Extract of EC decision

1. Background information and relevant markets

TomTom NV, headquartered in Amsterdam, Netherlands, is a manufacturer of portable navigation devices (PNDs) and a supplier of navigation software for use in navigation devices. Tele Atlas NV, headquartered in's-Hertogenbosch, Netherlands, is one of two main suppliers (in Europe and North America) of digital map databases for navigation and other end-uses. 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. *[…]*

The Upstream Market – Navigable Digital Map Databases

A digital map database is a compilation of digital data which typically includes (i) geographic information about the position and shape of each feature on a map; (ii) information about additional features of the map (e.g. street names, addresses, driving directions, turn restrictions and speed limits); and (iii) display information. In addition to the core database, several layers of add-on information are provided by the providers of digital map databases. Digital map databases are sold to manufacturers of navigation devices, producers of navigation software and providers of non-navigation applications (e.g. Internet maps). Digital map databases are used for a variety of purposes, the most important being address location, route planning and navigation. *[…]* The exact delineation of the relevant product markets (i.e. whether or not individual country or regional licences constitute separate product markets) was left open, since it did not affect the Commission's assessment of the proposed transaction. *[…]* The Commission concluded that the relevant geographic market for the provision of navigable digital map databases is worldwide.

The Intermediate Market – Navigation Software

Navigation software combines geographic positioning from a GPS-receiver and data contained in a navigable digital map database to provide navigation functionality. The navigation software calculates routes and provides real time turn-by-turn directions. Navigation software is either sold as a stand-alone product or as a bundle with the map database. *[…]* The Commission concluded that the relevant geographic market for the provision of navigation software is worldwide in scope.

The Downstream Market – PND's

Picture from a Raphael De Coninck's presentation at the 2008 ACE Conference in Budapest

At present, four main types of navigation devices may be identified: (i) Portable Navigation Devices (PNDs); (ii) Personal Digital Assistants (PDAs); (iii) mobile telephones with navigation functionality and (iv) in-dash navigation devices. The Commission's market investigation indicated that a number of circumstances distinguish PNDs from other types of navigation devices and *[…]* for the purposes of this decision, the relevant product market downstream is the market for the provision of PNDs. *[…]* The Commission concluded also that the geographic market is at least EEA-wide.

2. Market conditions

Navigable Digital Map Databases

There are two main providers of navigable digital map databases which cover countries situated in the EEA; Tele Atlas and NAVTEQ, i.e. a duopoly. Depending on the product market definition, Tele Atlas has a market share of [40-60] % and NAVTEQ [40-60] %. There are no indications that any of the current providers of navigable digital map databases active outside the EEA plan to enter the markets for databases with coverage of countries in the EEA. Entry by US firm Facet is uncertain and would in any case not be timely enough to constrain the behaviour of the incumbent providers. *[…]* The Commission concluded that entry into the markets for the provision of navigable digital map databases with EEA-coverage would be neither timely (i.e. sufficiently swift and sustained), nor sufficient (in scope and magnitude) to deter or defeat any potential anti-competitive effects of the merger.

Navigation Software

Tele Atlas is not active in the market for the provision of navigation software. Only a minor part TomTom's production of navigation software is supplied to third parties. In the merchant market for navigation software the largest providers are Navigon with an estimated market share of 25 %, Navn'Go with 18 % and Destinator with 15 %. TomTom's market share is estimated to 6 %. The Commission market investigation indicated that barriers to entry are surmountable. 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.

PND's

The very large number of companies that have entered market during the previous four years indicates that barriers to entry are not significant. However, the vast majority of market entrants — including major companies with 'deep pockets' and strong brand names — have failed to capture other than marginal market shares and remain minor niche players.

Volume market shares EEA (units)[1]

	All portable end-uses	PNDs
TomTom	[30-40]	[30-50]
Mio Tech & Navman	[10-20]	[10-20]
Garmin	[10-20]	[10-20]

[1] Commission Decision, pg. 38.

MEDION	[0-10]	[0-10]
MyGuide	[0-5]	[0-5]

3. Market assessment

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 and (b) coordinated effects.[2] *[…]*

3.1. Input foreclosure in the PND and navigation software markets

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. According to the Non-Horizontal Merger Guidelines, 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.[3] Such foreclosure is regarded as anticompetitive 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. 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.

Ability to foreclose

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. *[…]* 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.

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 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 that will be explained, Tele Atlas can reasonably be expected to influence the conditions of competition in the upstream market. The Commission therefore concluded that the merged entity enjoys a significant degree of market power on the market for navigable digital map databases.

[2] For the sake of our purpose, here the focus will be on (a) non-coordinated effects and the competition concerns arising from the possible input foreclosure in the PND and navigation software markets.

[3] Non-Horizontal Merger Guidelines available at http://bit.ly/1ziSz68

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. 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. *[…]* Currently, both Tele Atlas and NAVTEQ provide their European digital mapdatabases 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 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.

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. *[…]* 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. It is therefore concluded that competition with NAVTEQ does not completely eliminate the merged entity's ability to increase prices or degrade quality. *[…]* Entry is unlikely to provide an effective and timely counter-strategy that would constrain the merged entity's ability to foreclose its downstream competitors. 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. *[…]* A possible 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. 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. 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. *[…]* 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. 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.

Incentive to foreclose

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. *[…]* 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. 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.

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. *[…]* 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 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. 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. 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. Fourth, as stated in paragraph 106, switching costs are surmountable. 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. 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.

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.[4]

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. *[…]* 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. *[…]* The calculation carried out by the Commission concurs with the parties' economic submission on foreclosure. 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.

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. As mentioned, 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 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. 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. 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 anticompetitive impact on the downstream market. 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. While the calculations presented relate to foreclosure in the PND market, any incentive for the merged entity to engage in input foreclose 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. In the light of these

[4] 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.

arguments, the Commission concludes that the merged entity would have no incentive to increase prices in a manner which would lead to anticompetitive effects downstream.

Effects in the downstream market

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. *[…]* 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". In this case, the problem of double mark-ups cannot be discarded since the marginal cost of map databases is close to zero and consequently gross margins on map databases are high. *[…]* 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 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. The elimination of the double marginalization should therefore be considered, to a large extent, as merger-specific. *[…]* 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.

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". 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. *[…]* The parties have submitted a study, which attempts to quantify the efficiency benefits of the proposed transaction. *[…]* The Commission also examined whether these efficiencies should be considered merger specific. *[…]* 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.

3.2. Input foreclosure – conclusion

The Commission assessed whether the proposed operation would lead to anticompetitive 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 anticompetitive 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.