navigation, the digital map database must be combined with a system for instant

<sup>4</sup> In a relational database the data is internally structured in tables.

<sup>5</sup> Providers of digital map databases include at least basic POI information. Providers either generate this information themselves or source it from aggregators. Sometimes device manufacturers themselves source premium POI content directly from aggregators and incorporate it in their navigation devices.

<sup>6</sup> Advanced Driver Assistance Systems provide "vehicle intelligence" including driver assistance, enhanced safety, advisory systems and fuel management systems.

<sup>7</sup> Route planning is the provision of a sequential description of a route from origin to destination. The calculated route is usually shown on a map with step-by-step directions in text form. Route planning is typically provided on-line and printed out by the user.

<sup>8</sup> For the purposes of this Decision, the term navigation denotes the use of GPS technology to display the user's current position and provide turn-by-turn directions to guide the user to a destination in real time. Guidance is provided in visual form on the screen of the navigation device, usually complemented by voice guidance. In addition, re-routing ("back-on-track") functionality is usually provided.

geographic positioning, primarily using Global Positioning System (GPS) technology.

- (20) Digital databases are provided to customers in a number of different formats, which are dictated by customers' application requirements<sup>9</sup>. Both Tele Atlas and NAVTEQ Corporation ("NAVTEQ"), its largest competitor and one of the two main suppliers of digital map databases with EEA coverage, are capable of supplying map data in all available formats and customers can switch between data supplied in different formats<sup>10</sup>. Customers are generally capable of receiving map data in different formats and of switching between formats. Format switching may necessitate reconfiguration of the data so that it is compatible with the navigation software used by the customer. Such reconfiguration costs are not prohibitive. There is therefore no need to delineate separate product markets for digital map databases depending on the format in which the data is delivered to the customers.
- (21) The Commission has considered whether or not digital map databases for navigation purposes and non-navigation purposes constitute separate relevant product markets. The provision of digital map databases for navigation purposes accounted for approximately [60-90]\* % of Tele Atlas's turnover in 2006<sup>11</sup>. TomTom only buys digital map databases for navigation purposes.
- (22) The degree of demand-side substitutability between digital map databases for navigation purposes and for non-navigation purposes must be regarded as limited, because the quality requirements are very different. In order to be used for navigation, a digital map database must be sufficiently detailed, accurate and updated and must contain the necessary attributes and add-on layers, whereas a more basic database will suffice to provide simpler services such as route planning and address location<sup>12</sup>. A navigation device will not function (or will at least not function properly) if used with a basic digital map database of inferior quality.
- (23) The degree of supply-side substitutability must be regarded as one-sided, because a provider of the higher quality digital map databases for navigation purposes may also easily provide the simpler database used for non-navigation purposes. The core databases used for the two types of applications are very similar (in fact, the basic map is the same). However, there is no supply-side substitution in the other direction due to the substantial costs and time required to upgrade a basic database to navigable quality. Whereas it is possible to produce a basic digital map database for many territories relatively quickly and at limited cost by compiling data from various public sources, producing a navigable digital map database is costly and very resource-intensive.
- (24) In order to compile the data necessary for navigation, the features of each road in the database have to be recorded manually. Tele Atlas and NAVTEQ compile such data by operating field forces using a fleet of vehicles that drive along each road in the database. The use of field surveys is crucial for the accuracy as well as for the completeness of the databases because they are used both to verify data accumulated from other sources and to record additional data not available by other means. Tele Atlas provides navigable digital map databases covering 64 countries and 21.3 million kilometres of roads while NAVTEQ's databases cover 53 countries and over 16 million kilometres of roads<sup>13</sup>.
- (25) A producer of basic digital map databases that wants to switch its production to digital map databases of navigable quality would therefore have to commit substantial resources to collect all additional information necessary for navigation capability. Although more information is currently available from alternative sources, it is still indispensable to employ field forces driving down every single road in order to record all road features in the geographic area which will be covered by the navigable digital map database<sup>14</sup>. Once a complete database has been compiled, it has to be constantly updated so that it incorporates all changes made to the road network. Field surveys are needed also for updating the database. Even if the database provider obtains information about changes from various external sources (for instance, from local authorities) the veracity and accuracy of the information supplied have to be checked by means of a field survey. Once the data has been compiled, very large volumes of data have to be processed and incorporated into the database.
- (26) Compiling and processing the data necessary for a navigable digital map database is a very time-consuming process. Upgrading in this manner a basic digital map database covering the European Union, is likely to take several years<sup>15</sup>. Creating

\* Parts of this text have been edited to ensure that confidential information is not disclosed; those parts are enclosed in square brackets and marked with an asterisk.

<sup>9</sup> Tele Atlas provides its digital map databases in four exchange formats: (i) GDF-AS (ASCII-Sequential), the standard international exchange format for navigable digital map databases approved by the European Committee of Standardization (CEN); (ii) GDF-AR (ASCII-Relational), a version of GDF-AS developed by Tele Atlas to facilitate integration of data into applications based on relational databases (the GDF-standard is predominantly used by the automotive industry); (iii) Shape, a format which is easy to integrate into Geospatial Information System (GIS) based applications (the Shape format is used by most PND manufacturers including TomTom); (iv) Oracle, a format compatible with Oracle Corporation's database management systems. Reply by Tele Atlas of 14 January 2008 to question 2 of the Commission's request for information. NAVTEQ provides its data in GDF, Shape and Oracle formats and several additional formats, including two formats developed by NAVTEQ itself, SIF+ and RDF. Reply by NAVTEQ of 12 January 2008 to question 3 of the Commission's request for information.

<sup>10</sup> Reply by NAVTEQ of 12 January 2008 to question 3 of the Commission's request for information.

<sup>11</sup> In 2006, "personal navigation", that is to say essentially sales to producers of PNDs, PDAs and GPS-enabled mobile telephones, accounted for [40-60]\*% of the turnover and "automotive" sales, that is to say, sales to producers of "in-dash" navigation devices, accounted for [10-30]\*%.

<sup>12</sup> For instance, a navigable digital map database must contain attributes such as road type, road class, traffic flow information (one-way, two-way, lane separation) and turn restrictions.

<sup>13</sup> Reply by [PND Manufacturer]\* of 4 January 2008 to question 13 of the Commission's request for information.

<sup>14</sup> The indispensability of field forces is confirmed by the minutes of a telephone conversation with Facet Technology Corporation ("Facet") of 1 February 2008 and by the reply of Sony Ericsson Mobile Communications AB ("Sony Ericsson") of 22 November 2007. Furthermore, NAVTEQ's reply to the Commission's invitation to comment on a summary of the Statement of Objections of 25 March 2008 indicates that Tele Atlas and NAVTEQ both rely upon field surveys to a large extent and neither company has indicated any intentions to stop using field surveys in the future. NAVTEQ concedes that field surveys are still important, albeit less important than in the 1980s when NAVTEQ first built its database.

<sup>15</sup> [Mobile Telephone Manufacturer]\* estimates that it would take 1000 people 5-10 years to replicate the databases offered by Tele Atlas and NAVTEQ. Reply by [Mobile Telephone Manufacturer]\* of 22 November 2007 to question 11 of the Commission's questionnaire. [Car Maker]\* estimates it

and maintaining a navigable digital map database of sufficient quality is much costlier than creating and maintaining a basic non-navigable digital map database. Tele Atlas estimates the cost of the former at approximately EUR [5-15]\* per km whereas the cost of the latter is estimated at EUR [0-10]\* per km<sup>16</sup>.

- (27) Given the lack of demand-side as well as supply-side substitutability, it may be concluded that digital map databases for navigation and non-navigation applications constitute separate product markets.
- (28) The Commission has considered the feasibility of sub-dividing the market for navigable digital map databases according to the type of navigation device within which they are used, whether PND, Personal Digital Assistant (PDA), GPS-enabled mobile telephone or "in-dash" navigation device. Although certain features may vary between for instance PNDs and GPS-enabled mobile telephones, the databases used for all types of navigation devices are technically and performance-wise very similar. The Commission market investigation has confirmed that it would be inappropriate to sub-divide the market in this manner.
- (29) There is therefore no need to sub-divide the market for navigable digital map databases according to the type of navigation device.
- (30) Finally, it must be considered whether the market for the provision of navigable digital map databases ought to be sub-divided according to the geographic coverage of the databases sold. It should be noted that the geographic coverage of navigable digital databases is a product feature relevant for the delineation of the relevant product market in this case. The geographic coverage of the database must not be confused with the geographic scope of the market, which is dealt with separately in Section 6.2.2.
- (31) Tele Atlas and NAVTEQ license the use of their navigable digital map databases. The companies usually grant non-exclusive, perpetual, "per device" licences that allow the licensed database to be used on the device for the duration of its useful life<sup>17</sup>. The level of the licence fee depends on several elements, including the extent of the geographic coverage and the content of the map data. The greater the geographic coverage of map data and content, the higher the licence fee. The main determinant for the licence fee, which is always defined in the customer contracts concluded by Tele Atlas and NAVTEQ, is the geographic coverage of the database being licensed, that is to say, the licensed territory<sup>18</sup>.
- (32) From the demand side, the substitutability of navigable digital map databases with different geographic coverage must generally be regarded as limited. A device manufacturer that intends to sell a navigation device in a particular territory must include a navigable digital map database with a corresponding geographic coverage, otherwise the device will simply not function and cannot be sold. However, navigable digital databases which overlap partially may be substitutable

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would take 2000 employees 6-8 years to build a map database of the same quality as that of Tele Atlas and NAVTEQ. Reply by [Car Maker\*] of 8 November 2007 to question 15 of the Commission's questionnaire.

<sup>16</sup> Reply by Tele Atlas of 14 January 2008 to question 3 of the Commission's request for information.

<sup>17</sup> Notification, page 30.

<sup>18</sup> In this context, the term licensed territory refers to the geographic coverage of the database being licensed and not the territory in which the licence is valid as in most other industries.

to a certain extent. For example, a navigable digital map database with regional coverage (including several countries) is partially substitutable to a database with national coverage, provided that the country covered is included in the regional database. A device maker could possibly substitute the larger regional database with the smaller national database and install it into those navigation devices it intends to sell in the country in question.

- (33) The degree of supply-side substitutability of navigable digital map databases with different geographic coverage is also limited due to the resources and time required to build a navigable digital map database from the very beginning (as described in paragraph 26). The limited supply-side substitutability applies also to the established suppliers, that is to say, Tele Atlas and NAVTEQ. Despite the fact that both companies possess the necessary knowledge and resources, including field forces and vehicle fleets, there would still be a substantial time-lag before they could extend their geographic coverage to a new territory.
- (34) The territories licensed by Tele Atlas and NAVTEQ are either individual countries or supra-national regions which consist of several countries bundled together. Examples of such regional licences found in contracts are the DACH-region<sup>19</sup>, the ALPS-region<sup>20</sup>, the BENELUX-countries<sup>21</sup>, the Nordic region<sup>22</sup>, the Iberian peninsula<sup>23</sup>, Western Europe<sup>24</sup>, Eastern Europe<sup>25</sup> and Europe, that is to say Western Europe and Eastern Europe as a whole<sup>26</sup>. Tele Atlas and NAVTEQ rarely license territories smaller than an individual country<sup>27</sup>.
- (35) Tele Atlas maintains that currently a significant portion of the demand for navigable digital map databases for use in navigation devices is attributed to national or regional coverage, as opposed to broader European coverage. [...]\*
- (36) Tele Atlas maintains a single core map database which is supplied to all customers. Each customer then chooses which geographic coverage and which functionalities he wants to use and pays licence fees accordingly. Tele Atlas charges its customers different licence fees for the following product categories; Europe, Western Europe, Eastern Europe, large country or region and small country. Customers report to Tele Atlas the number of units purchased broken down into these categories but are not required to specify which particular countries or regions they have licensed. Therefore, Tele Atlas does not keep country-by-country or region-by-region data for its sales of navigable digital map databases<sup>28</sup>.

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<sup>19</sup> Germany, Austria and Switzerland.

<sup>20</sup> Typically Southern Germany, South-East France, Switzerland, Austria and Northern Italy.

<sup>21</sup> Belgium, the Netherlands and Luxembourg.

<sup>22</sup> Sweden, Denmark, Norway and Finland.

<sup>23</sup> Spain, Portugal, Andorra, Gibraltar and a small part of France.

<sup>24</sup> Usually Austria, Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, Norway, Portugal, the Republic of Ireland, Spain, Sweden, Switzerland, the Netherlands and the United Kingdom.

<sup>25</sup> Usually Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Turkey and connector maps for central Eastern Europe.

<sup>26</sup> Reply by Tele Atlas of 25 January 2008 to question 3 of the Commission's request for information.

<sup>27</sup> Reply by Tele Atlas of 25 January 2008 to question 2 of the Commission's request for information.

<sup>28</sup> NAVTEQ's reply of 25 January 2008 to question 2 of the Commission's request for information.

Reply by Tele Atlas of 25 January 2008 to question 4 of the Commission's request for information.

- (37) Similarly, NAVTEQ usually licenses its navigable digital map database on a continental basis. The customer then chooses the geographic coverage, that is to say, the whole database, a particular region or a country, and the functionality, such as map display, route planning or navigation he wishes to use. NAVTEQ is normally not aware which countries a customer will use, since the latter only pays afterwards for the geographic regions actually used<sup>29</sup>.
- (38) The Commission considers that the relevant product market upstream should be defined as the provision of navigable digital map databases where the geographic coverage of the licensed database determines the scope of the relevant product markets<sup>30</sup>. However, for the purposes of this Decision the exact delineation of the relevant product markets, that is to say, whether or not individual country or regional licences constitute separate product markets, may be left open, since it does not affect the Commission's assessment of the proposed transaction.

### 6.2.2. Definition of the relevant geographic market

- (39) The two established providers of navigable digital map databases Tele Atlas and NAVTEQ are located in the Netherlands and in the United States of America (the United States) respectively. Both companies keep their databases on servers in their respective countries. The companies deliver the data by sending a "master" CD-ROM to customers or by allowing them to download over the internet the data they have licensed<sup>31</sup>. Tele Atlas distributes its products from the Netherlands to device makers and software providers located elsewhere in the EEA and in other parts of the world. NAVTEQ distributes its databases from the United States to the EEA and other parts of the world where device makers and software providers are located. Major device makers and software developers are located in the EU, the United States, Japan and South Korea.
- (40) Navigable digital map databases sold by NAVTEQ are imported by customers located in the EEA, while Tele Atlas exports its products to customers outside the EEA. Quotas, tariffs or other trade barriers do not limit these imports and exports of digital data of this kind<sup>32</sup>.
- (41) There are no material differences in the way in which navigable digital map databases are sold or distributed within the EEA and in other parts of the world.
- (42) An analysis of the contracts that Tele Atlas and NAVTEQ have concluded with device makers and software providers does not indicate that the prices or other

<sup>29</sup> Reply by NAVTEQ of 25 January 2008 to question 1 of the Commission's request for information.

<sup>30</sup> Tele Atlas and NAVTEQ distribute their navigable digital map databases to customers all over the world (see Section 6.2.2.). It is conceivable that product markets for the sale of digital map databases with a coverage beyond European borders, in particular databases covering the United States, would be affected by the proposed transaction. However, the Commission will limit its investigation to those product markets which concern the provision of digital map databases which cover territories within the EEA, because any potential anti-competitive effects of the merger in the product markets for databases with a coverage beyond European borders are likely to have only marginal, indirect effects in the Community.

<sup>31</sup> In some cases, the digital map database providers make copies of the CD-ROM and send the required number of CD-ROMs to the device manufacturers for installation in the navigation devices. This procedure applies to car manufacturers and suppliers of in-dash devices to car manufacturers.

<sup>32</sup> Notification, page 94.

sales conditions vary significantly depending on the geographic location of the customer.

- (43) Transport costs are negligible and do not constrain the distribution of navigable digital map databases<sup>33</sup>.
- (44) Considering the evidence presented in paragraphs 39-43, the Commission concludes that the relevant geographic market for the provision of navigable digital map databases is worldwide. The notifying party does not contest this conclusion<sup>34</sup>.

## 6.3. The Intermediate Market – Navigation Software

### 6.3.1. Definition of the relevant product market

- (45) All navigation devices make use of navigation software which combines geographic positioning from a GPS-receiver, data contained in a navigable digital database and other information in order to provide navigation functionality. The navigation software uses an algorithm to calculate routes and provide real time turn-by-turn directions on the screen of the device. Most devices also provide voice guidance.
- (46) There are three main types of navigation software, which are; (i.) on-board systems, where the navigation software and map data are stored in the device, – (ii.) off-board systems, where the navigation device connects with a navigation server using General Packet Radio Service (GPRS) or Universal Mobile Telecommunications Systems (UMTS) technology that performs route calculations and stores the map data, and (iii.) hybrid systems, which combine an on-board system with dynamic information such as traffic data from external sources.
- (47) The question whether separate relevant product markets should be defined depending on the type of navigation software may be left open in the present case, since TomTom only provides on-board systems<sup>35</sup>.
- (48) As stated in paragraph 20, navigable digital map databases are delivered in various formats and navigation software must ensure interoperability with these different database formats. Most navigation software is compatible with several database formats and software may be adapted to different formats at costs which are not prohibitive.
- (49) The Commission therefore considers it inappropriate to delineate separate product markets depending on the database formats used to integrate the data with the navigation software.
- (50) Finally, separate relevant product markets could possibly be delineated depending on the type of navigation device within which the navigation software is installed,

<sup>33</sup> The only case where a meaningful transport cost can be identified is the dispatch of larger volumes of CD-ROMs to the automotive industry. This cost is only a fraction of the total licence fee.

<sup>34</sup> The notifying party considers that the geographic market is at least EEA-wide and possibly worldwide. Notification, page 61.

<sup>35</sup> Notification, page 66.

that is to say, whether, PNDs, PDAs or GPS-enabled mobile telephones. Although navigation software for these end-uses may differ technically in certain respects, these technical differences are not crucial. Technical differences often relate to the graphic interface. For example, PNDs and PDAs require larger and more detailed images than GPS-enabled mobile telephones. Moreover, the core functionality of the navigation software, that is algorithms calculating routes, is identical for all types of navigation devices and the software always uses identical inputs. GPS-signals are obviously identical for all devices and navigable digital map databases do not differ depending on the type of device within which they are installed. For these reasons, the degree of supply-side substitutability for navigation software designed for use in different types of navigation devices must be regarded as very high, a circumstance which is corroborated by the fact that most producers of navigation software supply software for use in several types of navigation devices.

- (51) The Commission therefore considers it inappropriate to demarcate separate relevant product markets depending on the type of navigation device in which the software is used.

### 6.3.2. Definition of the relevant geographic market

- (52) Navigation software is created and distributed throughout the world and licensed to customers wherever the customer is located. Although navigable digital map databases differ in geographic coverage, producers of navigation devices may use the same navigation software for devices sold in the EEA, the United States and other parts of the world. There are no technological differences, trade barriers or legal barriers that could justify a narrower scope of the geographic market.

- (53) The Commission therefore concludes that the relevant geographic market for the provision of navigation software has a worldwide scope.

## 6.4. The Downstream Market – PNDs

### 6.4.1. Definition of the relevant product market

#### *Navigation devices*

- (54) Navigation devices use geographic positioning technology (predominantly GPS), navigable digital map databases and navigation software to provide real time turn-by-turn navigation functionality. Some navigation devices are able to display additional information about chosen routes, such as speed limits and height-restrictions, as well as POIs such as restaurants, parking spaces and fuel stations.

- (55) The first generation of navigation devices appeared on the market in the mid-1980s. These devices were hand-held GPS-receivers with basic navigation functionality used primarily for leisure, marine and hiking purposes. In the late 1990s the first navigation devices for automotive use were introduced. These "in-dash" devices are pre-installed in the dashboard of new cars. In 2002, the first PDAs with navigation functionality were introduced and in the following few years the first PNDs and mobile telephones with navigation functionality were introduced into the market.

- (56) At present, four main types of navigation devices may be identified, these being, PNDs, PDAs, mobile telephones with navigation functionality and in-dash navigation devices.

- (57) The first PNDs were introduced in 2003. They are portable and self-contained navigation devices. The digital map database and the navigation software are stored on-board in the device's internal memory or on memory cards, such as Secure Digital Cards (SD), and MultiMedia Cards (MMC). PNDs are predominantly single purpose devices but may sometimes include multi-media and photo functionalities. The screen size and user interface are optimised for navigation purposes.

- (58) PDAs are portable with a wide range of mainly data-centric applications often including navigation. PDAs normally do not include mobile telephony but may incorporate local connectivity such as Bluetooth or Wi-Fi. Recently sales of PDAs have decreased due to competition from other navigation devices.

- (59) Today, the vast majority of mobile telephones have multimedia functionalities, such as digital camera and MP3 player. To an increasing extent, mobile telephones in the medium and high end price segments have navigation functionality. Mobile telephones with navigation functionality use either on-board or off-board navigation solutions.

- (60) In-dash devices are installed permanently in the dashboard of a vehicle. They have navigation software and a digital map database installed "on-board". In-dash devices are usually produced by the car makers' Original Equipment Manufacturers (OEMs) and pre-installed in new vehicles. The design process and product life cycle of these devices are linked to those of new cars.

- (61) The Commission has assessed whether it is appropriate to define separate relevant product markets for each main type of navigation device or whether the definition of a single product market comprising all types of devices better reflects market realities. While recognising the fact that these markets may be converging to a certain extent due to rapid technical evolution, the Commission's market investigation indicates that a number of circumstances distinguish PNDs from other types of navigation devices.

- (62) For end-users the choice of navigation device depends to a large extent on the functionalities of each device. Due to different functionalities, different types of navigation devices are not fully interchangeable.

- (63) PNDs and mobile telephones with navigation functionality meet different consumer needs. A PND is primarily a navigation device, while a mobile telephone with navigation functionality usually incorporates a wide range of functions allowing the user to make calls, send SMS and MMS messages, take photographs, listen to music, access the internet and send e-mails. Navigation is not the core functionality of such mobile phones. The different functionalities are reflected in the price. While mid-range PNDs retail at approximately EUR 200, mobile telephones with navigation functionality typically cost approximately EUR 500.

- (64) Because they are currently single-purpose devices, PNDs are better adapted to navigation. The user interface is designed so that it is easy to enter address

information and search for POIs. To this end, most PNDs have touch-screen functionality. Mobile telephones rarely have keys dedicated for navigation and users have to rely on the standard alphanumeric keypad to use navigation features. PNDs have larger screens and therefore are better suited for automotive use. Mobile telephones with navigation functionality have smaller screens which are less adequate for in-car use<sup>36</sup>.

- (65) For these reasons, the Commission considers that PNDs and mobile telephones with navigation functionality currently constitute separate relevant product markets.
- (66) For similar reasons, that is to say, different functionalities, different prices and different degrees of adaptation to automotive use, the Commission considers that PNDs and PDAs currently constitute separate product markets.
- (67) PNDs and in-dash devices are different in a number of respects. PNDs are sold and marketed as normal consumer electronics in retail outlets while in-car systems are pre-installed in new cars at the time of production. In-dash devices have more features, larger screens and may be integrated with car safety systems. In-dash devices are predominantly installed in premium cars. These differences are reflected in the price. PND prices range from EUR 100 - EUR 500 while in-dash devices invariably cost more than EUR 1 000.
- (68) The differences in distribution methods and prices lead to very different product life cycles. Currently a PND has a lifecycle which spans between six months and a year and the time-to-market for PNDs is very short, which increases flexibility and makes it easier to swiftly introduce innovative features. In-dash devices have much longer development cycles which coincide with the development cycles for new car models. It follows that in-dash devices are more difficult to update and replace. The suppliers of PNDs and in-dash devices are largely different, although a few in-dash providers have attempted to enter the PND market.
- (69) For these reasons, the Commission considers that PNDs and in-dash devices constitute separate relevant product markets.
- (70) For the purposes of this Decision, the relevant product market downstream is the market for the provision of PNDs<sup>37</sup>.
- (71) Respondents to the market investigation consider that PNDs, mobile telephones with navigation functionality and in-dash device will continue to co-exist as separate markets for the foreseeable future. Mobile telephones with navigation functionality at present represent only a very small share of all navigation devices sold, it is predicted that their share is likely to grow substantially in the future. In contrast, PDAs are considered to be a market in decline. However, it is not unlikely that innovation will, to a certain extent, blur the boundaries between the

<sup>36</sup> For instance, mobile telephones using Nokia's S60 software platform on the Symbian operating system typically have screen sizes of only 2.6 inches (240 by 320 pixels). Canalsys Report, page 42.

<sup>37</sup> Even if a wider product market would be considered, such as a single product market for all mobile navigation devices (that is to say, including PNDs, PDAs and mobile telephones with navigation functionality but excluding in-dash devices which are not mobile in the sense that they are permanently installed in vehicles), the market shares of the major providers would be similar because PNDs currently account for 90% of all mobile navigation devices sold.

different types of navigation devices in coming years. In the future the relevant product market for PNDs may have to be extended to include mobile telephones with navigation functionality and other consumer electronic products with navigation functionality that may appear on the market.

#### 6.4.2. Definition of the relevant geographic market

- (72) The following circumstances indicate that the geographic market is at least EEA-wide. PNDs used in different EEA States require substantially the same hardware and software to operate. The largest PND suppliers, such as TomTom, Garmin Ltd ("Garmin") and MiTAC Technology Corporation ("MiTAC"), operate and compete for customers on an EEA-wide basis, even though they may also conclude distribution contracts on a national basis. Most brands are sold throughout the EEA and the relative strength of the main players is broadly similar in most national markets, although national brands have large market shares in certain states. There is also scope for significant supply-side substitution. Manufacturers of PNDs can easily start selling their products in another EEA State, provided that they include in their devices a digital map database which covers the state in question. Brand recognition can increase the costs of entry. On this basis, the Commission concludes that the geographic market is at least EEA-wide.

### VII. MARKET CONDITIONS

#### 7.1. Navigable Digital Map Databases

##### 7.1.1. Market shares

- (73) As mentioned in paragraph 20, there are two providers of navigable digital map databases which cover states situated in the EEA, these being Tele Atlas and NAVTEQ. These companies account for all sales of navigable digital map databases with EEA coverage. The market(s) for the provision of navigable digital map databases covering EEA States may therefore be regarded as a duopoly<sup>38</sup>.
- (74) Tele Atlas emphasises the fact that the relative importance of licences with different geographic coverage is not static over time. The company's sales of digital map databases with national coverage have steadily declined over the last three years, while sales of regional and European licences have increased. The portion of sales by volume of national licences has declined from more than [40-60]\*% in 2005 to approximately [20-40]\*% in 2007. Last year Tele Atlas's sales of national, regional and European licences each accounted for roughly [20 - 40]\*% of the number of licences sold by the company<sup>39</sup>.

<sup>38</sup> This view is supported by industry analysts that consistently characterise the market as a duopoly. See: "Tele Atlas – Potential still there but pricing is an issue", SNS Securities report of 1 August 2006.

<sup>39</sup> Reply by Tele Atlas of 25 January 2008 to question 3 of the Commission's request for information.

- (75) NAVTEQ typically licenses its European digital map database on a continental basis but also makes pricing available for the use of databases with regional and national coverage<sup>40</sup>.
- (76) The trend of increasing sales of navigable digital map databases with wider geographic coverage is consistent with developments in the downstream markets for navigation devices, where increasingly powerful (as regards data storage capacity) and sophisticated devices are introduced into the market at an increasing pace.
- (77) If it is assumed that all navigable digital map databases with EEA coverage, whether national, regional or European, constitute a single relevant product market, the following market shares may be calculated. In 2006, Tele Atlas generated a turnover of EUR [...] <sup>41</sup> while NAVTEQ's total revenue amounted to EUR [...] <sup>42</sup> which corresponds to a market share of between [50-70] %\* and [50-70] %\* for Tele Atlas and between [30-50] %\* and [30-50] %\* for NAVTEQ.
- (78) If it is assumed that all navigable digital map databases with regional and European coverage belong to the same relevant product market<sup>43</sup>, the following market shares may be calculated. In 2006, the total revenue of Tele Atlas amounted to EUR [...] <sup>44</sup>, whereas NAVTEQ generated total revenue of EUR [...] <sup>45</sup>, which corresponds to a market share of between [40-60] %\* and [40-60] %\* for Tele Atlas and between [40-60] %\* and [40-60] %\* for NAVTEQ.
- (79) Finally, if all navigable digital databases covering a particular state located in the EEA are considered as belonging to the same relevant product market, the market shares indicated in Table 1 may be estimated (all figures concern 2006)<sup>46</sup>.

**Table 1: Tele Atlas's and NAVTEQ's market shares based on the companies' estimated sales of navigable digital map databases with national coverage in 2006.**

COUNTRY	TELE ATLAS'S SHARE (%)	NAVTEQ'S SHARE (%)
Austria	[50-70]*	[30-50]*
Belgium	[0-20]*	[80-100]*
Bulgaria	[0-20]*	[80-100]*

<sup>40</sup> Reply by NAVTEQ of 25 January 2008 to the Commission's request for information, non-confidential version received on 22 February 2008.

<sup>41</sup> Reply by Tele Atlas of 25 January 2008 to question 4 of the Commission's request for information.

<sup>42</sup> Reply by NAVTEQ of 8 February 2008 to question 2 of the Commission's request for information.

<sup>43</sup> Tele Atlas, but not NAVTEQ, has provided data that separates sales for smaller regions such as BENELUX, DACH and the Nordic countries from larger regions such as Western Europe, Eastern Europe and Europe as a whole.

<sup>44</sup> Reply by Tele Atlas of 5 February 2008 to question 2 of the Commission's request for information.

<sup>45</sup> Reply by NAVTEQ of 25 January 2008 to question 3 of the Commission's request for information.

<sup>46</sup> Tele Atlas does not have access to precise country-by-country sales data, because customers paying licence fees for digital map databases with national coverage are not required to report to Tele Atlas which specific country the licence covers. Tele Atlas has used management estimates and allocations based on third-party sources in order to calculate its sales for each licensed country. In contrast to data which the company's customers are required to report, that is to say, national, regional or European, the country-by-country breakdown must be regarded as estimates. All figures in Table 1 result from the reply by Tele Atlas of 25 January 2008 to question 4 of the Commission's request for information and from the reply by NAVTEQ of 25 January 2008 to question 3 of the Commission's request for information.

Czech Republic	[0-20]*	[80-100]*
Denmark	[0-20]*	[80-100]*
Finland	[0-20]*	[80-100]*
France	[40-60]*	[40-60]*
Germany	[50-70]*	[20-40]*
Greece	[60-80]*	[20-40]*
Hungary	[0-20]*	[80-100]*
Ireland	[80-100]*	[0-20]*
Italy	[50-70]*	[20-40]*
Netherlands	[0-20]*	[80-100]*
Norway	[80-100]*	[0-20]*
Poland	[0-20]*	[80-100]*
Portugal	[0-20]*	[80-100]*
Romania	[0-20]*	[80-100]*
Slovenia	[0-20]*	[80-100]*
Spain	[50-70]*	[30-50]*
Sweden	[0-20]*	[80-100]*
United Kingdom	[80-100]*	[0-20]*

- (80) The same picture emerges from the market share analysis regardless of which alternative product market is used. The worldwide market(s) for the provision of navigable digital map databases with EEA-coverage is a duopoly where Tele Atlas is the larger player as evidenced by its larger market shares in the total market, in the market for databases with regional and European coverage, in the accumulated market for databases with national coverage and in the larger markets for individual countries such as databases covering France, Germany, Italy, Spain or the United Kingdom<sup>47</sup>.

## 7.1.2. Price Developments

### *Historic price developments*

- (81) The average selling price of Tele Atlas's navigable digital databases declined substantially over the last few years.
- (82) An industry analyst estimated that prices for navigable digital map databases decreased by 6% - 8% in 2006<sup>48</sup>. Another analyst stated that prices for navigable digital map databases decreased by 6% - 15% in 2006. However, a large part of this decrease concerned prices of producers of in-dash devices. Moreover, if only

<sup>47</sup> Measuring market shares for databases covering smaller countries is not very meaningful since the volumes sold are very limited. This is explained by the fact that coverage of many smaller countries are included in regional packages (for instance databases covering Belgium or Sweden are almost exclusively sold in BENELUX and Nordic country regional packages and hardly ever on a stand-alone basis) or because the sales of navigation devices have still to take off in other countries (such as Bulgaria and Romania). However, the larger countries are large enough with regard to their population and geographically to constitute stand-alone markets.

<sup>48</sup> "NAVTEQ, Opportunities and Challenges Aplently", CIBC World Markets report of 20 May 2007.

databases destined for personal navigation are considered pricing was relatively steady in 2006 compared to the significant price decreases in 2004 and 2005<sup>49</sup>.

- (83) In a report by industry analyst SNS Securities, the average selling price of Tele Atlas's databases was set out as indicated in Table 2<sup>50</sup>.

**Table 2: Average selling price of Tele Atlas's navigable digital map databases in 2006-2007.**

Q1 2006	Q2 2006	Q3 2006	Q4 2006	Q1 2007
EUR 18,70	EUR 17,10	EUR 16,80	EUR 16,30	EUR 14,60

- (84) According to this source, the average price charged by Tele Atlas decreased by 22% in one year. The decrease was predominantly due to the changes in the product mix, that is to say, sales of more regional map databases and fewer databases with full continental coverage, since Tele Atlas's pricing grid remained the same.
- (85) Most respondents to the market investigation confirm the decreasing prices for navigable digital map databases. [PND manufacturer]\* stated that the company's average purchase price for databases used in PNDs fell by 40% to 50% between 2005 and 2007<sup>51</sup>. [Navigation Device Manufacturer]\* indicated that the prices the company paid for its navigable digital map databases decreased by 10 to 15% during the same period<sup>52</sup>. According to [PND-manufacturer]\*, the prices the company paid for its navigable digital map databases decreased by 1% to 10% during the last three years<sup>53</sup>.
- (86) The figures mentioned in paragraphs 82-85 vary substantially and come from a limited number of sources. The different price decreases may possibly be partly explained by differences in bargaining power of device makers with regards to the suppliers of navigable digital map databases. A major producer of PNDs may be expected to negotiate greater price reductions than smaller device makers. Nevertheless, even though it is not possible to calculate reliably the average price decrease on the basis of such limited data, there is a clear trend towards decreasing prices during the last few years.
- (87) In 2005 and 2006 Tele Atlas's gross margins were approximately 85% according to industry analysts<sup>54</sup>. Since marginal costs are low in the industry, NAVTEQ is likely to have gross margins of a similar magnitude.

<sup>49</sup> "Navigation 2.0: truth or dare?", Fortis Sector Report of 4 April 2008, page 54, Notification, Annex 21.

<sup>50</sup> "Tele Atlas – Okay quarter, ASP worries overdone", SNS Securities report of 4 May 2007.

<sup>51</sup> Reply by [PND Manufacturer]\* of 4 January 2008 to question 6 of the Commission's request for information.

<sup>52</sup> Reply by [Navigation Device Manufacturer] of 11 January 2008 to question 6 of the Commission's request for information.

<sup>53</sup> Reply by [PND Manufacturer] of 4 January 2008 to question 6 of the Commission's request for information.

<sup>54</sup> "Tele Atlas – No change in stance: pricing remains key", SNS Securities report of 31 October 2006. In the notification, the parties indicate [...] gross margins: [70-90]\*% in 2004, [70-90]\*% in 2005 and [70-90]\*% in 2006 (all figures apply to the EMEA-region), Notification, Annex 49.

#### Future price developments

- (88) Before the announcement of the proposed merger between TomTom and Tele Atlas, and the subsequent announcement of Nokia's proposed acquisition of NAVTEQ, industry analysts predicted that average selling prices for navigable digital map databases would continue to decline.
- (89) In July 2007, industry analyst, SNS Securities forecast that the average selling prices for Tele Atlas would decrease by 17% in 2007<sup>55</sup>. The company predicted that the price erosion of the company's products would continue in the following years with the average selling prices for navigable digital map databases declining by a further 10% in 2008 and 2009 respectively<sup>56</sup>.
- (90) Other forecasts made by industry analysts predict lower price decreases in the next few years. In a report published in April 2007, Fortis forecast that the prices of Tele Atlas's databases for personal navigation (that is to say, excluding databases for in-dash devices) would decrease by 10%, whereas a 7% price decrease was predicted for NAVTEQ. Fortis went on to make the following statement: "Given the trend towards more content in general, we believe that map price erosion for the various market segments will be limited in the coming years. (...), volume growth in the navigation industry is driving down the cost per map each year"<sup>57</sup>.
- (91) Predicting the future evolution of prices for navigable digital map databases is a difficult exercise, as evidenced by the diverging forecasts by industry analysts (made before the proposed merger was announced). Extrapolating the substantial decreases in recent years and assuming that prices will continue to decrease at the same rate as in the recent past, would be overly simplistic. However, the market investigation and the general characteristics of the industry indicate that prices are likely to continue to decrease in the next few years, albeit possibly at a more moderate pace than before.

#### 7.1.3. Contractual relationships

- (92) TomTom and Tele Atlas entered into an agreement in [...] which was subsequently amended and extended until [...]. According to the amended agreement TomTom [...] In 2006, TomTom purchased [70-90]\* of its navigable digital map databases from Tele Atlas<sup>58</sup>. TomTom is the largest customer of Tele Atlas, accounting for approximately 30% of the company's revenue<sup>59</sup>.
- (93) In 2005 TomTom entered into a data licence agreement for PND applications with NAVTEQ concerning the supply of map data covering Western and Eastern Europe as well as North America and "world markets". [...].
- (94) Garmin uses almost exclusively navigable digital map databases supplied by NAVTEQ. Garmin's contract with NAVTEQ, which was originally concluded in

<sup>55</sup> "Tele Atlas lagging the sector for no good reason", SNS Securities Flash Note of 18 July 2007.

<sup>56</sup> "Tele Atlas – Riding the navigation wave – part II", SNS Securities report of 28 March 2007.

<sup>57</sup> "Navigation 2.0: truth or dare?", Fortis Sector Report of 4 April 2008, page 54; Notification, Annex 21.

<sup>58</sup> Notification, page 26.

<sup>59</sup> Report on Tele Atlas by Soleil Securities Group of 7 May 2007.

1999, was amended and extended in 2007. Through these amendments, Garmin's licences were extended until the end of 2015 with an option to extend further until the end of 2019. In anticipation of future general price decreases for navigable digital map databases, the revised contract contains provisions which reduce on a yearly basis the fees to be paid<sup>60</sup>.

- (95) The contract periods vary greatly from one year contracts at one extreme to the eight-year extension of Garmin's agreement with NAVTEQ. The long extension of the Garmin agreement is uncharacteristic of the industry pre-merger and is in all likelihood a reflection of uncertainty about the future of the industry following the announcement of the proposed transaction. The typical duration of the current contracts of Tele Atlas and NAVTEQ is of [0 - 5]\* years.
- (96) Some contracts contain clauses in which Tele Atlas and NAVTEQ undertake to supply updates of the database at regular intervals (for instance, [...]\* per year or even more frequently), certain agreements stipulate that updates will be provided according to published schedules and some contracts do not mention updates at all. It follows that some, although not all, customers have contracts which protect them, at least partially, from possible attempts by the merged undertaking to hold back upgrades of the database from competitors of TomTom<sup>61</sup>.
- (97) Furthermore, an even smaller number of customers have "most-favoured-customer" clauses guaranteeing access to digital map databases on conditions at least as good as any other customer or other clauses guaranteeing the quality of the data provided. Therefore, only a minority of customers would be protected from possible attempts by the merged undertaking to degrade the quality of the databases delivered to TomTom's competitors<sup>62</sup>.
- (98) With a limited number of exceptions, such as TomTom and certain producers of "in-dash" devices<sup>63</sup>, dual sourcing does not seem to be prevalent in the industry. Most customers prefer purchasing their navigable map databases for a given region from one supplier. In particular, customers tend to acquire databases "en bloc" for each continent (for instance, they acquire databases covering Western Europe and North America respectively from the same player). To the extent that dual sourcing occurs, customers procure databases for different continents from separate suppliers<sup>64</sup>. Dual sourcing for navigable map databases with EEA

<sup>60</sup> Reply by NAVTEQ of 4 December 2007 to the Commission's request for information.

<sup>61</sup> The merged firm could start updating its database more frequently but only distribute updates with the minimum frequency stipulated in the contract. In such a scenario, these clauses would give only partial protection against delayed updates.

<sup>62</sup> Among the replies by PND manufacturers of 14 December 2007 to questions 25 and 26 of the Commission's request for information, only a minority stated that their contracts with the supplier of digital map databases guaranteed timely access to the latest map database of a quality at least as good as other customers. Even fewer respondents declared they had "most-favoured-customer" clauses in their contracts.

<sup>63</sup> According to NAVTEQ, dual sourcing of navigable digital map databases is common among car manufacturers. NAVTEQ response to the invitation from the Commission to submit comments on a summary of the Statement of Objections of 25 March 2008, page 5.

<sup>64</sup> This conclusion is supported inter alia by [PND Manufacturer]\*, which states that PND suppliers generally procure navigable digital map databases covering a particular geographic area from one supplier at a time, for instance, map databases covering Western Europe are typically sourced from Tele Atlas or NAVTEQ but not both at the same time. Reply by [PND Manufacturer]\* to the

coverage is rare, as is dual sourcing for different device models (that is to say a device maker that uses Tele Atlas databases for one model or product line and NAVTEQ for another<sup>65</sup>).

#### 7.1.4. Barriers to switching

- (99) When switching suppliers of navigable digital map databases, the customer must reconfigure the new database so that it works with the customer's navigation software. The main cost of switching is reconfiguration costs. Other switching costs include the cost of modifying production tools to handle different data formats as well as costs for changing product packaging and marketing materials.
- (100) Tele Atlas and NAVTEQ are capable of supplying map data in all available formats. As stated in footnote 9, the formats in which Tele Atlas and NAVTEQ provide their databases are largely overlapping. Both companies supply their databases in the Shape format, which is used by most PND-makers. It follows that a customer may either switch suppliers while retaining the same database format or he may switch suppliers and change formats at the same time. Reconfiguration costs may be presumed to be higher in the latter case than in the former.
- (101) The parties allege that switching costs are low. In the notification, the parties estimate the cost of switching from one database provider to another to be between EUR [100 000 – 300 000]\* and EUR [100 000 – 300 000]\* and that it would take [0 – 10]\* software engineers approximately [0 – 10 months]\* to develop the modified converter software and test its interaction with the new database. The lead-time may be shortened by using more than [5-10]\* engineers<sup>66</sup>.
- (102) NAVTEQ argues that switching is not costly. The costs of handling different database formats are not significant since customers typically purchase map data in publicly available, industry-wide formats. Knowledge about the definition of these formats and map data compilation methods are easily accessible on the internet. Therefore, any customer can compile data received in the industry format quickly and efficiently. NAVTEQ estimates that the process of switching between map data formats typically takes between one and six months<sup>67</sup>.
- (103) [PND Manufacturer]\* submits that switching map database suppliers involves certain costs (such as engineering resources, administrative and packaging and marketing costs), however, these costs do not deter PND manufacturers from switching. In [PND Manufacturer's]\* view technical barriers to switching are not substantial. The latter concludes that barriers to switching are not excessive<sup>68</sup>.

invitation from the Commission to comment on a summary of the Statement of Objections of 25 March 2008, page 2.

<sup>65</sup> In 2006, TomTom decided to source navigable digital map databases destined for the company's ONE series of PNDs from NAVTEQ while remaining a customer of Tele Atlas for other products. Notification, page 107.

<sup>66</sup> Notification, page 106.

<sup>67</sup> NAVTEQ response to the invitation from the Commission to submit comments on a summary of the Statement of Objections of 25 March 2008, page 5.

<sup>68</sup> [PND Manufacturer] response to invitation from the Commission to submit comments on a summary of the Statement of Objections of 25 March 2008, page 3.

- (104) The short lead-time for switching database suppliers - [0-12 months]\* - alleged by the parties and NAVTEQ is corroborated by one respondent to the Commission market investigation. This [Navigation Device Manufacturer]\* indicates that, in a recent switch of map database suppliers, two to three weeks of work of a qualified engineer were committed to this task<sup>69</sup>. However, other respondents suggest that lead-times may be longer. [Navigation Device Manufacturer]\* indicates that changing from one database format to another and converting the data to the software provider's own proprietary format took 18 months<sup>70</sup>.
- (105) As regards the parties' estimated cost of switching (EUR [100 000 – 300 000]\*), the Commission's market investigation suggests that costs may be higher. [Navigation software provider]\* estimates the cost of switching between Tele Atlas and NAVTEQ to vary between EUR 500 000 to EUR 1 million, which costs mainly related to development and quality assurance<sup>71</sup>. The second [Navigation Device Manufacturer]\* mentioned in paragraph 104 estimates that switching formats and converting the data to work with the company's software would cost approximately EUR 1 million<sup>72</sup>.
- (106) Considering the fact that switching has occurred in the recent past<sup>73</sup> and the circumstances mentioned in paragraph 104, the Commission considers barriers to switching to be relatively limited. However, since switching costs, in particular reconfiguration costs, are likely to be the same irrespective of the size of the company that wishes to switch, the relative costs of switching are higher for a small device maker or navigation software provider than for a major PND manufacturer.

#### 7.1.5. Competitive conditions pre-merger

- (107) The Commission's market investigation confirms that the market for the provision of navigable digital map databases was competitive before the announcement of the proposed transaction (and the subsequent proposed acquisition of NAVTEQ by Nokia). Not only the largest players such as TomTom and Garmin but also smaller firms were able to profit from the rivalry between Tele Atlas and NAVTEQ, provoking competitive bidding between the two rivals which resulted in significant decreases in the average selling prices. The absence of capacity constraints, due to the fact that Tele Atlas and NAVTEQ are able to increase output (that is to say the number of licences) while only incurring negligible additional costs, also contributed to the downward trend in pricing<sup>74</sup>.

<sup>69</sup> Reply by [Navigation Device Manufacturer]\* of 28 January 2008 to question 15 of the Commission's request for information.

<sup>70</sup> Reply by [Navigation Device Manufacturer]\* of 18 January 2008 to questions 18 and 20 of the Commission's request for information.

<sup>71</sup> Reply by [Navigation Software Provider]\* of 18 January 2008 to question 23 of the Commission's request for information.

<sup>72</sup> Reply by [Navigation Device Manufacturer]\* of 18 January 2008 to questions 18 and 20 of the Commission's request for information.

<sup>73</sup> In the Notification the parties listed five companies that switched between Tele Atlas and NAVTEQ between 2004 and 2006.

<sup>74</sup> At first sight, the existence of gross profit margins in the range of [50-90%]\* might possibly be construed as an indication of an absence of competition. However, in an industry with [very large fixed costs and marginal costs close to zero, high gross margins]\* which by definition disregards fixed costs, do not necessarily lead to supra-competitive profits. Return on investment, which takes

#### 7.1.6. Market entry

##### *Arguments by the parties*

- (108) In the notification, the notifying party states that there are several companies that provide navigable digital map databases covering other parts of the world. The Japanese firms Zenrin Inc. and Toyota Mapmaster Inc. ("Mapmaster") both offer databases covering Japan. Meanwhile, the South-Korean company ThinkWare Inc. produces a navigable digital map database covering South Korea. According to the notifying party, these firms have the technological knowledge and industry experience to provide navigable digital databases of comparable quality to those provided by Tele Atlas and NAVTEQ<sup>75</sup>. At a later stage of the Commission's investigation, the notifying party identified an additional potential market entrant, a United States firm Facet Technology Corporation ("Facet") that announced on 29 November 2007 the availability of a navigable digital map database covering the continental United States. According to the company's own claims, Facet's United States database is more accurate than those offered by Tele Atlas and NAVTEQ. Furthermore, Facet announced its intention to expand its geographic coverage to Canada and Europe<sup>76</sup>.
- (109) In addition, TomTom argues that there are number of companies that provide digital map databases of lower quality than those supplied by Tele Atlas and NAVTEQ, ranging from basic digital map databases with "find address" and display capabilities only, such as Europa Technologies Ltd. and Ordnance Survey<sup>77</sup>, to digital map databases which offer basic turn-by-turn navigation, such as Central European Data Agency a.s. ("CEDA"), Nav'nGo and, in particular, AND International Publishers N.V. ("AND")<sup>78</sup>. According to Tele Atlas, the digital map databases provided by AND contain all attributes necessary to make it navigable<sup>79</sup>.
- (110) Finally, it is submitted in the notification that new entries from firms that currently do not supply navigable digital map databases at all could possibly enter the market. These companies, essentially Google Inc ("Google") and Microsoft Corporation ("Microsoft"), are currently customers of Tele Atlas and NAVTEQ and provide map services over the internet. According to TomTom, these firms could use their technical knowledge and financial capabilities to upgrade their map databases to navigable quality by using feedback from their user communities<sup>80</sup>.

into account fixed costs, is a more adequate measure. In this respect it should be noted that Tele Atlas became profitable only recently.

<sup>75</sup> Notification, page 120.

<sup>76</sup> Reply by Tele Atlas of 14 January 2008 to question 11 of the Commission's request for information. TomTom's submission of 24 January 2008. "Facet Technology Corp Announces Navigation Content for the Continental US", press release by Facet of 29 November 2007 at [http://www.facet-tech.com/News/Facet\\_Announces\\_Navigation\\_Content\\_for\\_the\\_Continental\\_US.htm](http://www.facet-tech.com/News/Facet_Announces_Navigation_Content_for_the_Continental_US.htm).

<sup>77</sup> Ordnance Survey is a public body supplying digital map data covering the United Kingdom. Ordnance Survey has added certain routing and logistics attributes to its basic database, which is openly available to everybody. Submission by Tele Atlas of 12 October 2007.

<sup>78</sup> Notification, page 121.

<sup>79</sup> Reply by Tele Atlas of 14 January 2008 to question 11 of the Commission's request for information.

<sup>80</sup> Notification, pages 121-122.

- (111) The notifying party submits that barriers to entry have decreased since the first PNDs were introduced in 2004 and that the potential revenue for market entrants is much greater today due to the rapid uptake of devices using navigable digital map databases. TomTom claims that for a number of reasons entry costs have fallen, mentioning among other causes improved aerial photography, improved quality of satellite images and the possibility to use feedback from end-user communities. It is alleged that costs of entry are likely to fall further in the future<sup>81</sup>. Tele Atlas considers it possible to produce low-end navigable digital map databases without using a field force recording road data<sup>82</sup>. According to a study commissioned by Tele Atlas, market entry could occur within [1 -5]\* years at a cost that does not exceed EUR [100 – 200]\* million<sup>83</sup>.
- (112) In their reply to the Commission's Statement of Objections, the parties go beyond the statements made in the Notification and maintain that entry is very likely to occur in the near future and that entry would certainly be precipitated should Tele Atlas engage in anti-competitive behaviour<sup>84</sup>.
- (113) The Commission will examine the cost of entry, the time of entry, the feasibility of low-end, "country-by-country" entry. In addition, the Commission will assess the likelihood of AND and Facet entering the market since these two companies have been identified as the most likely entrants by the parties.

#### *Cost of entry*

- (114) A good starting point when estimating the cost of entry is to look at historic entry costs. According to industry analyst SNS Securities, Tele Atlas has spent almost EUR 1 billion compiling its database<sup>85</sup>. This estimate is corroborated by [Navigation Device Manufacturer]\*, who maintains that Tele Atlas invested EUR 1 billion in its database and developed it during a 20 year period<sup>86</sup>. Similarly, [Navigation Software Provider]\* estimates that, based on the previous experience of Tele Atlas and NAVTEQ, the cost of duplicating the databases of Tele Atlas or NAVTEQ would amount to approximately EUR 1 billion<sup>87</sup>. The Commission notes that the parties do not dispute this figure in their reply to the Commission's Statement of Objections, merely branding the EUR 1 billion estimate as "high end"<sup>88</sup>. Notably, the parties concede in a footnote that the EUR 1 billion figure is the cumulative investment made by Tele Atlas to build and continually maintain and upgrade its worldwide map database for all applications<sup>89</sup>.
- (115) Once the historic entry costs have been established, the Commission must consider whether a company entering the market for the provision of navigable digital map

<sup>81</sup> Notification, pages 110-111; submission by Tele Atlas of 12 October 2007.

<sup>82</sup> Reply by Tele Atlas of 14 January 2008 to question 11 of the Commission's request for information.

<sup>83</sup> Notification, pages 136-137; submission by Tele Atlas of, 12 October 2007.

<sup>84</sup> Reply by TomTom to the Statement of Objections of 17 March 2008, page 16.

<sup>85</sup> See: "Tele-Atlas – Potential still there but pricing is an issue", SNS Securities report of 1 August 2006.

<sup>86</sup> Letter from [Navigation Device Manufacturer]\* to the Commission of 4 March 2008.

<sup>87</sup> Reply by [Navigation Software Provider]\* of 11 January 2008 to question 31 of the Commission's request for information.

<sup>88</sup> Reply by TomTom to the Statement of Objections of 17 March 2008, page 18.

<sup>89</sup> Reply by TomTom to the Statement of Objections, 17 March 2008, footnote 31, page 20.

databases with EEA-coverage today would have to make an investment at the historic level or whether entry costs have changed since the two incumbents entered the market.

- (116) As stated in paragraph 111, the notifying party states that barriers to entry are decreasing for two reasons, firstly, the potential benefits of entry are growing due to increased demand for navigable digital map databases and secondly, the costs of entry are declining due to technical innovation<sup>90</sup>.
- (117) While not denying the rather obvious fact that entry into a market becomes more attractive as the market expands, this circumstance has no bearing whatsoever on the actual level of investment necessary to enter the market. It merely indicates that potential market entrants have greater incentives to make the necessary investments because the potential reward of doing so is greater. Moreover, it does not indicate in any way the likelihood of a successful market entry actually capturing a sufficiently large share of the market to constrain the behaviour of the incumbents.
- (118) The parties' allegation that entry costs or more specifically, costs of compiling and processing map data are falling is mainly based on improvements in aerial photography, increased availability of map data from public sources, the possibility to use community end-user and probe feedback data and the commercial ability of software that can handle large amounts of geographic data<sup>91</sup>. The statement that data compilation costs are decreasing is supported by NAVTEQ<sup>92</sup> and several other respondents to the market investigation<sup>93</sup>.
- (119) While there could be cost savings due to increased availability of aerial photography and map data from public sources, the impact of these cost savings on the total cost for producing a navigable digital map database must be regarded as minor.
- (120) The Commission, for several reasons, considers it unlikely that a "Wikipedia-like" collaborative approach using end-user feedback could be used to create a navigable digital map database. First, developing an IT-tool making it easy for end-users to edit map data would be very complicated due to the very long list of inputs for navigable data (editing a digital map database is much more complicated than editing a text document like Wikipedia). Second, while users may have an incentive to edit an existing high-quality product they are already using, they have few incentives to help create a new product or increase the quality of a poor product that is functioning badly. Third, the veracity of all edits must be checked by the mapping company, something which is very resource consuming. Fourth, updating a digital map database using customer feedback is unlikely to succeed simply because of information asymmetries. Unlike Wikipedia, where anyone of millions of users may possess the knowledge to update a certain topic,

<sup>90</sup> Notification, page 111; reply by TomTom to the Statement of Objections of 17 March 2008, pages 17-18.

<sup>91</sup> Notification, pages 115-120.

<sup>92</sup> NAVTEQ's response to invitation from the Commission to submit comments on a summary of the Statement of Objections of 25 March 2008, page 3.

<sup>93</sup> As summarised in the reply by TomTom to the Statement of Objections of 17 March 2008, pages 21-22.

the number of people with sufficient local knowledge is very small (for any token street depicted in a database, very few people have the necessary detailed and up-to-date knowledge to make a correct edit).

- (121) Regardless of the technical developments discussed in paragraphs 118-120, the fact remains that it is still indispensable to employ field forces in customised vehicles which record and update very large volumes of road data in order to produce high-quality navigable digital map databases. The indispensability of field surveys is confirmed by Facet. According to this company, it is impossible today to build a truly navigable digital map database without conducting field surveys using dedicated vehicles because it is the only way to reliably record sign information and other road features such as barriers, gates and other obstacles<sup>94</sup>. NAVTEQ confirms that field forces are still important (albeit less crucial than when NAVTEQ first built its database in the 1980s)<sup>95</sup>. The fact that Tele Atlas and NAVTEQ, that is to say, the companies that must be considered as world-leading in digital map database making, continue to use field surveys despite technical developments, confirms the indispensability of this form of data collection. Finally, AND's problems in producing a well-functioning navigable digital map database without field surveys, as mentioned in paragraph 129 is a further indication that field surveys are necessary to obtain a high-quality product.
- (122) In addition to the necessary technological knowledge, a credible market entrant needs to make substantial up-front investments in order to produce navigable digital map databases of a quality comparable to those supplied by Tele Atlas and NAVTEQ. The cost estimates for producing a digital map database covering the EEA today, vary greatly. The lowest estimate by far is made by Facet, which predicts that it would cost the company less than EUR 100 million to produce a navigable digital map database with a "broad European coverage"<sup>96</sup>. NAVTEQ estimates that it would cost approximately EUR 159 million for a market entrant to build an EEA-wide database with the same features as the NAVTEQ database<sup>97</sup>. As stated in paragraph 111, a study commissioned by Tele Atlas indicated that entry costs would not exceed EUR [100 – 400 million]<sup>98</sup>. [Japanese Digital Map Database Provider]\* estimates that it would cost more than EUR 360 million to create a navigable map database covering the EEA<sup>99</sup>. Finally, there is the historic cost benchmark of EUR 1 billion, confirmed by the parties. However this worldwide estimate should be reduced by the cost of compiling North American data and data for other territories outside the EEA, and the cost reductions generated by technical innovation.
- (123) The estimate forwarded by Facet is surprisingly low, considering the fact that is substantially lower than the broadly concurring estimates of Tele Atlas and

<sup>94</sup> Minutes from telephone conference with Facet of 1 February 2008.

<sup>95</sup> Reply by NAVTEQ to invitation from the Commission to submit comments on a summary of the Statement of Objections of 25 March 2008, page 2.

<sup>96</sup> Minutes from telephone-conference with Facet of 1 February 2008.

<sup>97</sup> NAVTEQ estimates the cost at USD 250 million. Reply by NAVTEQ to invitation from the Commission to submit comments on a summary of the Statement of Objections of 25 March 2008, page 4. USD amount converted to EUR using the rate applicable on 9 April 2008, 1 USD = EUR 0.636264, indicated on [www.XE.com](http://www.XE.com).

<sup>98</sup> Notification, pages 136-137; submission by Tele Atlas of 12 October 2007.

<sup>99</sup> Reply by [Japanese Digital Map Database Provider] of 10 January 2008 to question 11 of the Commission's request for information.

NAVTEQ. Facet presumably bases its estimate on the costs incurred for producing its United States database. However, it is doubtful whether the cost of producing a map database in the United States is a reasonable benchmark for the cost of producing a map database in the EEA. The cost of compiling map data in the United States, which is a largely homogeneous geographic area with regards to elements such as traffic regulation and signposting when compared to the EEA which is a heterogeneous area consisting of 30 states with varying ways of regulating traffic. A simple linear extrapolation of Facet's costs based on kilometres of the road network in the United States as opposed to the kilometres of road network in the EEA is therefore likely lead to an underestimation of the data compilation costs. Finally, it appears that Facet's estimate does not include complete EEA-coverage. The company has stated that it has yet to determine the scope of its future European map database but that it will be "broad" from the outset<sup>100</sup>. For these reasons, the Commission considers it likely that Facet underestimates the cost of building a navigable digital map database with complete EEA-coverage.

- (124) In the notification, the parties present a minimum viable scale model which purports to show that entry costs are surmountable and profitable market entry is feasible<sup>101</sup>. In their reply to the Statement of Objections, the parties assume that the cost of entry would amount to EUR [300-400 million]\* (as estimated by [Japanese Digital Map Database Provider]\*) and estimates that a market entrant would need to forecast revenues of approximately EUR [100-400 million]\* per year for [5-15]\* years after the launch of the map database<sup>102</sup>. Under these assumptions, the parties estimate that the market entrant would need to obtain a market share of [10-40%]\* in 2012. Without discussing in any detail the numerous assumptions made in the parties' model, the Commission notes that capturing a market share of [10-40%]\* shortly after entry is a difficult task considering, *inter alia*, the fact that the the largest PND maker, accounting for a large part of the total market for navigable digital map databases, would be exclusively supplied by Tele Atlas (due to TomTom's vertical integration with Tele Atlas) and the fact that the second largest PND maker, Garmin, has concluded a long-term contract with NAVTEQ. For this reason alone, the Commission considers the minimum viable scale model presented by the parties as unrealistic.
- (125) While the projected cost may certainly be debated, it is undisputed that building a navigable digital map database with EEA coverage is resource-intensive and expensive. Furthermore, the majority of these costs must be regarded as such costs as have been incurred but are unrecoverable.

#### *Time of entry*

- (126) As mentioned in paragraph 111, according to a study commissioned by Tele Atlas entry could occur within [1 – 5 years]\*<sup>103</sup> and at a later stage of the investigation they alleged that entry is very likely to occur in the near future<sup>104</sup>.

<sup>100</sup> Minutes from telephone-conference with Facet of 1 February 2008.

<sup>101</sup> Notification, page 141.

<sup>102</sup> Reply by TomTom to the Statement of Objections of 17 March 2008, page 22.

<sup>103</sup> Notification, pages 136-137; submission by Tele Atlas of 12 October 2007.

<sup>104</sup> Reply by TomTom to the Statement of Objections of 17 March 2008, page 16.

- (127) NAVTEQ makes a similar estimate about the time of entry. The company considers that entry by the most likely entrants, which according to NAVTEQ are current suppliers of digital map data such as AND and current suppliers of internet-based map applications such as Google, would require between one and three years. However, NAVTEQ recognises that a new entrant would need more time to create a navigable database<sup>105</sup>.
- (128) Some respondents to the market investigation consider that market entry would take longer than estimated by the parties and NAVTEQ. The time-lag before full-scale entry may occur has been estimated to require between five and ten years by several respondents to the market investigation<sup>106</sup>.
- (129) The Commission notes in this regard, that AND, which has dispensed with the use of a field force when compiling its data, has spent "*many years*" collecting the data for its navigable digital map databases<sup>107</sup>.
- (130) Similarly, Facet claims to have been compiling its map data for the United States "*for years*"<sup>108</sup>. When asked by the Commission, Facet stated that it took the company four to eight years to create its United States database but that it would have been possible to shorten this time period with additional funding<sup>109</sup>. Nonetheless, Facet estimates that the company could create a database with broad European coverage in 18 months<sup>110</sup>. Considering the time it took the company to create its United States database and considering the reservations mentioned in paragraph 123 Facet's estimate of entry costs (the same reservations apply for the time of entry), the Commission considers it likely that Facet underestimates the time required to build a navigable digital map database with complete EEA-coverage.
- (131) [Provider of Internet-based Mapping Solutions]\* uses Tele Atlas as its provider of navigable digital map databases states that while it would be theoretically possible for [Provider of Internet-based Mapping Solutions]\* to build its own database, doing so would require a "*vast commitment of time and resources*" and that collecting the data and incorporating it in the company's products would be a "*massive undertaking*". The latter estimates it would take five years to build its own digital map database which enables the features currently available from the company<sup>111</sup>.
- (132) It is beyond dispute that the creation of a navigable digital map database of a quality comparable to those created by Tele Atlas and NAVTEQ is a time-consuming exercise. To build a database covering the EEA, vast volumes of data have to be collected from various sources and field survey teams have to drive down every road in the EEA and record all features on the way. The Commission

<sup>105</sup> NAVTEQ's response to invitation from the Commission to submit comments on a summary of the Statement of Objections of 25 March 2008, page 4.

<sup>106</sup> See Section 6.4.1. regarding definition of the relevant product market.

<sup>107</sup> AND web-site, [www.and.com](http://www.and.com).

<sup>108</sup> Facet press release of 29 November 2007.

<sup>109</sup> See E-mail from Facet of 9 April 2008.

<sup>110</sup> Minutes from telephone-conference with Facet of 1 February 2008.

<sup>111</sup> Submission by [Provider of Internet-based Mapping Solutions]\* to the Commission of 19 January 2008, pages 4 and 6.

therefore considers that entry by a credible entrant able to constrain the behaviour of the incumbents is unlikely to occur within the next three years.

*Low-end "country-by-country" entry*

- (133) The parties submit that entry of a provider of a basic navigable map database with limited geographic coverage is likely and that such entry would constrain the competitive behaviour of Tele Atlas and NAVTEQ. For several reasons, the Commission considers it unlikely that such entry, if it occurs, would have a significant impact on competition.
- (134) First, a well-functioning navigation capability is crucial for the reputation and commercial success of device makers. Given the fact that the licence fee for the database constitutes a minor part of the total production cost of a PND, device makers have limited incentives to opt for a low cost, low quality map database instead of a fully navigable one because the reputational and commercial risk involved is likely to outweigh the limited cost savings. Moreover, any damage to the device maker's reputation caused by malfunctioning, low-end PNDs is likely to spill over to the producer's mid-range and high end devices. Therefore, the future uptake of basic map databases for use in navigation devices is likely to be limited even in low-end devices.
- (135) Second, device manufacturers need to ensure "seamless" navigation as customers move across national borders. In order to ensure seamless navigation and minimise problems with compatibility, device makers tend to source their navigable digital map databases from the same supplier (at least for each region). The market investigation indicates that the industry practice is buying licences for databases "en bloc" for each continent as stated in paragraph 98. Given the economies of scale (volume discounts are prevalent in the industry) and scope (no costs for ensuring "seamless" map coverage) involved in buying from a single supplier as well as the transaction costs generated by sourcing databases from multiple suppliers, this buying pattern is unlikely to change in the future. These circumstances make a "country-by-country" entry strategy unlikely to be sufficient to constrain the competitive behaviour of Tele Atlas and NAVTEQ.

*AND*

- (136) The Commission has evaluated in detail the role of AND in order to determine whether the company would be able to constrain the competitive behaviour of Tele Atlas and NAVTEQ today or whether it will be able to do so in the short or medium term.
- (137) AND has approximately 250 employees located in the Netherlands and India<sup>112</sup>. The company's worldwide turnover in 2006 was less than EUR 5 million<sup>113</sup>. The company initially aimed to produce digital map databases covering countries which Tele Atlas and NAVTEQ had not yet covered<sup>114</sup>. AND also supplies a

<sup>112</sup> AND web-site, [www.and.com](http://www.and.com).

<sup>113</sup> AND's worldwide turnover for the period from January to September 2007 amounted to EUR 3-4 million. Reply by AND of 31 October 2007 to question 2 of the Commission's request for information.

<sup>114</sup> Potential Entry to Digital Mapping (Europe).

World Map which covers more than 200 countries with a level of accuracy significantly lower than NAVTEQ and Tele Atlas. This non-navigable digital map database is mostly used for tracking and tracing, logistics solutions and online applications<sup>115</sup>. Most customers use AND's digital map databases for basic, non-navigation applications<sup>116</sup>.

- (138) In a press release issued on 17 September 2007, AND announced its release of "street level" map data for the BENELUX countries<sup>117</sup>. On 19 November 2007, AND made a similar statement announcing "street level" data also for Germany. Moreover, the company intended to release digital map databases covering the rest of Western Europe in 2008<sup>118</sup>.
- (139) Today, AND provides allegedly navigable digital map databases covering the following states in the EEA: Belgium, Bulgaria, Germany, Luxembourg, the Netherlands and Slovenia. The company claims that these databases "have all attributes necessary for navigation and include select points of interest". AND creates its navigable digital map databases by compiling map data from a variety of publicly available sources, supplements this data with aerial and satellite imagery and processes the collected data in its facility in India. The company does not, as do Tele Atlas and NAVTEQ, use field forces and specialised vehicles to record road information<sup>119</sup>.
- (140) AND states that one of its customers – [Producer of In-dash Navigation Devices]\* – uses AND digital map databases for navigation purposes<sup>120</sup>.
- (141) However, the Commission has been unable to identify any device maker or software developer that currently uses AND products covering states within the EEA for actual real-time, turn-by-turn navigation. Moreover, the Commission market investigation indicates that the quality of AND's navigable digital map databases is inferior to those offered by Tele Atlas and NAVTEQ.
- (142) Despite AND's statement to the contrary, [Producer of In-dash Navigation Devices]\* denies using AND digital map databases for navigation purposes. The latter added that it has tested navigable digital map databases from AND but they did not meet the company's quality requirements. Furthermore, it stated that it does not expect that a third supplier offering navigable digital map databases of comparable quality to those produced by Tele Atlas and NAVTEQ will enter the market before 2010<sup>121</sup>.

<sup>115</sup> Reply by AND of 31 October 2007 to question 3 of the Commission's request for information.  
<sup>116</sup> AND web-site, [www.and.com](http://www.and.com) and reply by AND of 31 October 2007 to question 3 of the Commission's request for information.

<sup>117</sup> "AND releases street level data for the Benelux", AND press release of 17 September 2007, <http://www.and.com/company/press/item80en.php>.

<sup>118</sup> "AND releases street level data for Germany", AND press release of 19 November 2007, <http://www.and.com/company/press/item83en.php>.

<sup>119</sup> Reply by AND of 31 October 2007 to question 5 of the Commission's request for information.

<sup>120</sup> Reply by AND of 31 October 2007 to question 4 of the Commission's request for information.

<sup>121</sup> [Producer of In-dash Navigation Devices]\* tested AND's navigable digital map database covering Turkey in 2006 and concluded that the database had very limited coverage. Local roads in towns and cities are not included and the data was dated. Reply by [Navigation Device Manufacturer]\* of 11 January 2008 to questions 14, 15, 17 of the Commission's request for information and Annex 2.

- (143) "[PND Manufacturer]\* has had the opportunity to evaluate certain AND "routable" maps covering non-European and, more recently, European regions. The results of [PND Manufacturer's]\* evaluations suggest that, although the most recent map data appears to have improved map accuracy, AND map data is generally not of sufficient high quality to be used in [PND Manufacturer's]\* PNDs"<sup>122</sup>.
- (144) The same [PND Manufacturer]\* does not consider AND as a credible competitor and does not believe that the company will become one in the foreseeable future. Furthermore, [PND Manufacturer]\* is not aware of any PND supplier that uses AND databases for navigation. AND has indicated to [PND Manufacturer]\* that AND does not consider itself as competing with Tele Atlas and NAVTEQ but rather that the company considers itself a provider of low-cost, "b-level" navigable digital map databases. Due to the fact that the quality of a PND is judged by end-users primarily on the basis of the quality and accuracy of the underlying map data, it is doubtful whether there is any current demand for "b-level" digital map databases or that such demand will arise in the future<sup>123</sup>.
- (145) Finally, this [PND Manufacturer]\* argues that AND lacks the financial resources necessary to expand, in the short or medium term, its coverage and improve the quality of its navigable digital map databases to a sufficient level. AND's limited turnover and small number of staff is a significant competitive disadvantage which limits the credibility of AND's claim that it will introduce a navigable digital map database covering the whole of Europe by 2009<sup>124</sup>.
- (146) [Navigation Device Manufacturer]\* produces and sells navigation software to device makers on a stand-alone basis. The company also sells complete PNDs under the [...] brand and has recently tested AND's digital map database covering Germany. The company's tests indicate that the road coverage of the AND map database is reasonably complete, however, that there is a complete lack of advanced navigation features such as the Traffic Message Channel (TMC) functionality<sup>125</sup>, speed information and lane information. The conclusion of the [Navigation Device Manufacturer]\* is that the AND map database only allows a very basic navigation functionality<sup>126</sup>.

<sup>122</sup> Reply by [PND Manufacturer]\* of 4 January 2008 to question 15 of the Commission's request for information. This Quotation contains summarised text submitted by [PND Manufacturer]\* substituting more detailed information given in the confidential version of the reply. Revised non-confidential version, received on the 20 February 2008.

<sup>123</sup> Reply by [PND Manufacturer]\* of 4 January 2008 to question 17 of the Commission's request for information.

<sup>124</sup> Reply by [PND Manufacturer]\* of 4 January 2008 to question 17 of the Commission's request for information.

<sup>125</sup> TMC is a specific application of the FM Radio Data System (RDS) used for broadcasting real-time traffic and weather information. Data messages are received silently and decoded by a TMC-equipped car radio or navigation system, and delivered to the driver in a variety of ways. The most common of these is a TMC-enabled navigation system that can offer dynamic route guidance alerting the driver of a problem on the planned route and calculating an alternative route to avoid the incident. Nearly all in-dash navigation systems and many PNDs sold today have TMC capability. Source: The TMC-Forum web-site, [http://www.tmcforum.com/en/about\\_tmc/what\\_is\\_tmc/](http://www.tmcforum.com/en/about_tmc/what_is_tmc/).

<sup>126</sup> See e-mail from [Navigation Device Manufacturer] to the Commission of 11 February 2008.

- (147) [Navigation Device Manufacturer]\* currently uses AND's digital map database covering Turkey but considers the AND database to be of inferior quality compared to Tele Atlas and NAVTEQ due to the fact that AND uses different road classes and is less accurate<sup>127</sup>.
- (148) [Provider of Internet-based Mapping Solutions]\*, a company which does not offer navigation services but merely turn-by-turn route planning, does not consider the navigable digital map databases provided by AND to be a viable alternative to the databases provided by Tele Atlas, its main provider of map data. The latter states that most of the data included in AND's navigable digital map databases has been licensed from municipalities. The licensed data has not been verified by AND to a sufficient degree which means that it lacks in reliability. Moreover, [Provider of Internet-based Mapping Solutions]\* has tested AND's navigable digital map databases covering the BENELUX-countries and concludes that they are 80-90% as accurate as the databases provided by Tele Atlas. [Provider of Internet-based Mapping Solutions]\* concludes that, in any event, the geographic coverage offered by AND is insufficient for the company's European product offering<sup>128</sup>.
- (149) As regards the competitive threat posed by AND, the outcome of the market investigation is clear. AND is attempting to enter the market by offering allegedly navigable digital map databases covering BENELUX and Germany. However, neither the Commission, nor the parties have been able to identify a device maker or navigation software developer that currently uses navigable digital map databases with EEA coverage produced by AND. Tests performed by several respondents to the market investigation have clearly shown that the digital map databases produced by AND are inferior to those produced by Tele Atlas and NAVTEQ in key respects. In any event, the geographic coverage of AND's navigable digital map database is far from complete.

#### *Facet*

- (150) Given the claims made by the notifying party and the claims made by the company itself, the Commission has evaluated the likelihood of Facet entering the market for the provision of navigable digital map databases with EEA coverage in order to assess whether the company would be able to constrain the competitive behaviour of Tele Atlas and NAVTEQ in the short or medium term.
- (151) For a number of years, Facet has produced digital imagery for the United States Census Bureau and for Microsoft. The company has developed and patented sophisticated software for image analysis and identification of objects of interest. A few years ago, Facet decided to use its vast database of digital imagery to produce a navigable map database covering the continental United States. Facet's United States database, called SightMap, was ready for delivery to customers in April 2008<sup>129</sup>.

<sup>127</sup> Reply by [Navigation Device Manufacturer] of 4 January 2008 to questions 14 and 15 of the Commission's request for information.

<sup>128</sup> Submission by [Provider of Internet-based Mapping Solutions]\* to the Commission of 19 January 2008, page 4.

<sup>129</sup> Minutes from telephone conference with Facet of 1 February 2008.

- (152) According to Facet, the digital map databases of NAVTEQ and Tele Atlas currently have an absolute accuracy of approximately 5 metres, whereas Facet claims it can obtain an absolute accuracy of 5 centimetres or less. According to Facet, the quality of the SightMap database has been validated by the Census Bureau and Microsoft. Facet intends to license its United States database at a price which is substantially lower than the prices currently charged by Tele Atlas and NAVTEQ. Furthermore, Facet is currently compiling a navigable digital map database covering Canada which it intends to launch to the market in early 2009<sup>130</sup>.
- (153) Facet has publicly announced plans to create a navigable digital map database with European coverage<sup>131</sup>. The company intends to team up with a European partner which will carry out the field surveys using a fleet of approximately [...] vehicles equipped with Facet's patented technology for capturing road data<sup>132</sup>.
- (154) Facet's announced market entry in the United States was not mentioned by the consultancy firm that conducted, on behalf of Tele Atlas, an in-depth review of potential market entrants<sup>133</sup> and moreover, none of the respondents in the Commission market investigation identified Facet as a potential market entrant.
- (155) As regards the potential entry by Facet into the market for navigable digital map databases with European coverage, the Commission notes that the company has yet to capture a share of the United States market. The company's plans to produce a map database with European coverage are very preliminary and at this point in time it is uncertain whether Facet has the financial capability to build a European-wide database from beginning to end in a limited period of time. The Commission does not exclude that Facet may be able to launch a viable product with European coverage in the foreseeable future but due to the time-lags inherent in the production process, entry by Facet will not be timely enough to constrain the competitive behaviour of Tele Atlas and NAVTEQ.

#### *Market entry - conclusions*

- (156) When entering a market is sufficiently easy, a merger is unlikely to pose any significant anti-competitive risk. For entry to be considered as a sufficiently competitive constraint on the merging parties, it must be shown to be likely, timely and sufficient enough to deter or defeat any potential anti-competitive effects of the merger.
- (157) There are no indications in the Commission market investigation that any of the current providers of navigable digital map databases active in Japan and South Korea or elsewhere in the world plan to enter the markets for databases with coverage of states in the EEA<sup>134</sup>. Entry by these firms must therefore be regarded as unlikely. Even if they did have intentions to enter, the substantial time-lag involved in producing from a navigable digital map database covering the EEA

<sup>130</sup> Minutes from telephone conference with Facet of 1 February 2008.

<sup>131</sup> Facet press release of 29 November 2007.

<sup>132</sup> Minutes from telephone conference with Facet of 1 February 2008.

<sup>133</sup> Submission by Tele Atlas of 12 October 2007.

<sup>134</sup> Reply by [Japanese Supplier of Digital Map Databases]\* of 10 January 2008 to question 6 of the Commission's request for information.

from beginning to end would prevent any potential future entry from being timely enough to constrain the competitive behaviour of the incumbents in the short or medium term.

- (158) New entry by firms offering internet-based map applications must also be regarded as unlikely. None of the firms offering such services contacted by the Commission announced any intention to enter the market. Neither Google, nor Microsoft has developed its own map database covering the EEA. The same time-lag would apply as for existing providers of navigable digital map databases, which makes timely entry by such firms unlikely.
- (159) Apart from AND, the market investigation contains no indications that any of the producers currently producing non-navigable digital map databases with European coverage intends to upgrade its databases to make them navigable. In any case, the substantial time-lag involved in such an undertaking makes timely market entry unlikely. Moreover, the same time-lag would apply before Facet could enter the market for digital map databases with EEA-coverage.
- (160) The parties suggest that possible financial constraints of small companies aiming to enter the market (such as AND and Facet) may be overcome by users of digital map databases sponsoring entry of a third market player. However, when queried by the Commission, none of the respondents considered sponsoring entry as a viable option. Therefore, sponsored entry must be regarded as unlikely. Even if a sponsor should come forward, the time-lags discussed in paragraph 132 would still apply.
- (161) While marginal entry may not be excluded, the Commission concludes that entry into the markets for the provision of navigable digital map databases with EEA-coverage will be neither timely, that is to say sufficiently swift and sustained, nor sufficient with regards to its scope and magnitude to deter or defeat any potential anti-competitive effects of the merger.

## 7.2. Navigation Software

### 7.2.1 Vertically affected market

- (162) The parties submit that the market for the provision of navigation software is not or is only very marginally a vertically affected market. The parties argue that for the most important providers of navigation devices (such as TomTom and Garmin), navigation software is not a downstream of the market for digital map databases since they develop their software in-house. The provision of navigation software is not a priority for TomTom, representing only [0-5%]\* of the company's turnover. Moreover, the parties allege that navigation software providers typically contract with device manufacturers rather than with suppliers of digital map databases<sup>135</sup>.
- (163) However, the Commission's market investigation indicates that a number of navigation device manufacturers do not develop their own software in-house and therefore, purchase navigation software from external providers. These software

<sup>135</sup> Notification, page 67.

providers are either device makers themselves (such as TomTom) or specialised software companies.

- (164) Moreover, most providers describe navigable digital map databases as a key input for navigation software. This applies both to those cases where the software provider sells the software and the database as a single package to the device maker and to those cases where the software and the database are procured independently by the device manufacturer. In both cases, the software provider must configure the software so that it is fully compatible with the database.
- (165) It may therefore be concluded that navigable digital map databases are important inputs not only for device makers but also for providers of navigation software, that navigation software is supplied by third parties to those device makers which do not produce software in-house and moreover, that navigation software is sold to device makers either on a stand-alone basis or as a part of package consisting of software and database. For these reasons, the Commission concludes that the market for the provision of navigation software must be regarded as a market which is vertically affected by the proposed transaction.

### 7.2.2. Market shares

- (166) Tele Atlas is not active in the market for the provision of navigation software<sup>136</sup>.
- (167) TomTom develops navigation software primarily for use in its own navigation devices. The company is the largest producer of navigation software in the EEA, accounting for approximately [30-40%]\* of the total production volume in 2006<sup>137</sup>. However, only a minor part, approximately [5-10%]\* of the total production volume in 2006<sup>138</sup>, is supplied to third parties (such as producers of PNDs, PDAs and mobile telephones with navigation functionality). TomTom's share of the contestable part of the market (the merchant market), that is to say, when all the intra-company sales of TomTom and other producers are excluded, is rather modest, approximately [0-10%]\*.
- (168) The parties have provided, as indicated in Table 3, the estimates of the market shares pertaining to the main providers of navigation software in the merchant market<sup>139</sup>.

<sup>136</sup> Notification, page 150.

<sup>137</sup> Notification, page 151.

<sup>138</sup> Reply by TomTom of 12 December 2008 to Commission Article 6(1)(c) decision, page 9.

<sup>139</sup> The market share estimates provided by the parties are based on non-captive sales by volume of on-board navigation software in the EMEA-region (Europe, Middle East, Africa) in 2006. Reply by TomTom of 12 December 2008 to Commission Article 6(1)(c) decision, Annex 3. In order to be consistent with the market definition, the sales data ought to have covered worldwide sales as well as an alternative, combined market for on-board and off-board navigation software. Market shares calculated on the basis of sales value would also have been useful. However, none of these alternative calculations are likely to alter significantly the relative market shares of the main players and in particular, TomTom's relative insignificance in the open market for navigation software.

**Table 3: Navigation software - market shares by volume in 2006 (merchant market)**

COMPANY	ESTIMATED MARKET SHARE
Navigon	[20-30]*
Nav n'go	[10-20]*
Destinator	[10-20]*
Elektrobit	[0-10]*
Gate 5 (Nokia)	[0-10]*
Route 66	[0-10]*
TomTom	[0-10]*
Map & Guide	[0-10]*
Alturion	[0-10]*
ALK	[0-10]*
Via Michelin	[0-10]*
Navicore	[0-10]*

### 7.2.3. Pricing

(169) Customers normally license the use of the navigation software. Licence fees are paid on a per-unit basis and are valid for the lifetime of the device in which the onboard software is installed. Alternatively and predominantly for off-board systems, licence fees may be paid by means of a subscription over time (on a daily, weekly or monthly basis). Prices typically vary according to the size of the licensed territory.

### 7.2.4. Distribution patterns

(170) Most software developers supply their navigation software to manufacturers of all types of devices. Currently, the market for navigation software is primarily driven by PND-manufacturers, which account for the largest part of sales.

(171) In contrast to the two largest providers of PNDs, TomTom and Garmin, and some other PND manufacturers which all produce their navigation software in-house, a large number of medium-sized and small PND producers procure navigation software from external suppliers<sup>140</sup>. A significant portion of these companies purchase the navigation software separately from the navigable digital map database<sup>141</sup>.

### 7.2.5. Market entry

(172) TomTom submits that barriers to entry are low. This is evidenced by the fact that small companies have been able to develop and distribute navigation software.

<sup>140</sup> Out of eighteen PND manufacturers that responded to the Commission's questionnaire, twelve stated that they purchase navigation software from external suppliers. Commission questionnaire to device manufacturers of 12 December 2007, question 18.

<sup>141</sup> Out of eighteen PND manufacturers that responded to the Commission's questionnaire, seven indicated that they purchase the navigation software separately from the digital map database. Commission questionnaire to device manufacturers of 12 December 2007, question 19.

Examples of such companies are SVI, Alturion and Destinator Technologies. According to TomTom, any general software developer would in principle be able to develop navigation software. Finally, TomTom emphasises the fact that some recent entrants into the market for PNDs have successfully developed their own navigation software<sup>142</sup>.

(173) The Commission's market investigation tends to confirm TomTom's allegation that barriers to entry are relatively limited. For instance, the vast majority of the PND-manufacturers which participated in the Commission market investigation responded that they were already able or would be able to develop their own navigation software in-house<sup>143</sup>.

## 7.3. PNDs

### 7.3.1. Navigation devices in general

#### Sales forecasts

(174) According to Canalys, shipments of mobile navigation devices (that is to say, excluding in-dash devices which are not mobile in the sense that they are permanently installed in cars) in the EMEA region reached 7.9 million units in the first half of 2007, an increase of 85% compared to the first half of 2006. In the first half of 2007, PNDs accounted for 90% of devices, PDAs accounted for 4% while mobile telephones and wireless PDAs accounted for the remaining 6%<sup>144</sup>.

(175) Tables 4 and 5 include forecast sales of different types of devices with on-board navigation solutions<sup>145</sup>.

**Table 4: Worldwide sales of mobile navigation devices ('000)**

	2005	2006	2007	2008	2009	2010
PDA	2719	1 306	1 070	816	632	520
PND	5 351	15 532	30 264	43 008	53 571	62 119
Mobile telephone with navigation	362	415	2 509	6 225	11 898	19 607
Wireless PDA	264	321	1 117	1 434	1 869	2 435
Total	8 696	17 574	34 960	51 483	67 970	84 681

<sup>142</sup> Notification, pages 160-161.

<sup>143</sup> Out of eighteen PND manufacturers that responded to the Commission's questionnaire, sixteen indicated that they were already able or would be able to develop their own navigation software in-house. Commission questionnaire to device manufacturers of 12 December 2007, question 20.

<sup>144</sup> "Smart mobile device and navigation trends 2007/2008", report by Canalys.

<sup>145</sup> "Smart mobile device and navigation trends 2007/2008", report by Canalys.

**Table 5: EMEA sales of mobile navigation devices ('000)**

	2006	2007	2008	2009	2010
Handheld (PDA)	2 289	953	645	464	360
PND	4 082	10 769	18 206	24 202	27 201
Mobile telephone with navigation functionality	331	360	1 502	3 692	6 635
Wireless PDA	208	200	776	990	1 297
<b>Total</b>	<b>6 910</b>	<b>12 282</b>	<b>21 129</b>	<b>29 348</b>	<b>35 493</b>

(176) According to the forecast of Canalsys, the PND market will continue to grow dynamically in the next few years. The PDA market, which represented nearly a third of all navigation devices in 2005, will decline to almost 0.5% of all mobile navigation devices sold in 2010. By contrast, there is an increasing user interest in navigation-enabled mobile phones. This segment will likely see dynamic growth in the coming years. According to the main market players, this growth is unlikely to have a strong, negative impact on sales of PNDs. Mobile telephones with navigation functionality and PNDs are likely to be complementary products in the foreseeable future. However, one industry analyst forecasts that until 2015 the PND market will decline at the expense of an expanding market for mobile telephones with navigation functionality<sup>146</sup>.

### 7.3.2. PNDs - market shares

(177) The main PND manufacturers had the following market shares in 2006<sup>147</sup>.

**Table 6: EEA market shares by volume (units) in 2006**

Volume market shares EEA (units)		
	All portable end-uses	PNDs
TomTom	[30-40]*	[30-50]*
Mio Tech & Navman	[10-20]*	[10-20]*
Garmin	[10-20]*	[10-20]*
MEDION	[0-10]*	[0-10]*
MyGuide	[0-5]*	[0-5]*

<sup>146</sup> "Tele Atlas, Riding the navigation wave part II", report by SNS Securities of 28 March 2007.  
<sup>147</sup> Notification, pages 168-169.

**Table 7: EEA market shares by value (turnover) in 2006**

Value market shares EEA		
	All portable end-uses	PNDs
TomTom	[30-50]*	[30-50]*
Mio Tech & Navman	[10-20]*	[10-20]*
Garmin	[10-20]*	[10-20]*
MEDION	[0-5]*	[0-5]*
MyGuide	[0-5]*	[0-5]*

(178) TomTom is undoubtedly the largest player in the European PND market, followed by other electronics companies like Garmin, MiTAC (Mio and Navman), MEDION and MyGuide.

### 7.3.3. Pricing

(179) Retail prices for the least expensive PNDs currently vary between EUR 99 and EUR 180. Such low-end devices have limited features and the coverage of the digital map databases installed may be more limited. On the other hand, mid-range devices currently retail between EUR 180 and EUR 250, while the prices of more expensive PNDs currently exceed EUR 250<sup>148</sup>. According to the market investigation, PND manufacturers obtain the highest margins on high-end devices. The price segment which is expected to grow most in the future is the low end of the PND market. PNDs are typically sold through hypermarkets, consumer electronics stores and discount chains.

(180) Average selling prices of PNDs have fallen sharply in recent years. The average wholesale selling price for TomTom PNDs dropped from EUR 310 in the second quarter of 2006 to EUR 195 in the second quarter of 2007<sup>149</sup>.

### 7.3.4. Outsourcing

(181) The design and production of hardware for PNDs can be outsourced to original design manufacturers (ODMs) or performed in-house. For example, Navman entered the PND market by purchasing hardware from ODMs. The navigation software used in PNDs can also be developed in-house or bought from specialized vendors. Independent suppliers of navigation software include Navigon, Route 66, Nav'nGo, Destinator Technologies, NXP Software, Ubirotech and others. Furthermore, the majority of PND suppliers use contract manufacturers from Taiwan or China.

### 7.3.5. Cost structure

(182) According to the market investigation, the main cost component for PNDs is the hardware which represents 70-80% of the total variable cost of best-selling devices. The navigation software and navigable digital map databases each

<sup>148</sup> Figures based on responses to the Commission questionnaire to device manufacturers of 12 December 2007.

<sup>149</sup> "Smart mobile Device and Navigation trends 2007/2008", report by Canalsys, page 47.

represent approximately 10% of the production cost<sup>150</sup>. According to the market investigation, the costs of components for PNDs have fallen substantially. Due to increased outsourcing of hardware to Asia, costs of hardware have fallen by 40-50% over the past three years. Moreover, costs have fallen by 10-15% over the past three years. In the same period the costs of software have fallen by approximately 40%<sup>151</sup>. However, marketing and distribution costs have increased. In 2007 the largest PND manufacturers obtained margins on the best selling devices of 30-50%. The smaller companies obtained margins of 10-20%<sup>152</sup>.

### 7.3.6. Market Entry

- (183) In 2004 TomTom, Garmin, Navman and six other firms entered the market. As the market expanded, numerous entrants followed. 40 companies entered in 2005, 63 entrants were registered in 2006 and an additional 22 companies entered in 2007. Among the market entrants were major consumer electronics companies such as Samsung, LG Electronics, Sony Corporation, JVC and Packard Bell B.V. However, many of these market entrants are very small and some market re-branded versions of other companies' products<sup>153</sup>.
- (184) The parties maintain that barriers to entry are not significant. All PND components are readily available from multiple sources while software and navigable digital map databases are always available since there are no capacity constraints for these inputs<sup>154</sup>.
- (185) The very large number of companies that have entered the market during the previous four years confirms the parties' view that barriers to entry are not significant. However, the vast majority of market entrants, including major companies with ample resources and strong brand names, have failed to capture other than marginal market shares and remain minor players. This circumstance and the fact that early market entrants such as TomTom, Garmin and MiTAC retain large shares of the market suggest that these firms benefit from first mover advantages and, that barriers to expansion may be substantial.
- (186) Barriers to expansion may include the expense and difficulty of marketing and distributing a consumer electronics product like PNDs in a market with such a large number of competing brands. Market entrants must acquire consumer brand recognition (or expand existing brands to encompass their new PND products). Furthermore, a large number of suppliers have to compete for limited shelf space in major electronics stores and other retail outlets. PND suppliers currently engage in extensive marketing campaigns and only major firms can afford to spend large amounts on advertising. Finally, PND manufacturers must also invest in customer

<sup>150</sup> Figures based on responses to the Commission's request for information of 12 November 2007 sent to major PND manufacturers. Although the numbers differ depending on the company and device model, the cost structure of most devices is reflected in these ranges.

<sup>151</sup> Figures based on responses to the Commission questionnaire to device manufacturers of 12 December 2007.

<sup>152</sup> Figures based on responses to the Commission's request for information of 12 November 2007 sent to major PND manufacturers. Although the numbers differ, depending on the company and model of device, these ranges reflect the size of margins obtained on most devices.

<sup>153</sup> Notification page 182. The list of market entrants mentioned in the Notification is based on GfK sales data covering the EEA.

<sup>154</sup> Notification, page 181.

support infrastructure. Recent market exits, for instance Cobra Electronics Corporation and ViaMichelin, are likely to have been precipitated, at least in part by barriers to expansion.

## VIII. COMPATIBILITY WITH THE COMMON MARKET AND THE EEA AGREEMENT ASSESSMENT

### 8.1. Introduction

(187) Following the notification of the present concentration, the Commission received on 18 February 2008 a notification of a subsequent transaction according to which Nokia Corporation (Finland) intends to acquire sole control of NAVTEQ (Case M. 4942 Nokia/NAVTEQ). The second transaction partly covers the same markets as the markets on which TomTom and Tele Atlas are active.

(188) In view of the dates of notification, the present transaction has been assessed independently of the second transaction. This approach is in line with the Commission's practice in recent cases of parallel (horizontal) mergers<sup>155</sup>.

### 8.2. Competition Concerns

(189) The Commission has focused its market investigation on assessing the likelihood of competitive harm arising as a result of the proposed transaction due to:

(a) Non-coordinated effects<sup>156</sup>

and

(b) Coordinated effects<sup>157</sup>.

### 8.3. Input Foreclosure in the PND and Navigation Software Markets

#### 8.3.1. Introduction

(190) A number of PND manufacturers expressed concerns during the market investigation that the merged entity would engage in input foreclosure. In particular, these PND manufacturers were concerned that the merged entity would increase map database prices, provide them with map databases of lower quality or delay the availability of new features and updates, thereby preventing them from effectively competing with TomTom in the PND market.

<sup>155</sup> See in particular Commission decisions in cases COMP/M.4601 KarstadtQuelle / MyTravel, of 4 May 2007 and COMP/M.4600 TUI / First Choice of 4 June 2007.

<sup>156</sup> See Sections 8.3. and 8.4.

<sup>157</sup> See Section 8.5.

(191) According to the Non-Horizontal Merger Guidelines<sup>158</sup>, a merger is said to result in foreclosure where actual or potential rivals' access to supplies or markets is hampered or eliminated as a result of the merger, thereby reducing these companies' ability and incentive to compete. Such foreclosure is regarded as anti-competitive where, as a result of the merger, the merging companies, and possibly also some of its competitors, are able to profitably increase the price charged to consumers.

(192) When assessing the likelihood of such an anticompetitive input foreclosure scenario, the Commission examined whether the merged entity would have the ability post-merger to foreclose access to inputs, whether it would have the incentive to do so, and moreover, whether a foreclosure strategy would have a significant detrimental effect in the downstream PND market. When assessing effects, the Commission also took into account the efficiencies resulting from the merger.

### 8.3.2. Ability to foreclose

(193) The analysis developed in the following paragraphs focuses on whether the merged entity would be able to foreclose competing PND manufacturers and software manufacturers either by increasing prices or by providing degraded maps or delayed updates. An alternative total input foreclosure strategy, according to which the merged entity would stop supplying maps to TomTom's competitors downstream, was not identified as a likely scenario by the market investigation and was already excluded when the Commission addressed its Statement of Objections to the parties<sup>159</sup>.

(194) The Non-Horizontal Merger Guidelines point to three conditions which are necessary for the merged entity to have the ability to foreclose its downstream competition, namely the existence of a significant degree of market power, the importance of the input and the absence of timely and effective counter-strategies.

(195) First, the guidelines indicate that input foreclosure can only be a concern if the merged entity has a significant degree of market power in the upstream market. In the case at hand, Tele Atlas sells map databases above marginal cost<sup>160</sup> and has a market share of more than 50% in the upstream market, NAVTEQ being the only other provider of navigable digital map databases with a similar coverage and quality level. Given the imperfect constraint exerted by the counter-strategies detailed in paragraphs 202-209, Tele Atlas can reasonably be expected to influence the conditions of competition in the upstream market. The Commission

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Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings, adopted on 28 November 2007, <http://ec.europa.eu/comm/competition/mergers/legislation/nonhorizontalguidelines.pdf>.

<sup>159</sup> In addition, the parties submit that the merged entity lacks the ability to stop supplying map databases because it could not commit to such a strategy (submissions of 7 November 2007 and 19 November 2007). Given the lack of incentive for the merged entity to engage in total input foreclosure, as shown in section 8.3.3., the question regarding the merged entity's ability to commit not to supply map databases to TomTom's competitors can be left open.

<sup>160</sup> High gross margins do not necessarily indicate supra-competitive profits in an industry with high fixed costs and low marginal costs.

therefore concluded that the merged entity enjoys a significant degree of market power on the market for navigable digital map databases.

(196) This conclusion is contested by the parties, who submit that there is no ability to foreclose if there is "at least one other equivalent input source". However, neither the Commission's practice in previous decisions, nor the Non-Horizontal Merger Guidelines support this view. The parties further submit that Tele Atlas does not have market power within the meaning of the Non-Horizontal Merger Guidelines, since they argue that market power should be interpreted closely to the concept of market dominance. However, this interpretation is incompatible with the wording of the Non-Horizontal Merger Guidelines which explicitly refer to "a significant degree of market power (which does not necessarily amount to dominance)"<sup>161</sup>.

(197) Second, input foreclosure may raise competition problems only if it concerns an important input for the downstream product. The Non-Horizontal Merger Guidelines clarify that irrespective of its cost, an input may also be sufficiently important for other reasons. For instance, the input may be a critical component without which the downstream product could not be manufactured or effectively sold on the market.

(198) Although digital map databases only account for a relatively limited share of the PND cost, they constitute a critical component without which PNDs could not serve their purpose. The parties do not contest that navigable digital map databases are critical PND components. However, the parties argue that Tele Atlas would not be able to deprive TomTom's PND rivals access to this critical component. In particular, the parties argue that quality degradation or delayed release of updates would be impossible because Tele Atlas only has one core digital navigable map database for any given geographic area.

(199) While the parties submit that having a single database may make quality degradation difficult from a technical point of view, nothing would prevent the merged entity from duplicating its database if it had an incentive to do so post-merger. Moreover, having a single database does not prevent degradation by delaying upgrades, because Tele Atlas could still release the updated version of the database to TomTom's competitors with some delay.

(200) The parties submit that "many of Tele Atlas's significant customers have concluded licensing agreements requiring frequent updates to Tele Atlas's latest map database releases, typically every [1-10]\* months"<sup>162</sup>. However, a review of Tele Atlas's contracts has confirmed the existence of such clauses only for a minority of customers. In any event, many contracts have a duration of only [1-5 years]\* and are therefore not sufficient to ensure that these customers will get access without delay to map database updates in the future.

(201) Currently, both Tele Atlas and NAVTEQ provide their European digital map databases to PND suppliers in one of several exchange formats (Shape, GDF and Oracle), which are chosen by each PND supplier. The Commission examined whether Tele Atlas would be able to foreclose PND manufacturers and navigation software providers competing with TomTom by providing new features or

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<sup>161</sup> See paragraph 23 of the Non-Horizontal Merger Guidelines.  
<sup>162</sup> Reply by TomTom to Commission Statement of Objections of 17 March 2008, page 79.

updates, exclusively or earlier, in only one of the current data formats, thereby raising rivals' costs for format conversion. As indicated by the parties in their reply to the Statement of Objections, the impact of such a strategy is likely to be limited. TomTom uses the same format (Shape) as several other competitors and would therefore incur the same conversion costs as many other companies if this format was abandoned by Tele Atlas. In addition, PND manufacturers could switch to NAVTEQ which would continue to provide all current formats. Although Tele Atlas would have the technical ability not to supply or delay access to its database in certain formats, the impact and profitability of such a strategy therefore appear doubtful.

- (202) Third, the Commission considered, on the basis of the information available, whether there are effective and timely counter-strategies that rival firms in the PND market could deploy. Potential constraints resulting from the competition with NAVTEQ, the threat of entry and constraints resulting from the role of intermediaries are discussed in paragraphs 203-207. In particular, the Commission shows that while some of these factors limit the merged entity's ability to increase prices or degrade quality, they do not fully eliminate its ability to do so.
- (203) NAVTEQ would still compete with Tele Atlas post-merger, thereby limiting Tele Atlas's ability to foreclose its competitors. However, NAVTEQ's best response to a price increase by Tele Atlas would be to also increase its prices<sup>163</sup>. It is therefore concluded that competition with NAVTEQ does not completely eliminate the merged entity's ability to increase prices or degrade quality.
- (204) The parties contest this argument by arguing that NAVTEQ would not become aware of any increased market power and would have no incentive to increase its prices. The parties also contest the applicability of paragraph 38 of the Non-Horizontal Merger Guidelines to partial input foreclosure scenarios. While it is clear that it would not be in the PND manufacturers' best interest to inform NAVTEQ of degraded supply conditions with Tele Atlas, there is no convincing reason to restrict the applicability of paragraph 38 of the Non-Horizontal Merger Guidelines to scenarios of total foreclosure. In a case of partial foreclosure, NAVTEQ may not become aware of its increased market power as easily as if Tele Atlas stopped supplying its former customers, but NAVTEQ will nevertheless realize that the demand it faces changes as a result of Tele Atlas's partial foreclosure tactics. Therefore, it is concluded that competition with NAVTEQ would not fully deprive Tele Atlas of its ability to increase prices or degrade quality or delay access to updates.
- (205) A possible opposite effect that would lead to a downward pressure on NAVTEQ's prices is described in paragraph 38 of the Non-Horizontal Merger Guidelines, wherein it is stated that "*the attempt* [by non-vertically integrated upstream suppliers]\* *to raise the input price may fail when independent input suppliers* [i.e. NAVTEQ]\*, *faced with a reduction in the demand for their products (from the*

<sup>163</sup> This does not mean, however, that NAVTEQ would necessarily match any eventual price increase by Tele Atlas. Although NAVTEQ would likely respond to price increases by Tele Atlas by increasing its own prices, NAVTEQ would still represent an (albeit imperfect) competitive constraint to any foreclosure strategy of the merged entity, in particular in the light of the evidence regarding switching costs gathered during the market investigation. The extent to which the merged entity may profitably increase prices or degrade quality is discussed in the next section.

*downstream division of the merged entity or from independent downstream firms), respond by pricing more aggressively"*. In this case however, NAVTEQ will not be faced with a reduction in the demand for map databases by TomTom since TomTom is already a Tele Atlas customer. As regards the demand from other PND manufacturers, NAVTEQ would have no reason to price more aggressively post-merger.

- (206) Entry is unlikely to provide an effective and timely counter-strategy that would constrain the merged entity's ability to foreclose its downstream competitors. As stated in paragraph 161, the Commission considers it unlikely that a new map database provider would build a digital navigable map database with the same level of coverage and quality as Tele Atlas or NAVTEQ and provide a timely constraint on the merged entity.
- (207) Another limit to Tele Atlas's ability to increase prices or degrade quality could be provided by intermediaries that have a license from Tele Atlas or NAVTEQ to provide the map database together with their navigation software. Such intermediaries constitute an effective constraint only if they are themselves protected from price increases and quality degradation. This is likely to be the case for Garmin, as detailed in paragraph 208. However, the constraint exerted by Garmin as a map database redistributor, only applies to PND manufacturers that do not have in-house software capabilities, which represent approximately one third of the PND market.
- (208) It is also important to note that Tele Atlas does not have the ability to foreclose all of TomTom's downstream competitors due to contractual provisions. In particular, Tele Atlas's ability to foreclose its downstream competitors is limited by the long-term contract that Garmin has concluded with NAVTEQ, which protects Garmin against price increases and guarantees yearly price decreases at least until 2015. Taking into account the likely evolution of map prices over the next few years, Garmin therefore, does not have to pay higher prices than it would have had to pay in the absence of the merger. Even if map prices decreased more significantly than predicted, the price protection mechanism in the contract still limits the possibility that Garmin would pay more for maps than in the absence of the merger.
- (209) In addition, [Navigation Device Manufacturer]\* and [Navigation Software Provider]\* have long-term contracts for the provision of digital maps. Although the duration and provisions of these contracts do not provide the same level of protection as for Garmin, these contracts provide a degree of protection against price increases. Considering the fact that only Garmin is protected against price increases and that Garmin represents less than 20% of the PND market, the merged entity's ability to foreclose could affect more than two thirds of the sales of TomTom's downstream competitors. If one takes into account that [Navigation Device Manufacturer]\* and [Navigation Software Provider]\* are also protected, approximately half of the market could possibly be affected by a foreclosure strategy.
- (210) In the light of these arguments, the Commission concludes that the merged entity is likely to have the ability to increase prices or degrade quality or delay access for some PND manufacturers and navigation software providers competing with TomTom.

### 8.3.3. Incentive to foreclose

- (211) Post-merger, TomTom/Tele Atlas will take into account how the sales of map databases to TomTom's competitors will affect its profits not only upstream but also on the downstream market. Therefore, when considering the profitability of an input foreclosure strategy, the merged entity faces a trade-off between the profit lost in the upstream market due to a reduction of input sales and the profit gained on the downstream market by raising its rivals' costs.
- (212) This trade-off depends on the level of profits that the merged entity obtains upstream and downstream. Since the profits obtained by selling a PND are much higher than the profits acquired on the sale of a map database<sup>164</sup>, the Commission preliminarily concluded in the Statement of Objections that the merged entity could have an incentive to increase map database prices or degrade quality or delay access to updated map databases for TomTom's competitors. Based on an in-depth qualitative and quantitative analysis, which is presented in detail in this section, the Commission has now concluded that the merged entity would lack incentives to foreclose its competitors.
- (213) As described in paragraph 42 of the Non-Horizontal Merger Guidelines, the incentive for the integrated firm to raise rivals' costs further depends on two critical factors, that is to say, the extent to which downstream demand is likely to be diverted away from foreclosed rivals and the share of that diverted demand that can be captured by the downstream division of the integrated firm.
- (214) The Commission has analyzed the extent to which the merged entity could actually capture sales on the PND market by engaging in an input foreclosure strategy to the detriment of TomTom's competitors. This analysis is necessary to determine whether the profits that the merged entity could gain downstream by increasing map database prices, would compensate the upstream losses. Such an assessment requires a careful examination of the sales that TomTom could capture as a result of such a strategy.
- (215) It is important first to emphasize that a series of qualitative elements indicate that an input foreclosure strategy consisting in increasing prices or degrading quality or delaying access is likely to fail. For reasons described in paragraph 223, Tele Atlas would be likely to lose significant sales to NAVTEQ if it increased prices upstream or degraded map database quality or delayed access to updates, while the benefits from increasing map database prices to TomTom's competitors are likely to be relatively limited. The main qualitative elements supporting this conclusion are outlined in paragraphs 216-220.
- (216) First, since map databases account on average for less than 10% of the PND wholesale price, map database prices would have to increase substantially to have an effect on downstream PND market prices and allow the merged entity to

<sup>164</sup> On the basis of an average price of a digital map database of EUR [10-20]\*, an average wholesale price of EUR [150-250]\* for a TomTom PND, gross margins for Tele Atlas of [50-100]\* and of [0-50]\* for TomTom, the sales of one PND by TomTom generates a gross profit of EUR [50-100]\*, while the sale of one map database by Tele Atlas generates a gross profit of EUR [10-20]\*. These numbers imply that the merged entity can afford to lose sales of approximately [5-10]\* map databases for each additional PND device sold as a consequence of an input foreclosure strategy.

capture a significant amount of sales on the downstream market. Moreover, the impact of the foreclosure strategy depends on the extent to which TomTom's competitors would pass on the map database price increase to end-consumers. For example, a 10% price increase of the map would only lead to a 0.5% price increase for the PND if the price of the map represents 10% of the price of a PND and PND manufacturers pass on 50% of the change in their cost. Under any reasonable own-price elasticity and diversion rate to the merged entity, such a small price increase would lead to very few additional sales for the merged firm.

- (217) Second, it appears that at least some PND suppliers would be reluctant to pass on an increase in map database prices onto the PND price, which would therefore further reduce any effect on PND prices<sup>165</sup>.
- (218) Third, Garmin, which is TomTom's most important competitor in the PND market, is largely protected against increases in the price of map databases by virtue of its long-term contract with NAVTEQ, as detailed in paragraph 208. This protection from foreclosure for Garmin will limit the profits that TomTom could capture on the downstream market if it engaged in input strategy<sup>166</sup>.
- (219) Fourth, as stated in paragraph 106, switching costs are surmountable<sup>167</sup>. As a result, Tele Atlas would lose significant amount of sales to NAVTEQ if it increased prices upstream or degraded map database quality or delayed access to updates.
- (220) Finally, quality degradation only applies to Tele Atlas's customers, since NAVTEQ would arguably continue to provide good-quality map databases to all PND manufacturers in a non-discriminatory manner. NAVTEQ would not gain any downstream sales in the PND market by degrading the quality of its map since it is not vertically integrated. In addition, degrading the map quality would decrease NAVTEQ's map database sales since many end-users may be expected to switch to a TomTom PND in order to get a quality map. It is also important to note that degrading map database quality would be less profitable for the merged entity than increasing prices since, unlike a price increase, degrading quality does not bring higher margins for the map databases that Tele Atlas would continue to sell upstream<sup>168</sup>.

<sup>165</sup> Replies to the Commission's market investigation. See also Reply by TomTom to Commission Statement of Objections of 17 March 2008, pages 72-73.

<sup>166</sup> Given that prices for map databases have decreased substantially year after year, the Commission had preliminarily concluded that this trend would continue and that Garmin's protection may be limited as a result. In the reply to the Statement of Objections, however, the parties pointed to contradictory evidence in the file with regards to future map database price trends. In view of this, it cannot be excluded that the long term contract of NAVTEQ would provide a degree of protection to Garmin, which would limit the effects of any foreclosure strategy on a major competitor (with around 15% of the PND market). This circumstance would also further limit the incentives for Tele Atlas to engage in such foreclosure strategies in the first place.

<sup>167</sup> Note that switching costs may be low when compared with the value of the contracts with the medium and large PND providers. These costs would be relatively higher for the smallest PND manufacturers. However, as indicated by the parties, the smallest PND manufacturers are more likely to rely on a software provider.

<sup>168</sup> Quality degradation may have a strong effect on competitors downstream (such as delayed entry of new products), however, PND manufacturers can always turn to NAVTEQ for a quality map database. Therefore, even in the case of quality degradation, there is an upper limit to the competitive harm that can be felt by competitors (that is to say, being supplied at a higher price by NAVTEQ).

- (221) In order to measure the upstream and downstream trade-off the Commission carried out an econometric estimation of downstream price elasticities to measure the sales that the merged entity could capture if it increased map database prices for TomTom's competitors downstream<sup>169</sup>. The results of this simple profit trade-off analysis are presented in paragraph 228.
- (222) The likelihood of a total input foreclosure strategy, according to which the merged entity would stop supplying map databases to TomTom's competitors downstream, is examined first. If such a strategy was implemented by the merged entity, the competitive pressure exercised on NAVTEQ would be reduced, which may allow NAVTEQ to raise the map database price it charges to TomTom's competitors downstream. In essence, a total input foreclosure by the merged entity would increase NAVTEQ's market power<sup>170</sup>.
- (223) More specifically, if the merged entity were to stop selling map databases, it would lose all its profits on map databases but would only recuperate profits on the sales that it is able to capture downstream<sup>171</sup>. For a total foreclosure strategy to be profitable for Tele Atlas, it must recuperate enough profits downstream to at least compensate the lost profits on map databases. In order to measure the extent of sales that the merged entity would be able to capture downstream, the Commission estimated downstream price elasticities and found that the merged entity would only capture a relatively limited amount of sales downstream by increasing map database pricing for TomTom's competitors<sup>172</sup>. Since map database prices represent a relatively minor proportion of the price of PND devices, and given the elasticity estimates, the Commission's analysis indicates that it would be necessary for NAVTEQ to increase prices by a very substantial amount to ensure that an input foreclosure strategy would be profitable for the merged entity. In fact, the Commission calculated that if NAVTEQ does not raise prices by several hundred percent, a total input foreclosure strategy would not be

profitable for Tele Atlas<sup>173</sup>. It appears unlikely that NAVTEQ's prices would rise by such a magnitude<sup>174</sup>.

- (224) Map database costs expressed as a share of the total production cost for a PND has increased over the last few years because prices for other components such as hardware have decreased even faster than map database prices. In order to account for the possibility that the map database share of total production cost continues to increase in the near future, the Commission made alternative calculations where map databases represented a higher percentage of the total price of a PND device. The same conclusion is obtained under these assumptions<sup>175</sup>.
- (225) The calculation carried out by the Commission concurs with the parties' economic submission on foreclosure<sup>176</sup>. The submission computes equilibrium prices in a simple model of Bertrand competition with differentiated products. The submission supposes that, as a result of a total input foreclosure strategy by Tele Atlas, NAVTEQ increased prices by 100%. Under this assumption, the study indicates that it would not be profitable for the merged entity to engage in total input foreclosure. The Commission also checked that the results submitted by the parties are robust to a variety of alternative assumptions<sup>177</sup>.
- (226) The likelihood of a partial input foreclosure strategy, according to which the merged entity would increase prices or degrade the quality of map databases supplied to TomTom's competitors downstream, is discussed in the following paragraphs<sup>178</sup>. As mentioned in paragraph 211, the merged entity faces a trade-off between the profits lost in the upstream market and the profits in the downstream markets in order to determine its optimal price. If the merged entity decides to increase prices upstream, it would gain additional profits from customers that stay with Tele Atlas, but it would lose profits from customers that switch to NAVTEQ. In addition, the merged entity would gain additional profits due to the loss of competitiveness by TomTom's competitors downstream. Since a price increase

<sup>169</sup> The Commission estimated downstream elasticities using a nested logit model following "Estimating Discrete-Choice Models of Product Differentiation", Steven Berry, *The Rand Journal of Economics*, Vol. 25, No. 2, 1994, pages 242-262. The Commission tested that the estimated elasticities are robust to a wide variety of assumptions, in particular concerning the nest structure, the size of the market and the instruments used. The average elasticity found in product level elasticity is 2.75% and the brand level elasticities are broadly consistent with the observed margins. The estimation carried out by the Commission is described in more details in "TomTom/Tele Atlas, Economic Analysis", CET of 25 March 2008, together with the estimation of the likely impact of the proposed operation.

<sup>170</sup> Under certain conditions, NAVTEQ may not be able to increase prices as a result of its increased market power because of an inability to commit towards a customer to sell at high prices to that customer's rivals (as explained in footnote 40 of the Non-Horizontal Merger Guidelines). On 18 February 2008, [a PND manufacturer]\* submitted an economic study which argues that NAVTEQ is unlikely to face such a commitment problem in the light of the industry characteristics. In their reply to the Statement of Objections, the parties disagree with this conclusion. However, given that Tele Atlas would have no incentive to foreclose even if we assume that NAVTEQ does not face such a commitment problem, this question can be left open.

<sup>171</sup> In 2006, Tele Atlas sold [2-3 million]\* navigable map database licences in addition to the sales to TomTom in the EMEA region. Tele Atlas would lose all the profits on these map databases if it engaged in total input foreclosure.

<sup>172</sup> See: "TomTom/Tele Atlas, Economic Analysis", CET of 25 March 2008.

<sup>173</sup> Considering gross margins for TomTom of [0-50%]\* and [50-100%]\* for Tele Atlas, the share of the map database in the wholesale price for TomTom of [0-10%]\*, the share of the map database in the wholesale price for other PND manufacturers of [0-10%]\*, TomTom's share in the PND market of [30-50%]\*, other Tele Atlas customers' share of [10-30%]\* and a pass-through rate of 50%, we can calculate the upstream losses and downstream gains resulting from a total foreclosure strategy. Using the estimated downstream elasticities (supposing Garmin is protected from a price increase), the critical map database price increase by NAVTEQ that makes a total foreclosure profitable for Tele Atlas would be [400-500%]\*. Even if Garmin was not protected, the critical price increase by NAVTEQ that would make foreclosure profitable exceeds 200%.

<sup>174</sup> A full quality degradation, which would force Tele Atlas's buyers downstream to switch to NAVTEQ, is identical to total input foreclosure. For the same reason as for total input foreclosure, full quality degradation would thus not be attractive for the merged entity.

<sup>175</sup> With map databases representing 10% of the total price of a PND device, the Commission found that the critical price increase would be [400-500%]\* and [300-400%]\* if map databases represent 20% of the price of a PND.

<sup>176</sup> Submission by the parties of 28 January 2008.

<sup>177</sup> The parties' economic study also indicates that, even in the presence of total foreclosure by Tele Atlas, the vertical integration would lead to an average price decrease. However, this result depends on the assumption made in the report that the merger would lead to a [0-10%]\* cost reduction for the merged entity by virtue of the efficiencies brought by the merger. The study calculates that even under this assumption of total foreclosure, average downstream prices would not increase if the merger brings about a cost reduction for the integrated company of only [0-5%]\*.

<sup>178</sup> Following the Non-Horizontal Merger Guidelines, the term price increase in this section also refers to product degradation.

upstream will benefit the post-merger entity in a way it did not pre-merger, the merged entity would have an increased incentive to raise prices for TomTom's competitors. However, the fact that the merged entity would only capture a relatively limited amount of sales downstream by increasing map database pricing for TomTom's competitors, implies that the incentive to foreclose competitors will be limited<sup>179</sup>.

- (227) The Commission checked the robustness of this simple profit test with a wide range of alternative assumptions concerning, for instance, the pass-through rate, the upstream and downstream price elasticities, and the share of the map database in the total price. This sensitivity analysis confirmed the conclusion that any significant price increase would not be profitable for the merged entity<sup>180</sup>. In addition, the Commission checked that the same conclusion is obtained if one considers that TomTom will raise prices downstream rather than expanding sales. Finally, the Commission also checked that the same conclusion is also obtained if one makes the assumption that NAVTEQ matches Tele Atlas's price increase. Indeed, under this assumption, it can be shown that Tele Atlas would have an incentive to undercut any price increase that would have a significant anti-competitive impact on the downstream market<sup>181</sup>.
- (228) The results of this simple profit test indicate that any price increase that would have a non-negligible impact on the downstream market would not be profitable for the merged entity as the downstream gains would not be sufficient to compensate upstream losses. This finding concurs with the results of the parties' submissions on partial foreclosure, which indicate that any price increase that would more than compensate the positive impact of the elimination of the double marginalization on the downstream market does not constitute an equilibrium<sup>182</sup>.
- (229) While the calculations presented in paragraph 223 relate to foreclosure in the PND market, any incentive for the merged entity to engage in input foreclosure in the navigation software market appears even less likely, in particular in view of the more limited presence of TomTom in this market and the smaller profits that could be captured in the software market.
- (230) In the light of these arguments, the Commission concludes that the merged entity would have no incentive to increase prices in a manner which would lead to anti-competitive effects downstream.

<sup>179</sup> Supposing for example that the merged entity increases map database prices by 10% and that competitors pass through 50% of the increase in the price of the map database in the PND price, on the basis of the estimated elasticities, and taking NAVTEQ's behaviour as constant, one finds that the merged entity would only capture sales worth EUR [0-500 000]\*, which is lower than the upstream losses under likely upstream elasticities. In fact, the higher the price increase, the less profitable such a strategy becomes.

<sup>180</sup> As detailed in "TomTom/Tele Atlas, Economic Analysis", CET of 25 March 2008. It is also important to note that this assessment applies equally to PND devices of different price category. Indeed, for lower price PNDs, although an increase in the price of the map database may have a greater impact, the additional profits gained will be lower. For premium devices, the additional profit resulting from the sale of one device will be higher, but the impact on the PND price of an increase of the map database price will be lower. It is also important to note that the nested logit model estimated by the Commission explicitly takes into account the difference between low-price and high-price PNDs.

<sup>181</sup> "TomTom/Tele Atlas, Economic Analysis", CET of 25 March 2008.

<sup>182</sup> TomTom submissions of 28 January 2008 and 12 February 2008.

#### 8.3.4. Effects in the downstream market

- (231) The overall effects of the vertical integration of TomTom and Tele Atlas have to be assessed in the downstream market. As mentioned in paragraph 47 of the Non-Horizontal Merger Guidelines, "*a merger will raise competition concerns because of input foreclosure when it would lead to increased prices in the downstream market thereby significantly impeding effective competition*".
- (232) There are a series of qualitative elements that indicate that the proposed vertical integration of TomTom and Tele Atlas is unlikely to have any effect. In fact, the same qualitative factors that explained the lack of incentive to engage in partial foreclosure also lead to a lack of effects. For instance, the low percentage of the map database in the PND price, the evidence regarding a limited pass-through rate, the limited switching costs and the competition with NAVTEQ all tend to limit the price increase that could be imposed by Tele Atlas on TomTom's competitors.
- (233) Moreover, the Non-Horizontal Merger Guidelines state that "*if there remain sufficient credible downstream competitors whose costs are not likely to be raised, for example because they are themselves vertically integrated or they are capable of switching to adequate alternative inputs, competition from those firms may constitute a sufficient constraint on the merged entity and therefore prevent output prices from rising above pre-merger levels*"<sup>183</sup>. Such a situation limiting the possible effects of foreclosure is present in this case since Garmin, the major customer of NAVTEQ, is largely protected against price increases by a long term contract, which limits the impact of a possible price increase.
- (234) In addition, PND manufacturers that do not develop their navigation software in-house may source their navigable digital map databases from navigation software providers and in particular from Garmin, which also provides software and, as mentioned in the preceding paragraph, is protected by a long-term contract. This alternative source of supply provides additional protection for PND manufacturers that do not have in-house software capabilities. Although these PND manufacturers represent a minority of the market, together with Garmin, they decrease the share of the downstream market that could be foreclosed and hence limit the likely effect of a foreclosure strategy.
- (235) In addition, the profit trade-off described in Section 8.3.3. implies that the downstream PND market is unlikely to be affected in any significant way by the vertical integration of TomTom and Tele Atlas. On the basis of the market characteristics and, in particular, of the relatively limited price elasticities downstream and the small share of map databases in the PND price, the profit test indicates that a significant price increase by Tele Atlas would lead to a decrease in revenue on the upstream market that will not be compensated by sufficient gains for TomTom downstream.
- (236) The same reasoning applies to partial quality degradation, except that degrading quality is less attractive for the merged entity than increasing price since it does not bring higher margins upstream<sup>184</sup>.

<sup>183</sup> Paragraph 50 of the Non-Horizontal Merger Guidelines.

<sup>184</sup> Overall quality degradation may have strong effects on competitors downstream (such as delayed entry of new products), however, they can always turn to NAVTEQ for a quality map database. Even in the

- (237) In view of these arguments, the Commission concludes that the proposed transaction will not lead to any anti-competitive harm on the downstream market. It is important to note that this finding does not rely on the fact that the vertical integration will give an incentive for the merged entity to decrease prices since it eliminates double mark-ups.

#### Efficiencies

- (238) The overall impact of the transaction however will also be affected by the likely efficiencies that are brought about by the merger and substantiated by the parties. While there is a lack of anti-competitive effects irrespective of efficiencies, these efficiencies form a part of the overall competitive assessment.
- (239) As set out in the Non-Horizontal Merger Guidelines, "a vertical merger allows the merged entity to internalise any pre-existing double mark-ups resulting from both parties setting their prices independently pre-merger"<sup>185</sup>. In this case, the problem of double mark-ups can not be discarded since the marginal cost of map databases [is close to zero and consequently gross margins on map databases are high]\*.
- (240) The impact of the elimination of double mark-ups may be illustrated in the following manner. Suppose the map database represents 5% of the price of the PND ([...]\*). Post-merger, the integrated company will realize that the true cost it has for an additional map database is not 5% of the PND price, but a small fraction of this amount. As a result, the merged entity will have an incentive to expand sales to take advantage of the higher profits it makes on the sale of a PND. If it is assumed that 50% of the cost decrease is passed on, one finds that the price of TomTom's PND would decrease by [0-5%]\*, which represents approximately a [0-5%]\* decrease in the average market PND price (disregarding changes in market shares due to switching towards TomTom's PND as they have become cheaper).
- (241) When assessing whether efficiencies generated by the elimination of double mark-ups are merger specific, the Commission examined whether vertical cooperation or vertical agreements may, short of a merger, achieve similar benefits. In particular, the Commission examined whether it would be likely that the merging parties would in the absence of the merger conclude contracts with non-linear pricing with a price for marginal units close to the marginal cost of map databases, which in this case would be close to zero. In particular, the Commission reviewed Tele Atlas's and NAVTEQ's contracts with PND manufacturers, and found that, while volume discounts are common in the industry, these discounts are too limited to substantially eliminate double mark-ups.
- (242) The elimination of the double marginalization should therefore be considered, to a large extent, as merger-specific. As payment for the map databases it acquires from Tele Atlas, TomTom currently pays [...]\*. Post-merger, the integrated company's true cost for the map database will be Tele Atlas's marginal cost for producing the map databases. It is true that some other PND manufacturers obtain volume discounts and that the marginal cost of the map database could in theory

<sup>185</sup> case of quality degradation, there is an upper limit to the competitive harm that can be felt by competitors (that is to say, being supplied at a higher price by NAVTEQ). Paragraph 55 of the Non-Horizontal Merger Guidelines.

also be reduced with such discounts. However, these volume discounts are generally quite limited. No other company receives volume discounts which could bring the price of an additional map database close to its marginal cost, as will be the case for the integrated company.

- (243) In order to estimate the overall effect of the proposed transaction taking into account the elimination of double mark-ups, the Commission estimated pre- and post-merger equilibrium prices using a simple model with linear demand. The model indicates that the overall impact of the vertical integration of TomTom and Tele Atlas, taking into account the elimination of the double marginalization by the integrated company, is a small decline in the average PND prices. This concurs with the economic submissions of the parties<sup>186</sup>.
- (244) In addition to the elimination of the double marginalization, the proposed operation is likely to create other efficiencies. The fact that vertical integration may lead to such efficiencies is explicitly referred to in the Non-Horizontal Merger Guidelines, which indicate that vertical mergers "may align the incentives of the parties with regard to investments in new products, new production processes and in the marketing of products"<sup>187</sup>.
- (245) In this case, the parties state that the rationale of the merger is to allow the merged entity to produce "better maps – faster". In accordance with the guidelines, the Commission examined in its competitive assessment whether the alleged efficiencies would benefit customers and whether they are verifiable and merger specific.
- (246) Specifically, the parties argue that the transaction will bring significant efficiencies due to the integration of TomTom's [...] data to improve Tele Atlas's map databases. In particular, TomTom gathers a very significant amount of feedback data from its large customer base through Map Share. For example, the parties indicate that in December 2007 alone, Map Share users uploaded [...] error corrections<sup>188</sup>. [...]\*
- (247) The parties have submitted a study, which attempts to quantify the efficiency benefits of the proposed transaction<sup>189</sup>. The study proposes two approaches to quantify these efficiencies. First, it calculates the cost savings that could be achieved post-merger to provide the pre-merger level of map database quality. Second, it calculates the additional costs that would be necessary to achieve with the pre-merger technology the same level of map database quality as will be obtained post merger. The first approach estimates that the annual map database production cost savings by 2011 would exceed EUR [0-50 million]\* per annum (approximately [50-100 million]\* over the 2008-2011 period). The second approach estimates that an additional expenditure of around EUR [0,5 – 1 billion]\* would be necessary over the 2008-2011 period to reach, with the current technology, the same level of map database quality as would be achieved through the merger.

<sup>186</sup> TomTom's submissions of 28 January 2008 and 12 February 2008.

<sup>187</sup> Paragraph 57 of the Non-Horizontal Merger Guidelines.

<sup>188</sup> TomTom's submissions of 14 January 2008 and 12 February 2008.

<sup>189</sup> TomTom's submission of 14 January 2008.

- (248) Although end-customers would certainly benefit from the more frequent and comprehensive map database updates made possible by the merger, these efficiencies are difficult to quantify and the estimates provided by the parties are not particularly convincing. The first approach proposed does not correspond to the likely post-merger outcome, as the merged entity will more likely use the feedback data to improve map databases than to make cost savings with regard to the current level of map database quality. The second approach on the other hand is likely to overestimate the value of better map databases to customers, given that with the current technology, it is not profitable for Tele Atlas to produce the post-merger level of map database quality.
- (249) The Commission also examined whether these efficiencies should be considered merger specific. Although part of the efficiencies put forward by the parties could potentially be achieved through contract<sup>190</sup>, both parties are unlikely to pursue investments of the same order of magnitude as the integrated company. Such investments are risky for the non-integrated company since they are very specific to the particular relationship and hence subject to a so-called hold-up problem. Such a situation arises when a party refrains from cooperating with another due to the concern that it would become captive of its partner, for instance, because of specific investments that are only valuable if used with this partner and therefore loses all bargaining power<sup>191</sup>. In addition, the difficulty in specifying all the required investments upfront and the uncertainty about the future environment in which the parties will operate makes it impossible to provide full protection to a non-integrated company through a long-term contract. It must therefore be concluded that the proposed transaction will be likely to bring “better maps – faster”, as the parties suggested, than what could be achieved through contractual means in the absence of the merger, and hence that they are, at least in part, merger specific.
- (250) In any case, it is not necessary to precisely estimate the magnitude of these likely efficiencies given the proposed transaction's lack of anti-competitive effect irrespective of efficiencies.

#### 8.3.5. Input foreclosure - conclusion

- (251) The Commission assessed whether the proposed operation would lead to anti-competitive input foreclosure and reached the conclusion that it would be unlikely that the proposed operation would significantly impede competition to the detriment of end-users. The merged entity lacks the incentive to stop supplying map databases to its downstream competitors. In addition, any foreclosure strategy to increase prices or degrade quality for TomTom's competitors would not have a significant anti-competitive effect in the downstream PND and navigation software markets. This conclusion does not rely on likely efficiencies resulting from the proposed operation. However, the conclusion is strengthened further once efficiencies are taken into account.

<sup>190</sup> Several companies indicated during the market investigation that feedback data could be exchanged through contractual means. However, there is currently no example of such a contract.

<sup>191</sup> In particular, the parties submit that the use of the data will radically change Tele Atlas's operation, which would make it very vulnerable to a hold-up problem in the absence of integration, in particular given that no other PND manufacturer gathers similar amount of end-user data as TomTom.

#### 8.4. Access by the Merged Entity to Confidential Information in the Market for PNDs

##### 8.4.1. Introduction

- (252) According to Paragraph 78 of the Non-Horizontal Merger Guidelines, a vertical merger may give the merged entity access to commercially sensitive information regarding the downstream activity of rivals. For instance, by becoming a supplier to its downstream competitors the merged entity may obtain critical information, which could allow it to compete less aggressively or could put competitors at a competitive disadvantage making entry and expansion less attractive.
- (253) Third parties have expressed concerns that certain categories of information considered confidential which they currently pass to Tele Atlas could, after the merger, be shared with TomTom. Access to information about the future behaviour of its downstream customers, would allow the merged firm to pre-empt any of their actions aimed at winning more customers (through better prices, innovative features, new business concepts, increased coverage of map databases). This would in turn reduce the incentive of TomTom's competitors to co-operate with Tele Atlas on pricing policy, innovation and new business concepts, all of which would require exchange of information. This would strengthen the market power of NAVTEQ, the only alternative map supplier, with regards to these PND operators and could lead to increased prices or less innovation in the market for navigable digital map databases.
- (254) The Commission finds that the confidentiality issues post-merger are unlikely to lead to a significant impediment of effective competition.
- (255) The Commission reached this conclusion after first examining what information is actually exchanged between Tele Atlas and its customers. Thereafter, it considered whether such information flows could be limited without harming consumers. It finally considered whether the merged entity would have the incentives to continue protecting its customers' confidential information post-merger.

##### 8.4.2. Exchange of confidential information between Tele Atlas and its customers

###### *Introduction*

- (256) The confidentiality concern, as expressed by third parties, is based on the premise that Tele Atlas's customers have to share information on their future competitive actions with their map supplier. However, current contracts do not oblige customers to pass such information about their future conduct to Tele Atlas. These contractual obligations are mainly limited to historic sales data and therefore would not reveal future competitive conduct. However, third parties indicated that information about future plans can sometimes be passed on by customers to Tele Atlas for commercial and technical reasons and in those instances when contractual amendments are negotiated. In a number of examples provided to the Commission by third parties, companies voluntarily passed information about their estimated future sales, product roadmaps, and new features included in the latest versions of their devices. They did this for four main reasons, firstly, to negotiate better prices, secondly, to incorporate existing features in new products, thirdly to encourage the map suppliers to develop new features, and finally, in order to

ensure technical interoperability of new features with the core map and the software.

- (257) In their submissions, and in particular in their reply to the Statement of Objections, the parties have presented convincing evidence showing that such exchanges are limited and that they could even be reduced post-merger without any detrimental effect being caused to Tele Atlas's customers, should these customers be concerned about the use that the merged entity could make of the information exchanged. Thereafter, the information provided in the parties' reply to the Statement of Objections regarding this issue was further cross-checked with third parties by the Commission<sup>192</sup>. The different types of examples provided by third parties and the counter-arguments advanced by the merging parties are examined in paragraphs 258-271.

#### *Price negotiations*

- (258) Third parties informed the Commission that, upon signing new contracts, Tele Atlas requested from customers sales forecasts in order to estimate the revenue potential. Customers sometimes also submit information about their product roadmap and expected sales in different segments in order to obtain better pricing conditions. Tele Atlas would also be informed about the timing of promotional campaigns for PNDs when customers asked for discounts on map databases.
- (259) The market investigation shows that customers can avoid discussing sales forecasts with Tele Atlas. The parties demonstrated that Tele Atlas sells map databases to customers who refuse to give this type of information. New customers can agree to a minimum purchasing requirement and thus avoid revealing sensitive information about future sales. Prices for existing customers are often agreed based on their historical sales figures. In any event, Tele Atlas's customers have full control over the type and amount of information revealed during price negotiations.
- (260) With regard to the timing of promotional campaigns, there is already a high degree of market transparency (before summer holidays and around Christmas). This type of information should therefore not be considered as highly sensitive. The magnitude of the overall PND discounts cannot be inferred by the map database maker because the map database only accounts for 10% on average of the cost of a PND device and PND manufacturers could negotiate reductions on other components of the PND device and reduce their margins.

#### *Incorporation of add-on features*

- (261) A typical map database included in a PND device consists of a core map database and add-on layers. The core database includes the basic geographic information covering road layout and main landmarks. It allows any point on the map database to be identified with X,Y coordinates. However, the demand for information goes beyond the basic road geometry and main landmarks. PND manufacturers use various add-on features such as additional POIs, phonemes, 3D landmarks and 2D city maps. These add-on features can be put on top of the main map by means of

<sup>192</sup> E-mail from [Navigation Device Manufacturer]\* of 16 April 2008 and minutes from telephone conference with [Navigation Device Manufacturer]\* of 9 April 2008.

the process of geo-coding. This requires the attribution of geographic coordinates to each feature and is relatively straightforward from a technical point of view.

- (262) Third parties have expressed a concern that the information regarding add-on features, which they would like to use in their future products, could be passed on to TomTom. PND manufacturers often hold talks about new products several months before the planned launch date in order to ask about the availability of add-on features.
- (263) As described in Section 7.1, there are currently only two companies supplying a core map database of a quality sufficient for navigation and covering most EEA countries. However, add-on layers such as additional POIs, phonemes, 3D landmarks and 2D city maps are supplied by a number of smaller companies. Geo-coding can be done easily by PND manufacturers themselves, their software providers or by sub-contractors. As confirmed by third parties, PND manufacturers are able to purchase add-on features from smaller suppliers and combine them with the Tele Atlas's core map database. All Tele Atlas's newer licensing contracts contain a 'sub-contractor clause' that allows the customers of Tele Atlas to use contractors and consultants to create the necessary interoperability between the core map database and externally supplied add-on data without informing Tele Atlas. Alternative suppliers can therefore be a good source of add-on features for companies concerned about confidentiality.
- (264) The Commission finds that even the concerns related to add-on features supplied by Tele Atlas can be mitigated in several ways. First of all, customers do not need to inform Tele Atlas in advance about the features they plan to use in a new product. Add-on features supplied by Tele Atlas can be made available to customers together with the core map database as part of an all-inclusive package. The customer can then choose the features for each of its devices. This was confirmed by third parties. Tele Atlas's most important customers including TomTom's major PND rivals are always supplied with all features from the database of Tele Atlas as soon as they are available. In fact, all customers are automatically sent all new features unless they instruct Tele Atlas to limit the content of the database they receive.
- (265) Finally, the use of existing features does not require prior changes to the contract. The customer simply makes a choice from the wide range of attributes delivered in the package and informs Tele Atlas only once license fees are calculated. This was confirmed by third parties. Since customers have access to the features as soon as they are available, all necessary compatibility tests can be performed before informing Tele Atlas that they would like to use these features. Assuming that PND suppliers have competent technical staff, they can test new features without much technical support from Tele Atlas.

#### *Development of new add-on features*

- (266) Third parties informed the Commission that they sometimes approach map database suppliers to encourage them to invest in a new feature or extend coverage of their map databases. They expressed the concern that the information about new add-on features, which they would like Tele Atlas to develop for their use, could be shared with TomTom. Since sales of PNDs are partly driven by innovation,

TomTom's access to the innovations of its competitors could give the company a competitive advantage.

- (267) The Commission concludes that the merger is unlikely to increase TomTom's ability to obtain information about innovations proposed by the PND manufacturers upstream. First, PND manufacturers can request that other companies develop innovative add-on features and incorporate them into the map database. The Commission obtained examples of smaller companies offering such products. The Commission also established that independent PND manufacturers purchase add-on features from external companies. Secondly, Tele Atlas does not base its investment decisions on requests from individual companies. A decision to invest in new features or geographic coverage is taken after consultations with the largest customers in order to gauge demand. This circumstance implies that most ideas related to new content are communicated to other customers (including TomTom) prior to investment decisions. Third parties confirmed that Tele Atlas consults them regularly about new investment ideas and that the ideas submitted by them to Tele Atlas are usually consulted with other important customers.
- (268) Once a new feature is developed, it is offered to all Tele Atlas's customers at the same time. The company also informs its customers about the availability of new features prior to their launch by presenting a product roadmap during regular meetings. The Commission obtained past examples of Tele Atlas's product roadmaps which confirm these conclusions.

#### *Technical assistance*

- (269) Third parties expressed a concern that confidential information passed during technical consultations with Tele Atlas could be shared with TomTom. PND manufacturers sometimes ask for technical assistance in order to make third-party features compatible with the core map database or with converting data from Tele Atlas's proprietary format to their own.
- (270) As far as the incorporation of add-on layers is concerned, Tele Atlas provides its customers with all the technical specifications of its products required for this purpose. The customer can choose to turn to the customer support unit of Tele Atlas for technical assistance but could also incorporate the add-ons in-house through geo-coding or seek assistance from an external company.
- (271) Technical problems, which only Tele Atlas is able to solve, are very rare. The Parties have shown that virtually all questions directed by customers to Tele Atlas's Customer Support Unit concerned minor technical issues that the customers could have solved themselves. Even if direct assistance by Tele Atlas's support team is required, confidentiality safeguards ensure that access to sensitive customer information is restricted to customer support staff.

#### **8.4.3. Incentives of the parties to protect confidential information**

- (272) Pre-merger, independent map makers such as Tele Atlas have a strong incentive to ensure that information passed by customers remain confidential and is not shared with competing customers. Firewalls and non-disclosure agreements are used by Tele Atlas to protect sensitive business information of its customers. The reputation of being an impartial supplier in the navigation markets is crucial for the expansion of its customer base and revenues.

- (273) Therefore it has to be examined whether the incentive to protect its customers' confidential information would change post-merger, should the merged company be in a position to obtain confidential information from its customers. The Commission's analysis reveals that Tele Atlas would have incentives to keep its current customers from switching to NAVTEQ, since losing a customer would not be compensated by sufficient additional gains downstream independently of whether NAVTEQ significantly raised its prices.
- (274) The market investigation showed that in this case confidentiality concerns can be considered as similar to product degradation in that the perceived value of the map for PND manufacturers would be lower if they feared that their confidential information could be revealed to TomTom. As a consequence, Tele Atlas's map database could be perceived as relatively less valuable than NAVTEQ's map database. Confidentiality concerns could thus lead Tele Atlas's customers to consider switching to NAVTEQ.
- (275) When assessing whether the merged entity would have the incentives to protect the confidentiality of its customers' information, it is important to assess whether the merged company would be willing to let customers move to NAVTEQ due to confidentiality reasons without reacting. In view of the analysis in paragraph 251 of the merged company's incentives to engage in partial foreclosure, this now seems unlikely. The gains that could be achieved by TomTom in the downstream PND market as a result of such a strategy are not likely to compensate the loss in the upstream map database market. In addition, confidentiality concerns could result in damage to Tele Atlas's reputation harming the merged company's map database business in other markets such as in-car and mobile phones. Due to the absence of incentives for the parties to engage in input foreclosure, it is likely that the parties would react to possible confidentiality concerns, for instance, by offering customers conditions which make switching to NAVTEQ unattractive.

#### **8.4.4. Confidential information - conclusion**

- (276) In view of these arguments, the proposed transaction merger is not likely to significantly impede effective competition due to confidentiality concerns. The Commission has established that the amount of information of competitive value exchanged between Tele Atlas and its customers is limited and could be further reduced. It is therefore unlikely that the merged entity will be in a position to obtain competitive information from its customers, should they fear that such information could be used to the advantage of the merged entity in the downstream PND market. In addition, the merged entity would have incentives to mitigate third party concerns related to confidentiality. In view of the absence of incentives for the parties to engage in input foreclosure, it is likely that the parties would react to possible confidentiality concerns in various ways, most importantly by offering conditions to its customers that would make switching to NAVTEQ unattractive.

#### **8.5. Coordinated Effects**

- (277) The Commission also examined whether the proposed vertical integration of TomTom and Tele Atlas would create any concerns as regards coordinated effects. Following existing jurisprudence on this issue, as well as its application to vertical mergers as developed by the Non-Horizontal Merger Guidelines, the Commission

found that the proposed transaction is unlikely to lead to anti-competitive effects through coordination for the reasons explained in paragraphs 278-283<sup>193</sup>.

- (278) First, there is currently no indication of coordination between Tele Atlas and NAVTEQ. On the contrary, the results of the market investigation indicate that, pre-merger, Tele Atlas and NAVTEQ competed on both price and non-price aspects. As a result, map database prices have been declining substantially and map innovations have been important over the last few years<sup>194</sup>.
- (279) Second, the Commission examined whether coordination would be likely to take place in the light of existing market characteristics. Effective coordination in a market requires that companies are able to reach the terms of coordination, deter and monitor deviations from the terms of coordination as well as ensure the absence of destabilizing reactions from outsiders.
- (280) In the light of these criteria, effective coordination appears unlikely in the market for navigable digital map databases. It is unlikely that the parties could reach the terms of a collusive agreement. In particular, coordination on prices would be difficult since map database prices are not transparent. In addition, there is no evidence of a geographic split between Tele Atlas and NAVTEQ, which essentially compete in the same regions. Finally, an allocation of customers would also be difficult in the PND market, where the relative size of PND manufacturers is far from stable and numerous firms have entered since 2004. In addition, it appears unlikely that effective monitoring and deterring mechanisms could be established in the light of existing market characteristics. For instance, map database prices are not transparent and there are large and infrequent contracts, which make deviation from a potential collusive agreement more likely. In addition, the high fixed costs and low marginal costs in the industry may make deviation attractive. Moreover, customers could react to any coordination by enticing deviation with long term contracts.
- (281) Finally, and most importantly, there is no clear evidence that the vertical integration of TomTom and Tele Atlas would increase the scope for coordination between map database producers. Unlike horizontal mergers, the proposed operation does not facilitate the achievement of terms of coordination by removing one player in the market. The proposed operation neither increases price transparency, nor does it eliminate a pricing maverick that would prevent coordination from taking place. Moreover, the proposed integration of TomTom and Tele Atlas decreases market symmetry in a situation where NAVTEQ is not integrated with Nokia. While some aspects of a vertical merger may possibly increase the scope for coordination<sup>195</sup>, coordination appears unlikely in this case in the light of the market characteristics described in paragraph 280.

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<sup>193</sup> This conclusion had already been reached before sending the Statement of Objections to the parties. This document therefore did not include any objections based on coordinated effects.

<sup>194</sup> Tele Atlas's gross margin, which by definition disregards fixed costs, is high since the marginal cost of a map database is close to zero. However, taking into account the fixed costs of building the map database, one sees that Tele Atlas has only recently started to be profitable by virtue of the growth of the market for digital map databases.

<sup>195</sup> For instance, the fact that one downstream customer is now integrated with an upstream company could reduce the possibility for the non-integrated company to deviate from a collusive agreement. However, a vertical merger also has effects that may decrease the scope for coordination. For instance, the fact

- (282) The proposed operation is also unlikely to create any scope for coordination on the PND market, which is a very dynamic market in which numerous players are present and entry regularly takes place. The proposed operation will not lead to foreclosure, as demonstrated in paragraph 251, and hence will not reduce this number of suppliers on the PND market.
- (283) Bearing these considerations in mind, the Commission concludes that the proposed operation is unlikely to lead to anti-competitive effects through coordination.

## IX. CONCLUSION

- (284) For these reasons, it is concluded that the proposed concentration would not significantly impede effective competition in the common market or in a substantial part of it. The concentration should therefore be declared compatible with the common market pursuant to Article 8(1) of the Merger Regulation and the EEA Agreement.

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that one downstream customer is now integrated diminishes the possibility to punish the integrated company if it were to deviate.

HAS ADOPTED THIS DECISION:

*Article 1*

The notified concentration whereby TomTom N.V. acquires sole control within the meaning of Article 3(1)(b) of Regulation (EC) No 139/2004 of the undertaking Tele Atlas N.V. is hereby declared compatible with the common market and the EEA Agreement.

*Article 2*

This Decision is addressed to:

TomTom N.V.  
Rembrandtplein 35  
NL-1017 CT AMSTERDAM

Done at Brussels, 14/05/2008

*For the Commission*  
*Signed by*  
*Neelie KROES*  
*Member of the Commission*