Publication date:
25 Aug 2021
Author:
Eden Zoller, Chief Analyst, Digital Consumer Platforms and AI
Charlotte Palfrey, Senior Analyst, Advanced Messaging and Communications

Location Platform Index: July 2021 update

Brought to you by Informa Tech

Table of Contents :

Table of Figures :

Summary

In brief

Omdia's Location Platform Index provides an ongoing assessment and ranking of the major vendors in this market. The index evaluates vendors on two main criteria: the completeness of their platform, and their platform's market reach. It considers the core capabilities of a location and mapping platform along with associated services, the supporting ecosystem, and business models. The index provides a detailed analysis of all the Leaders, and an assessment of vendors in the Challengers segment. We also provide recommendations that will help vendors stay ahead of the game.

Omdia view

- **HERE has retained its crown, pulling even further ahead of rivals.** HERE has been ahead of Google in the completeness of its offering for some time and, thanks to a growing developer base and a continuously improving open developer framework, has closed the gap with Google in terms of reach. HERE, like TomTom, has been hit by the COVID-19 pandemic's negative impact on the automotive industry but has still managed to grow automotive bookings—alongside those in other key verticals—achieving total bookings of $1.7bn for 2020.
- **Google remains firmly in second place, with some solid automotive wins.** Google continues to enhance its popular Google Maps app and is working to make the Google Maps Platform more customizable and feature-rich for developers, although improvements tend to be incremental. Google is not as strong as HERE in the automotive sector, but is making progress and has formed a wide-ranging agreement with Ford. Outside automotive, Google continues to add more vertical solutions to the Google Maps Platform, with recent initiatives targeted at financial services and retail.
- **TomTom has come out of a major transition with renewed vigor, propelling it into third place.** TomTom's transition to a fully focused automotive and enterprise business is paying off, despite a 14% drop in automotive revenue due to the impacts of the pandemic. TomTom has increased the number of cars powered by its ADAS by 300% over the last two years, and its pipeline of automotive deals looks promising. However, automotive is a competitive sector, and TomTom will have its work cut out to differentiate from its rivals.
- **Mapbox moves into fourth place but makes good inroads into the automotive market.** Mapbox has made incremental updates to its maps quality and imagery in the past 12 months, but its main achievement has been the launch of Mapbox Dash, an in-car navigation deal with BMW, and a partnership with Epic Games' Unreal Engine to include Mapbox maps in its human–machine interface (HMI) program.
- **Quieter times for Apple and Microsoft.** Apple has retained its lead in the Challengers category, but its score has not seen a massive increase, reflecting the fact that the rollout of Apple Maps is making slow progress, and because the enhancements to Apple Maps, although good, are not available in all markets and not all of them are unique. Microsoft is the second-placed Challenger, but it has been a quiet time for the vendor and the most significant development is a new, more developer-friendly pricing model for Azure Maps.

- **Challenger Esri shakes things up with its new ArcGIS platform.** Esri made a big change to its business model this year with the release of the cloud-based ArcGIS platform, which sits in the cloud and is sold on a consumption-based platform as a service (PaaS) proposition. This is a significant change for Esri and should make it more attractive to a more extensive range of developers.

Recommendations

- **Learn from the COVID-19 pandemic—that has not yet run its course.** The pandemic has caused profound business disruption and changed consumer behaviors and priorities, many of which will remain once the pandemic abates. One of the most striking lessons from the pandemic is that vendors need to be flexible and adaptive, responding to consumer and business needs with new capabilities and services. This includes optimized support for transport and logistics (particularly deliveries), more granular information on public transport (e.g., how crowded trains/buses are, temperatures in carriages, accessibility), and data on how crowded venues and landmarks are at a given time.
- **Bring eco-friendly capabilities and credentials to the forefront**. Electric vehicles (EVs) are one of the most conspicuous aspects of this, with activity intensifying as governments legislate to reduce emissions and move to greener transport. According to the International Energy Agency (IEA), the EV market grew by over 40% in 2020, bringing the total number of EVs on the road to over 10 million. Forward-thinking vendors are already offering EV services and should keep up the momentum. They should also look at upping the ante with other location and mapping capabilities that align with an environmentally friendly trajectory, including mobility services, public transport, pushbike, and pedestrian services. The remit also includes how location can drive environmental efficiencies for enterprise operations and intelligence.
- **Do not spread yourself too thin in the race to win verticals.** Specialization in industry verticals can help vendors differentiate and win competitive advantage. But supporting verticals effectively is challenging as each has its own dynamics and unique needs that have to be addressed if vendors are to make an impact and win business, and the danger here is that vendors can spread themselves too thin. Vendors need to maintain focus and only target verticals where they have the resources and capabilities to make a genuine impact. They should also zone in on synergies and overlap between verticals, which helps preserve resources, reduce costs, and improve scale.
- **Deepen your AI capabilities and consider partnerships as a means to achieve this**. Mapping, location services, and analytics are being transformed by AI, which is also a foundation stone for autonomous driving. AI expertise is a necessity, while cutting-edge AI smarts can be a source of differentiation and competitive advantage. Investments in in-house technology or acquisitions is one route, but vendors should also look at collaborations with other players, industry bodies, and academic institutions. The collaborative approach is particularly suited to smaller vendors that may not have deep pockets to drive large, direct investments in AI.
- **Become a data privacy champion for consumers and enterprise clients.** Vendors that can elevate their trust credentials will be able to use this as a point of differentiation. Look to give enterprises and consumers more control over their data, whether regulations require it or not. Data privacy and security are particularly important for those vendors that have a data exchange marketplace. But whatever the proposition, security, transparency, and simplicity are key—

navigating data privacy should not be a labyrinth for customers, and encounters with policies and systems should be easy.

Results overview

Omdia's Location Platform Index, July 2021

The consolidated results for the latest update of Omdia's Location Platform Index are shown in **Figure 1**. The index evaluates location platform vendors on two main criteria: the completeness of the platform, and its market reach. Both components play an equal role in determining the final rank of the vendor. The index considers not only the core capabilities of a location and mapping platform, but also associated services, plus data and capabilities that the platform opens up to developers and the wider location community.

1. Figure 1: Consolidated vendor rankings

	Rank	Player	Score June 2021	Score June 2020	Score change
Leaders	1	HERE	7.73	7.49	0.24
	2	Google	7.52	7.37	0.15
	3	TomTom	6.40	6.24	0.17
	4	Mapbox	6.36	6.28	0.08
Challengers	5	Apple	5.12	5.03	0.09
	6	Microsoft	4.84	4.79	0.05
	7	Esri	4.58	4.15	0.43

Source: Omdia

Reach and completeness

The index is based on two primary components of the location platform: reach and completeness.

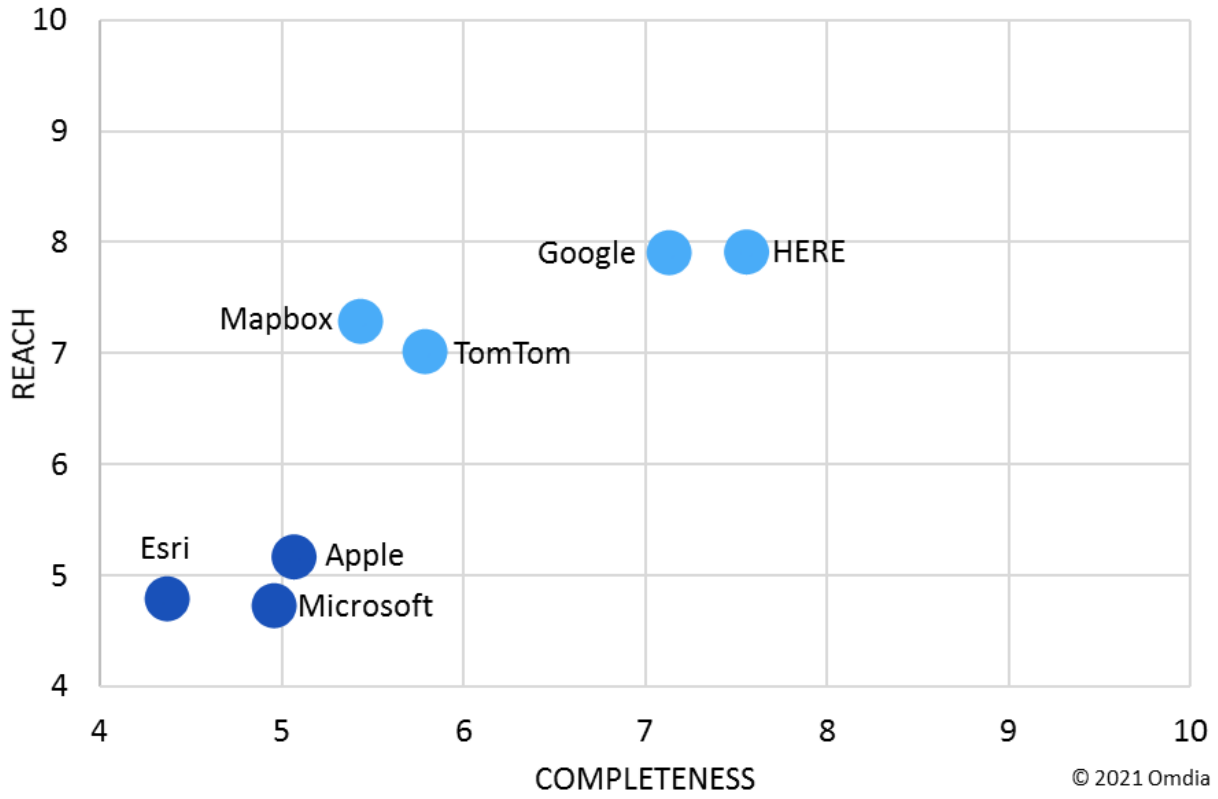
- **Reach** considers two main categories:
  - **Users:** This considers the geographic markets covered by the platform; the scope of B2C, B2B2C, and B2B customers; auto OEM customers; and vertical industries served.
  - **Ecosystem:** This looks at the industry partnerships, geographic partnerships, developer base, and the developer framework to assess the attractiveness of the platform to businesses.
- **Completeness** reflects four categories:

- **Core data:** This assesses core mapping data, data partnerships, data exchanges, and crowdsourcing capabilities.
- **Mapping & platform:** This analyzes the depth of map coverage, AI capabilities, analytics, mapping capabilities, traffic information, and the ability to add further mapping capabilities.
- **Services:** This looks at the service and feature elements of a platform, which are important and enhance the overall proposition. This considers ADAS and automated driving capabilities, integration with payment services, support for digital assistants, mobility services, and capability for increasing VAS.
- **Monetization:** This score assesses the ability of the platform to monetize the platform, services, and data it has.

A more detailed summary of the reach and completeness parameters can be found in the Appendix of this report.

Figure 2 maps all the Leaders and Challengers included in the index based on their reach and completeness scores. Leaders (shown in light blue) are those vendors with an overall score of 6 and above. They are positioned in the top-right quadrant of the chart. Challengers (shown in dark blue) are vendors with an overall score of between 4.5 and 6.

2. Figure 2: Reach and completeness break-out



Source: Omdia

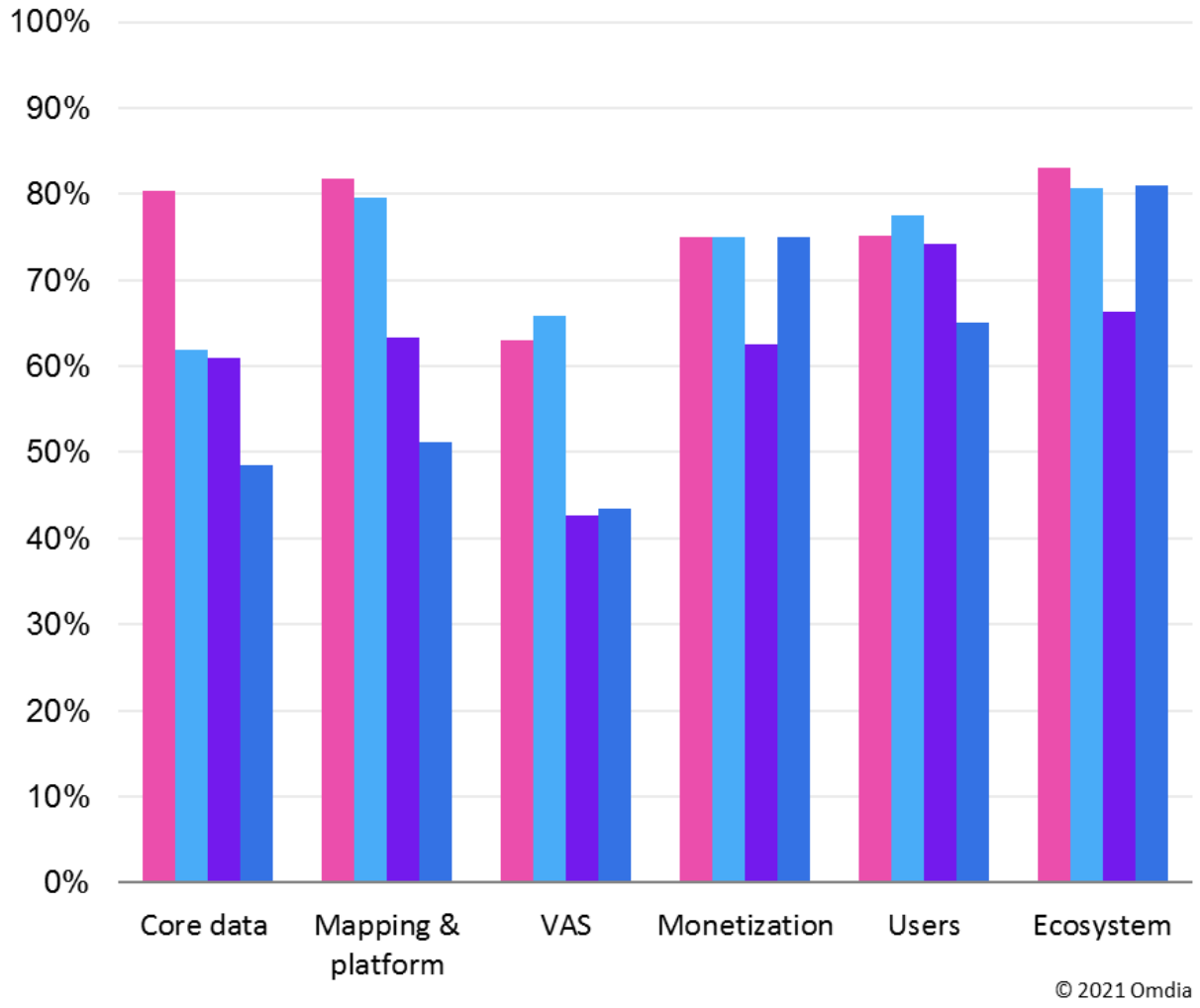
Leaders

HERE retains the crown

The Leader group consists of four companies: HERE, Google, Mapbox, and TomTom**. Figure 3** shows their overall score for reach and completeness as well as their scores against the four criteria for how completeness is measured: core data, mapping & platform capabilities, services supported by the platform, and strength of a vendor's monetization strategy. HERE and Google are longtime leaders in the location platform space, and competition between them remains intense. HERE has been ahead of Google in terms of the completeness of its offering for several iterations of this index and has now closed the gap with Google in terms of reach. Google still has a larger developer community in terms of overall numbers, but HERE has been able to achieve equal ranking on reach because its developer base is growing fast and also because it now has a stronger, continuously improving open developer framework for location-based services and mapping.

3. Figure 3: Leaders' scoreboard

	HERE	Google	TomTom	Mapbox
Total	7.73	7.52	6.40	6.36
Completeness	3.78	3.56	2.89	2.71
Reach	3.95	3.95	3.51	3.65



Source: Omdia

HERE

Assessment summary

HERE is once again the highest-ranking vendor in the index with an overall score of 7.73. The company's broad positioning is captured in the SWOT summary shown in **Figure 4**. One of the key strengths of HERE is its impressive and increasingly diversified investor lineup that comprises Daimler, Audi, BMW, Continental, Pioneer, Intel, Bosch, Mitsubishi Corporation, Nippon Telegraph, and Telephone Corporation. It also has robust partnerships—and growth prospects—in China/Asia & Oceania, including Japanese shareholders plus Tencent, Navinfo, and AMAP in China.

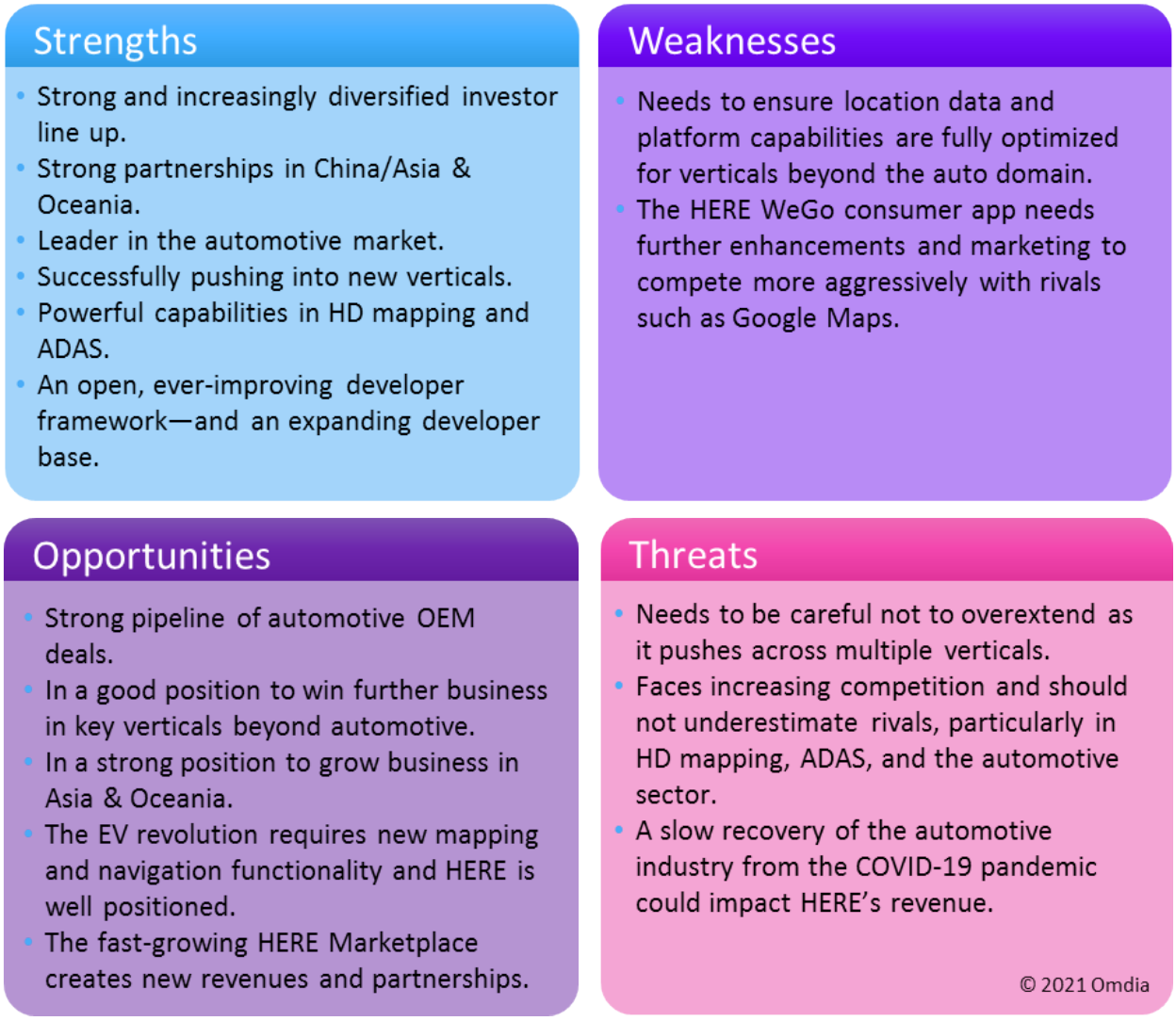
HERE is the leading vendor in the automotive sector with over 160 million vehicles with HERE map data onboard. Automotive is one of the most important, growing verticals for location and mapping services, and where the needs of auto OEMs and vehicle owners are changing, which makes it a demanding sector to serve well. There is no getting away from the fact that the automotive industry has been hard hit by the COVID-19 pandemic with negative impacts on vehicle production and consumer demand. HERE saw automotive revenue decline by just over 23% in 2020. Despite the challenges, HERE has managed to grow automotive bookings and closed the 2020 year-to-date with total bookings of $1.7bn (including non-automotive). Nonetheless, HERE needs to remain vigilant as rivals are intensifying their efforts in automotive.

HERE continues to make good progress in verticals outside of automotive, where 2020 bookings were up by 33%. HERE's non-automotive target verticals include transport and logistics, smart cities, retail, media/advertising, public sector, and telecoms.

HERE Marketplace has experienced rapid growth over the last year in terms of the number and quality of partners joining the exchange, and is now a key asset for HERE and a point of competitive differentiation (see under *Selected developments* for more details).

The vendor has worked hard for the past couple of years to build an open, comprehensive, and rich developer framework that is proving attractive to developers. It has upwards of 3 million developers and partners in total, either using its platform directly or via strategic partnerships such as the one HERE formed with Amazon Web Services (AWS) in 2020. There are around 450,000 registered developers using the HERE platform.

4. Figure 4: HERE SWOT



Source: Omdia

Selected developments Omdia picks

HERE Marketplace goes from strength to strength

HERE Marketplace was launched in 2019 as a global hub for the exchange of standardized, trusted location data in a secure environment, with the objective being to speed up the development (and monetization) of location services and solutions. The Marketplace has expanded at an impressive rate over the last two years and now has over 190 active members. The lineup includes Hawa Dawa, GWC, AccuWeather, CustomWeather, Tomorrow.io, PlaceIQ, Mastercard, KD Interactive, Skoda, Daimler, BMW, RoadClouds, Telekom Austria Group, Nira, Zenrin, Taiwan Taxi, and TMS Technologies. It is clear from these examples that the HERE Marketplace is experiencing good growth in Asia & Oceania.

Part of the appeal of the HERE Marketplace is its openness and neutrality. There are no stipulations as to software or operating systems, and even those parties that have competing products are able to join. HERE wants the Marketplace to be a truly cross-industry ecosystem and appears to be succeeding as the non-automotive pipeline is growing well and includes data assets from transport & logistics, public sector,

financial services, technology, media, retail, telecoms, and real estate. Some of the data sets available are surprising and cutting edge. A good example here (in our view) is from Munich-based air quality management specialist Hawa Dawa. It provides real-time pollutant data available via an API, including the ability to serve location and time-based risk data for patients who have asthma and other cardiovascular diseases.

HERE doubles down on 3D modeling with a view to new use cases

HERE is building up its capabilities in advanced 3D geospatial modeling that is designed to support multiple use cases, and with it, monetization opportunities. 3D modeling and visualization can enhance applications in transport and logistics, 5G network planning, urban planning, and the film industry, along with and AR and VR applications in consumer (e.g., games) and enterprise domains (e.g., manufacturing, simulations). In 2020, HERE introduced HERE Geodata Models—advanced visualization tools that enable precise 3D digital modeling of buildings, trees, and roadside objects, and more. In January 2021, the company released HERE Premier 3D Cities, which provides customizable, high-accuracy 3D models of 70 city centers worldwide. Premier 3D Cities contains attributes that are aligned to physical geometry and terrain, and are precise in terms of physical location, volume size, elevation and color. HERE has already made public one signing for Premier 3D Cities: Audi has integrated HERE 3D city models into the infotainment system of the Audi 8 luxury sedan.

An indication of how HERE's 3D city data and modeling could be used going forward has been showcased in a proof-of-concept application with Unity—a specialist in real-time 3D content. The two companies have formed a collaborative agreement to develop HMI solutions for autonomous driving, simulations, city planning, and digital twins. Unity and HERE's proof-of-concept application features a wide-screen, heads-up 3D navigation map of San Francisco, drawing on HERE's 3D city data and Unity's real-time 3D platform.

HERE looks ahead with a mapping as a service (MaaS) offering for enterprises

In January 2021, HERE announced a new initiative that attracted little fanfare at the time, but is in our view, an interesting initiative and one to watch. HERE Map Making is essentially designed to help enterprises drive business optimization and reduce operational costs. The service is bundled as part of HERE's professional services, leveraging HERE's platform capabilities to support enterprises in building, processing, and maintaining map datasets that can be used to augment business analytics, and also to design and build mapping solutions that are customized to support an enterprise's own services or operational needs. Datasets are stored on the HERE Platform.

The objective for 2021 is to enable enterprises to bring their own map data into the HERE platform and use it in combination with HERE's own mapping data and services. The MaaS offering will eventually be available as a self-serve proposition, although enterprises will have the option to develop in collaboration with HERE professional services. HERE's initial targets for its MaaS offering is for enterprises in transport and logistics, particularly when it comes to fleet management and supply chain logistics.

HERE introduce more EV features

Activity around the EV market is intensifying as governments legislate to reduce emissions and move to greener transport. Auto OEMs are ramping up investments in EVs, and consumer interest in EVs is increasing. But one of the biggest barriers to consumer adoption is "range anxiety" due to the paucity of charging stations or lack of knowledge about where they can be found. HERE, which is already focused on electrification (as are its main rivals), has taken steps to address range anxiety with an EV Routing feature that leverages HERE's existing Charge Points database. The EV Routing feature doesn't just show where charging stations are but provides optimal routing to minimize battery consumption and the number of

charging stops required based on the EV's particular consumption model. As noted, HERE is not alone in providing these types of services, but it is ramping up activity in the important EV space, and its EV Charge Points database already covers over 60 countries globally.

Google

Assessment summary

Google remains in second place with an improved overall score of 7.52. Google's broad positioning is captured in the SWOT summary shown in **Figure 5.** The company continues to enhance its popular Google Maps application, which is an asset for Google with over one billion users that provide it with critical data insights that can be used to further enhance its mapping services. Google Maps has also proved to be a persuasive calling card for attracting developers and enterprises. Alongside this, the Google Maps app is an important part of Google's overall search, advertising, and e-commerce strategy.

The company is working to make the Google Maps platform more customizable and feature-rich for developers, and towards this has released a drip-feed of enhancements including cloud-based map styling and customization tools (e.g., more granular business points of interest (POI) filtering) and improved 3D modeling capabilities. These and other platform initiatives have been incremental rather than game-changing, but the cumulative effect is positive for developers.

Although Google is still not as strong as HERE in the automotive sector, it is making significant progress in this very important vertical. It has formed a wide-ranging agreement with Ford, which joins Google's existing automotive partners Volvo, General Motors, and the Renault–Nissan–Mitsubishi Alliance. Google Maps will also support and ultimately benefit from deals made by Waymo—Google's sister company focused on autonomous driving technology. More recent Waymo strategic partnerships include one with Daimler (the parent company of Mercedes-Benz) to develop autonomous, driverless trucks. Waymo has formed a similar partnership with Fiat Chrysler to develop self-driving cars, pickup vehicles, and SUVs.

Outside of automotive, Google continues to add more vertical solutions to the Google Maps platform, with recent initiatives targeted at financial services and retail.

5. Figure 5: Google SWOT

Source: Omdia

Selected developments—Omdia picks

Google strikes a far-reaching partnership with Ford

In February 2021, Google announced a multifaceted partnership with Ford Motor Company with positive medium- and long-term implications. Starting in 2023, Ford will use Google's Android OS to power infotainment systems in the Ford and Lincoln brand vehicles. Android integration means that Google Assistant, Google Maps, and other Google applications will be available without the need for Android smartphones (i.e., smartphone mirroring). Ford has also selected Google as its preferred cloud provider for connected vehicle services under a six-year deal. But the more significant development in our view is Google and Ford's plan to set up a joint innovation group called Team Upshift. Details are sparse at this point, but the focus will include advanced personalization, tapping into Google's AI capabilities, and leveraging data for new services and experiences. The focus on data is particularly interesting as it has the potential to open new opportunities, but also presents challenges in terms of data privacy.

More vertical solutions for the Google Maps platform

Google is trying to improve the traction of its mapping platform with industry verticals and has introduced new features designed to appeal to retailers and financial service organizations. Retail and e-commerce are increasingly important to Google's overarching strategy, and it has been paying close attention to how the COVID-19 pandemic has changed shopping behavior and how mapping can help. Google has introduced a solution called Product Locator that shows the distance and drive time to stores in a user's vicinity, along with details of in-store product availability and collect options on a retailer's product page descriptions. Google has also updated the existing Store Locator feature with support for appointment scheduling, and by integrating offers that can be redeemed in-store (among other things).

In June 2021, Google launched three Google Maps solutions for financial services organizations—an area where Google Maps has little traction compared to gaming and retail. The solutions comprise Enriched Transactions, Quick and Verified Sign-up, and Branch and ATM Locator Plus. Enriched Transactions, for example, is designed to make transactions easier for consumers to understand and recall by adding features to a transaction such as a retailer's location on Google Maps, its contact information, and a photo of its store.

Google has also turned its attention back to ridesharing, where it has been noticeably quiet after launching an initial solution back in 2018. In October 2020, Google launched a new set of features in an updated on-demand Rides & Deliveries solution, although on a limited availability basis. The update includes the ability to show a delivery ETA, the expected route, and an estimated price.

And more enhancements for the Google Maps application

The last two years have seen significant and pleasing improvements to the Google Maps app that have helped it keep in front of rival applications, and Google shows no signs of slowing down. At its 2021 Google I/O developer conference, the company promised to introduce over 100 AI-driven enhancements to the application during 2021, which is impressive. The focus is on creating richer contextual awareness, and towards this, Google has boosted Live View's AR capabilities so that it can surface more detailed information about shops, restaurants, and other things the user is looking at.

Alongside this, Google has improved the detail and granularity of Google Maps by adding 150,000km of bike lanes and information about the most fuel-efficient routes available for a particular journey. Google Maps already allows users to locate EV charging stations (thanks to a string of partnerships with EV charging providers), and in January 2021 it announced the smart EV route planning feature for EVs featuring its software such as the Polestar 2 and Volvo XC40 Recharge.

The existing Google Map "busyness" tracker has been enhanced so that it can now notify users about how active/busy a whole neighborhood or landmark is, alongside individual venues.

Google plans to introduce a machine learning (ML) based journey-planning feature that will identify routes that minimize hard-braking incidents, which make for unpleasant driving at best and at worst, can lead to accidents.

TomTom

Assessment summary

TomTom has come through a period of transition with renewed vigor. Along with other developments, this has seen an improved score of 6.40 that has allowed TomTom to pull ahead of Mapbox to assume third place in the Leaders category.

TomTom continues to improve its mapping capabilities and has made great strides in the HD mapping and automated driving/ADAS space, having taken advantage of its vast number of connected GPS devices and large number of in-car sensors feeding into its maps. TomTom has over 3 million ADAS-equipped vehicles on the road today.

The COVID-19 pandemic's negative impact on the automotive industry has affected TomTom's automotive revenue, which declined by 14% in 2020. However, TomTom continued to win deals in 2020 with key automotive brands—such as Fiat Chrysler, Subaru, Alfa Romeo, and Mitsubishi—for navigation products. It also signed further deals with existing enterprise customers Verizon and Uber. The Uber partnership helps feed into TomTom's mapmaking via the new Map Editing Partnership (see under *Selected developments* for details). These kinds of partnerships are keeping data fresh, making sure it works in the real world and to improve the overall customer experience.

Consumer perception of TomTom is perhaps still based on the "old days" of separate satellite navigation units that were cumbersome to update. However, TomTom worked hard to combat this, and the company understands the need to move to a cloud-based platform to make sure their services are as easy to access as smartphone apps, and react to changes ever more quickly. TomTom also knows that efficiency in map production, both in terms of time and cost, will be even more important to remain competitive. This strategy puts TomTom in a strong position to remain in our Leaders category in the long term with a strong list of both partners and customers.

6. Figure 6: TomTom SWOT

Source: Omdia

Selected developments—Omdia picks

Map freshness will benefit from the Map Editing Partnership program

The freshness of a location platform's maps is a vital ingredient to a location platform's overall success. TomTom's continuous mapmaking process means that they can release daily updates to ensure that customers always have access to an up-to-date app.

In October 2020, TomTom announced a Map Editing Partnership program where TomTom partners can edit the core TomTom map. Edits must still go through TomTom's verification process and quality checks before they are published. Partners like Uber have vast numbers of drivers on the roads every day, and can provide timely data about what TomTom estimates are the 10% of road networks that are changed every year. As of 1Q21, TomTom has map editing partnerships in 94 countries, and over 14 million edits have already been made by partners.

To complement this, TomTom uses ML and AI to scour social media, news websites, and local government websites in search of road information. This enables TomTom to identify upcoming road closures, new POIs, and events likely to cause disruption. The leads generated by the AI are passed to humans to gather more information from authorities if there is not sufficient data to alter the map.

Continued progress with automated driving

TomTom continued to work on automated driving services in 2020. Following on from the proof-of-concept fast mapmaking method for roads developed with partners DENSO and Toyota Research Institute, TomTom partnered with Delphi Technologies in June 2020. The latter partnership focused on test drives that showed fuel savings when the car used TomTom's ADAS map alongside Delphi's ADAS technology.

TomTom's ADAS map has been launched in Alfa Romeo's Guilia and Stelvio models. Over 3 million vehicles are using TomTom's maps for ADAS, including Daimler Trucks.

In September 2020, TomTom launched RoadCheck to let drivers of autonomous cars know when it is safe to use automated driving functions. The service uses TomTom maps to let vehicle manufacturers set safe zones for the autonomous driving functionality and prevent it from being used in dangerous locations such as tunnels or roadworks.

TomTom has rounded out its EV offerings

TomTom has several EV services on offer either via the dash or online. In partnership with vehicle manufacturers, TomTom can show users a map of their range, not just give a distance. TomTom has information for nearly 450,000 charging stations around the world via a number of partners. This in turn enables long-distance routing for EVs, which calculates a route and includes charging stations if the journey is beyond the range of the vehicle. It also optimizes the route depending on the charging speeds available at charging stations on the route, the number of charging stops required to complete the journey, and speed limits. This enables routes to be planned to show an overall ETA which includes time spent charging the vehicle.

Mapbox

Assessment summary

Mapbox's score has climbed to 6.36; a steady increase but not enough to keep it ahead of TomTom's rebound. Mapbox now sits in fourth place in the Leaders' category. It has been a quieter year for Mapbox in terms of updates. However, the vendor has made progress in the automotive market, which is positive as Mapbox is weaker in automotive than other vendors in the Leaders' segment. Early 2021 saw the launch of Mapbox Dash, an app-based in-car navigation product that is already shipping in General Motors vehicles. However, the end consumer will only see a GM branded product, Maps+, which has been built on top of the Mapbox Dash product.

Mapbox has also been improving lane guidance using AI, enhancing aerial map imagery in several countries in Europe, with full coverage provided in Switzerland and the Netherlands thanks to partnerships with SwissTopo and PDOK.

Mapbox's platform is highly attuned to developer needs, and this has been a long-standing strength for the vendor. Mapbox has a clear pricing structure which enables developers to trial products without entering long and costly contracts. Mapbox's wide array of APIs and SDKs help make it even more attractive to developers. Mapbox states it has over 1.5 million registered developers using the platform, with 170,000 developers actively using the product each month.

Key to Mapbox's ambitions is its relationship with investor Softbank. The companies launched a joint venture, Mapbox Japan, in May 2020 to bring Mapbox's platform to Japan. The companies intend Mapbox Japan to be a launchpad for Mapbox's services throughout the rest of the region.

7. Figure 7: Mapbox SWOT

Source: Omdia

Selected developments—Omdia picks

Mapbox enhances the richness and accuracy of core mapping assets

Mapbox is more reliant on partners for its core maps data than the other vendors in the Leaders' category, with OpenStreetMap (OSM) being the major mapping partner for Mapbox. Reliance on third parties is of course not a hindrance provided it is good quality source data, and Mapbox has been steadily improving their mapping and POI databases in 2020 and 2021. This includes the addition of 115 million addresses within the US and Europe, announced in April 2021. The improved address database increased the quality

of data for 20 million addresses in Europe, 80 million addresses in the US, and 15 million new addresses to improve coverage in rural areas.

Alongside this, Mapbox added additional US aerial imagery using data from the United States Department of Agriculture's National Agriculture Imagery Program in January 2021. This is in addition to 135 million km2 of US satellite imagery from satellite imagery specialist Maxar, 9.8 million km2 of which is 50cm detail level of the US. The new imagery means that Mapbox can refresh the entirety of its satellite imagery and give greater levels of zoom to maps.

Mapbox has also been able to leverage its satellite imagery to improve its lane guidance. In June 2021 it announced that it had three times the lane guidance coverage after using AI to analyze satellite imagery. The AI identifies lane markings, on-street parking, cycle lanes, and other road attributes. This enables higher quality cues to the driver during navigation.

Mapbox makes strides in automotive via partnerships with BMW and Unreal Engine

In October 2020, Mapbox announced a potentially far-reaching agreement with leading games developer and publisher Epic Games. Epic Games has a highly advanced games development engine with powerful AI and 3D visualization capabilities that can be used to create next-generation HMI for industries beyond games, including the automotive sector that is a key target for Unreal Engine. The deal with Mapbox will see the vendor's maps integrated into Unreal Engine, which will augment the engine's ability to develop advanced infotainment and digital cockpit offerings. General Motors' GMC Hummer EV will launch with software developed with Unreal Engine.

Later in 2020, Mapbox announced a major automotive win: BMW will sell cars using Mapbox Navigation SDK for in-car navigation. The navigation software will be developed in-house by BMW using Mapbox's tools, and the BMW developer team will have a steer on upcoming features.

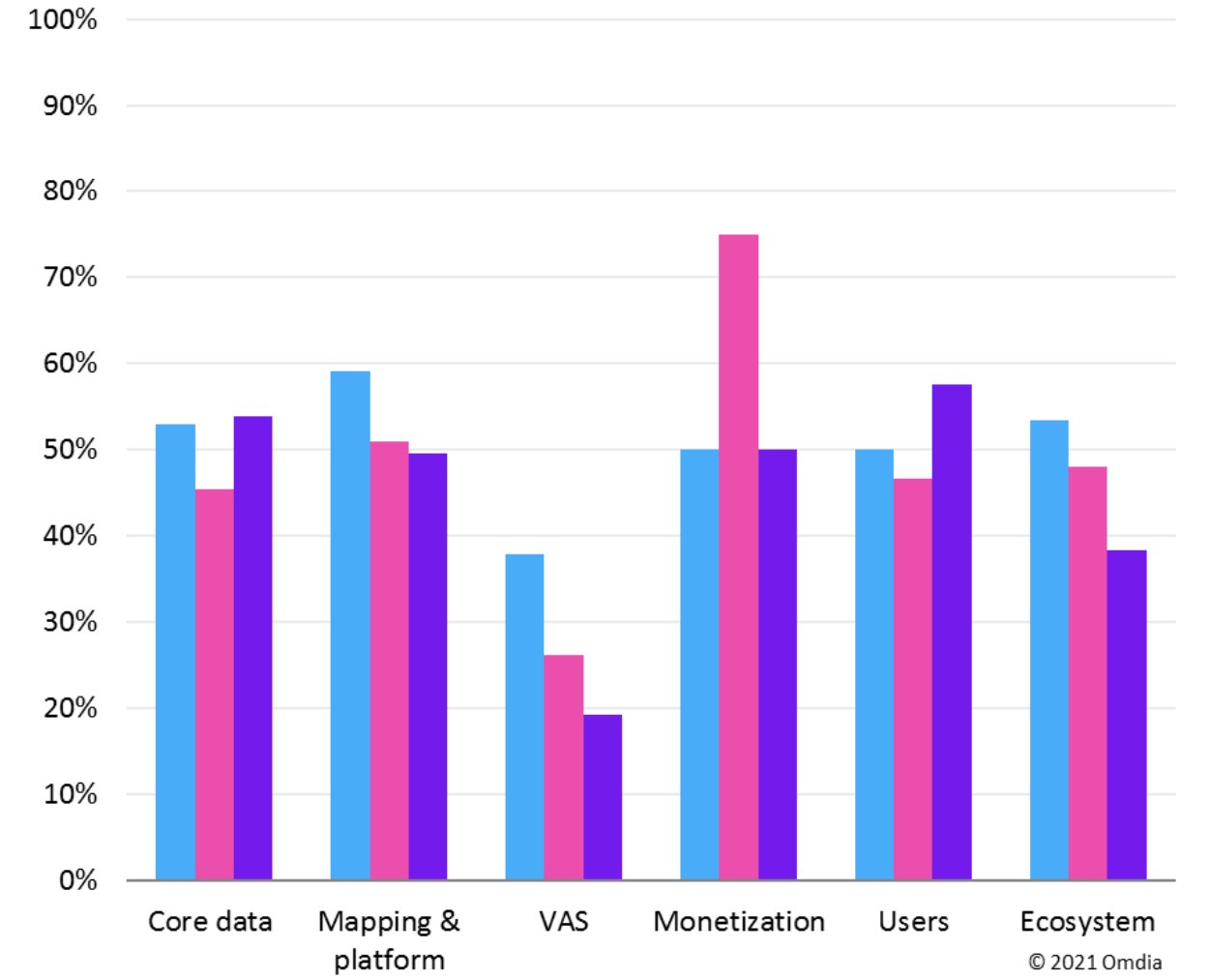
Challengers

Apple and Microsoft hold their ground, Esri shakes things up

The next major group in Omdia's index is made up of players that had a score of 4.5–6 for completeness and market reach combined. This group consists of three companies: Apple, Microsoft, and Esri. Challengers' scores are shown in **Figure 8**.

8. Figure 8: Challengers' scoreboard

	Apple	Microsoft	Esri
Total	5.12	4.84	4.58
Completeness	2.53	2.47	2.18
Reach	2.58	2.37	2.40



Source: Omdia

Apple

Summary assessment

Country launches of Apple's data maps upgrade are moving slowly

Apple continues to be the top-ranked vendor in the Challengers category, with a slightly improved score of 5.12. The new score is not a massive jump, which reflects the fact that the rollout of the new Apple Maps built on the vendor's own map data is making slow progress, and because the enhancements to Apple Maps, although good, are not available in all markets and not all of them are unique to Apple.

Apple has spent the last three years or so building its map data (as opposed to relying on that provided by TomTom) as the basis for a more granular, improved Apple Maps offering. But so far, the upgrade is only available in the US, the UK, Ireland (October 2020), Canada (December 2020), Spain and Portugal (June 2021), with Italy and Australia joining at some point in 2021. We presume the measured progress is because Apple is being exceptionally diligent in refining the quality and accuracy of each country launch, which is of course commendable but also a necessity given that Apple's data mapping capabilities are under intense scrutiny. A poor execution would be damaging for Apple.

Incremental improvements centered on 3D and AR

The enhancements to Apple Maps are via the latest update of the vendor's operating system (iOS15), which was announced at its annual Worldwide Developers Conference in June 2021. The most significant updates to Apple Maps are improved 3D mapping and AR capabilities, which is consistent with Apple's strong focus and expertise in this space. For example, transit directions have been enhanced with AR to make it easier to find stations and to navigate on exiting a station.

Improved 3D mapping is injecting more detail and accuracy into Apple Maps for selected cities. It is also being used to make route navigation easier and safer for drivers, with features such as road elevation, 3D markings, better lane guidance. These are all pleasing, innovative new features, but they are similar to what the top-ranked vendors offer (e.g., HERE, Google).

Microsoft

Summary assessment

Aside from a new Azure Maps pricing model, a quiet time for Microsoft

Microsoft remains the second-ranked vendor in the Challengers' segment, with a moderate rise in its score to 4.84. The last twelve months appear to have been a quiet time for Microsoft on the mapping front. There are no major developments to report for the Bing Maps app and no major upgrades to the core Azure Maps. However, certain features have moved from public preview to general availability, including Azure Maps Weather Services and the attractive Creator data visualization service. Creator allows enterprises to upload data sources about private indoor or outdoor spaces along with associated asset information (things/objects within a space) to Azure Maps, and then use spatial intelligence and visualization capabilities to manage, monitor, and track assets within a space.

The most impactful change for Azure Maps is, in our view, a new Gen2 pricing model that, by the looks of it, can be beneficial for developers (the Gen1 model is still in existence). Microsoft's overview of Azure Maps Gen2 pricing is as follows:

- tiered pay-as-you-go pricing with volume-based reductions that can reduce transaction costs
- free monthly allocation of transactions for each service
- no restrictions on queries per second
- creator services in preview
- new future services and features for Azure Maps.

Esri

Summary assessment

Major changes to Esri's pricing structure will give developers more flexibility

Esri's score has seen a healthy increase to 4.58, which is not enough to pull ahead of Apple and Microsoft but keeps it comfortably in the Challengers' segment. Esri is a long-established player in the location platform market and has largely been a specialist tool used by governments and enterprises across multiple industries across a broad spectrum of use cases. While other location platforms have tried to attract developers with simple pricing structures and open data formats, Esri has used an older model of proprietary data formats, a large range of contract options, and a platform which makes it difficult to swap location platform provider.

That is until January 2021 when Esri launched ArcGIS platform, which is a huge step in making Esri's services more developer-friendly. The ArcGIS platform has seen Esri change its business model from a software as a service (SaaS) offering to a platform-as-a-service (PaaS) proposition, which is fully consumption-based with costs calculated on transactions. Esri has provided a lot of transparency into the model, bringing it on par with the big location platform players. Esri is promising to be aggressive in keeping pricing competitive with rivals.

Esri has also recognized that open source is important to developers, as is being able to use their own technology rather than buying in a full technology stack. Easy-to-work-with APIs are often more attractive than a difficult but more feature-rich API set. Towards this, the ArcGIS platform now supports third-party APIs such as Mapbox's GL JS, making it even easier for developers to switch to Esri.

This change in the business model means that Esri now offers a very high-quality, global dataset that can be easily customized and used in a frictionless manner more akin to big rivals such as HERE. With Esri's background, ArcGIS has access to a raft of third-party data providers, which makes its location more attractive.

Ones to Watch

Leaders and Challengers are not the only show in town

Ones to Watch is a new section and assessment approach introduced in this edition of the Location Platform Index. The location platform and mapping domain is broad and varied in terms of the vendors that participate in this market. Not all vendors in the ecosystem have the kind of reach and completeness to achieve scores that place them in the Leader or Challenger categories of the index, but there are still many vendors outside of the top-ranked players that deserve attention; indeed, the broader ecosystem contains some highly specialized vendors that have the potential to outperform the industry giants in a particular niche. Vendors that fall into our Ones to Watch category include industry/vertical specialists, those with a specific location technology specialization, regional players, and start-ups/young companies. It is not always appropriate or feasible to compare these companies with the Leaders and Challengers as defined in this index, and so instead we are assessing the Ones to Watch on their own merits and outside of a scoring system. In Each edition of the Location Platform Index, we will feature one or two players in Ones to Watch, and we are starting with a spotlight on Comtech Location Technologies.

Comtech Location Technologies (CLT)

Assessment summary

CLT's strong telco location partnerships are the envy of rivals

CLT is a specialist division of Comtech Telecommunications' Commercial Solutions division. CLT has long been a trusted provider of location services to the telecommunications industry and has strong relationships with carriers worldwide. The current year (2021) has been distinguished by new and expanded contracts with telcos for CLT, including:

- a $9.8m contract with an existing tier-one US carrier customer for 5G products and virtualized applications
- a $3.8m contract with an existing tier-one carrier customer for a variety of products, including Comtech's Virtual Mobility Location Center platform
- a $1.1m contract renewal with a tier-one US carrier for continued support of the carrier's location-based services platform
- a $1.6m contract renewal with a tier-one US carrier for hosted location-based services platforms.

These deals demonstrate the deep connections that Comtech has with telcos, particularly in the US. These long-standing industry relationships put Comtech in a good position as location-based services become ever more important in customer care, advertising, public safety, and other segments.

CLT has powerful public safety credentials

CLT is also is a major player in the public safety sector, where it specializes in next-generation 911 emergency solutions. In June 2021, CLT signed its first international 5G contract to supply a tier-one carrier with 5G location services. This is a deepening of an existing relationship with the Australian telco.

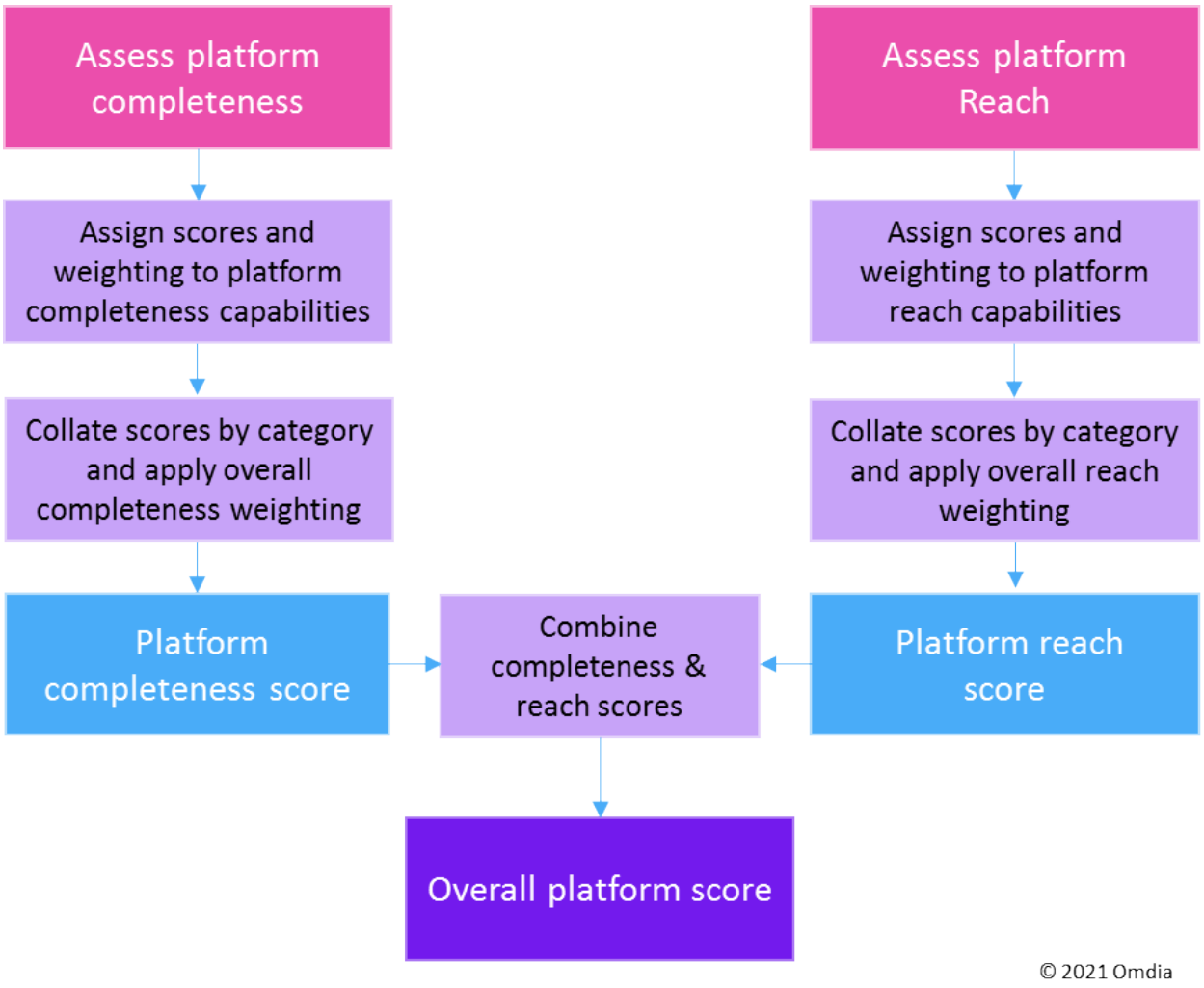
In 2020 Comtech released a new product called Situational Awareness which capitalizes on the vendor's public safety expertise. The service is built on Comtech Maps and comes with an editor which lets public safety answering points (PSAPs) manage their account, add specific content, and change the look and feel. This is a shift from Comtech's traditional way of operating which was to sell location data and make any changes the customer required, towards a more adaptable model. The Situational Awareness product also has a flexible consumption-based pricing model that should prove attractive to partners.

Appendix

Methodology

A summary of the methodology used for Omdia's Location Platform Index is shown in **Figure 9**. Data for the index is collected from a range of sources, including vendor briefings, product data, financial results, press releases, and related Omdia research and expertise.

9. Figure 9: Location Platform Index methodology



Source: Omdia

The location platform score, which is expressed as a number from 0 to 10, is a combined measure of the completeness of a vendor's location platform offering and the market reach of that platform.

Completeness includes a platform's core data, mapping functions, and services—provided directly or via partners. Completeness also considers a player's monetization strategy. A complete list of the attributes included in the Completeness parameter and a corresponding explanation/example is shown in **Table 1**. Each attribute is given a score of between 1 and 5, depending on a vendor's capabilities. Each attribute also carries a weighting, which when combined with the actual score, creates the total completeness score.

Table 1: Location Platform Index Completeness criteria

Core data	
Ownership of core mapping data	Does the company own the core maps data, and/or is a partner(s) core map used?

Data analytics	A vendor's capabilities in this area—tools, functionality, and other enhancements.
Extent of data collaboration & partnerships	The number and nature of partnerships are in place to enhance data capabilities, features, and functionality (excludes partnerships for access to core map data, or technology partnerships).
Data exchange	The provision of own data exchange or participation in one.
Crowdsourcing	The level of support for crowdsourcing capabilities.
Data privacy	How effectively a vendor safeguards consumer and data sources, and complies with relevant regulatory frameworks (e.g., the General Data Protection Regulation [GDPR] in the European Union).
Additional capabilities	Any other core data capabilities or assets in this area.
Mapping & platform capabilities	
Depth of map coverage	The depth and detail of map coverage (as opposed to markets) (e.g., miles of roads mapped).
Underlying AI capabilities	What AI technology and capabilities have been used to enhance the core platform?
Detail of traffic information	What level of traffic information does the platform have (e.g., support for real time traffic updates, lane level traffic information; other features?)
Business Listings/POI	What is the range and depth of POI information offered by the platform?
HD mapping	Level of support for and capabilities in HD mapping.
Indoor mapping	Level of support for indoor mapping capabilities.
Aerial mapping	Support for aerial mapping capabilities.
Support for voice commands	The extent to which a platform supports interactions with maps & related services via a voice interface/command.
Over-the-Air (OTA) VAS/firmware delivery	Solutions for OTA VAS and/or firmware delivery—the vendor's own or third party. Note this goes beyond standard OTA core mapping refresh/updates.

Additional capabilities	Any other mapping functions and capabilities.
Value added services	
ADAS	Functions/services based on Advanced Driver Assistance Systems.
Automated driving	Capabilities, level of development, and support for automated driving.
Mobility services	Integration with mobility services such as ridesharing, public transport.
Integration of payment/commerce services	Integration of payment services or related commerce such as offers, promotions.
Integration with digital assistants	Integration with AI assistants such as Alexa.
Augmented reality	The provision of augmented reality features and services as part of the mapping proposition.
Location business Intelligence	The provision of business intelligence tools that blend and analyze enterprise and geographic data to help organizations optimize insights and enhance performance.
Additional capabilities	Any other VAS to highlight.
Monetization	
Business model	Business model(s)—does the vendor rely on licensing or have multiple revenue streams.

Source: Omdia

Reach is more narrowly focused compared to the platform completeness attributes, with the latter taking into account the number of customers a vendor has (both consumer and enterprise), the size of the developer community that supports the platform, the developer framework offered to that community, the number of industries a vendor can address, and the number of auto OEMs that leverage the platform. A full list of the attributes included in the Reach parameter and a corresponding explanation/example is shown in **Table 2**. The scoring system is based on the same principles as before.

Table 2: Location Platform Index Reach criteria

Users	
Geographic markets	The number of countries where services are available.

B2C consumer customers	The number of users of a consumer facing service (if available).
B2B, enterprise customers	The number of enterprise customers.
Auto OEMs on the road	The number of auto OEM customers enabled by the mapping platform.
Vertical industries served	Considers the number of industries you served and the depth/expertise within those served.
Ecosystem	
Industry partnerships	Partnerships that give access to or enhance positioning in key industry verticals.
Geographic partnerships	Partnerships that are designed to give access to new markets or to improve reach in an existing market.
Number of active developers	Size of the vendor's developer network.
Developer framework	Depth and breadth of developer frameworks (e.g., number and range of APIs, flexible pricing & business models, developer tools & support).

Source: Omdia

Further reading

Location Platform Index: Mapping and Navigation, (June 2020)

Authors

Eden Zoller, Chief Analyst, Consumer Platforms & AI

Charlotte Palfrey, Senior Analyst, Consumer Services

askananalyst@omdia.com

Citation policy

Request external citation and usage of Omdia research and data via citations@omdia.com.

Omdia consulting

We hope that this analysis will help you make informed and imaginative business decisions. If you have further requirements, Omdia's consulting team may be able to help you. For more information about Omdia's consulting capabilities, please contact us directly at consulting@omdia.com.

Copyright notice and disclaimer

CONTACT US

omdia.com

askananalyst@omdia.com