Integrated Mobility Platforms

How to win the customer in tomorrow's world of smart mobility

Arthur D Little

Content

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Executive summary

Global trends towards urbanization are confronting cities and governments with new sets of challenges related to public safety and security, the supply and consumption of energy, waste treatment, and traffic management. In 2013 alone, the cost of congestion in the US – defined as fuel plus opportunity costs (time) – totaled 124bn USD. In metropolitan areas, smart mobility turns out to be one of the most difficult topics and, at the same time, one with the most impactful prospects to face.

Integrated Mobility Platforms (IMPs) are a key solution to urban traffic management. By integrating different modes of transport, IMPs drastically simplify route planning and make traveling more efficient, while being able to provide highly customer-tailored solutions. As a result, IMPs are being established all over the world, with different kinds of integration levels and value propositions (i.e., Citymapper, GoEuro, Google Maps, Moovel, Moovit, Qixxit, Rome2Rio). Yet, none of these players has yet emerged as a prevailing provider with a superior offering. Consequently, we must ask what the key success factors of integrated mobility are, and what the future of integrated mobility will look like.

With an increasing number of players involved, and an enlarging as well as more integrated product portfolio, direct access to the customer moves from transport-mode operators into the digital space. This risk needs to be understood and eventually handled by all players looking to enter the smart-mobility ecosystem. Are you ready?

1. Integrated Mobility Platforms –
The working principle

In 2050, 67 percent of people will be living in urban areas, in contrast to 52 percent in 2010[1]. Because of urbanization, cities and governments are increasingly confronted with new sets of challenges related to public safety and security, the supply and consumption of energy, waste treatment, and traffic management. The smart-city concept is perceived as a winning strategy to cope with the emergence of these urban problems, and estimated to grow to a more than 45bn USD market by 2022 in Germany alone[2]. At the core, a smart city is the aggregation of all major urban policies, such as digital city, green city, and knowledge city, in a unified digital space, aiming to reduce the environmental footprint and create a better quality of life for citizens. In this context, smart mobility is one of the most difficult topics to face in metropolitan areas, but at the same time, the one with the highest impact. In this report, we focus on an essential centerpiece of smart mobility: the Integrated Mobility Platform.

The cost of congestion – defined as the time and fuel wasted plus opportunity costs (increased indirect cost of doing business) – in the US totalled 124bn USD in 2013. As one solution, smart mobility is poised to ease urban traffic flow, involving both economic and environmental aspects. It is traditionally enabled by ICT infrastructure catering to back-end and front-end applications. Whereas the former aims at optimizing traffic fluxes from an infrastructure-planning point of view, the latter is supposed to bring smart mobility to the end consumer.

The development of smart mobility front-end solutions is mainly driven by shifts in traffic-usage patterns, combined with the rise of digital solutions and the increasing number of transport players available to customers around the globe. In the age of digitization, consumers become more and more used to receiving customized product and service offerings, which
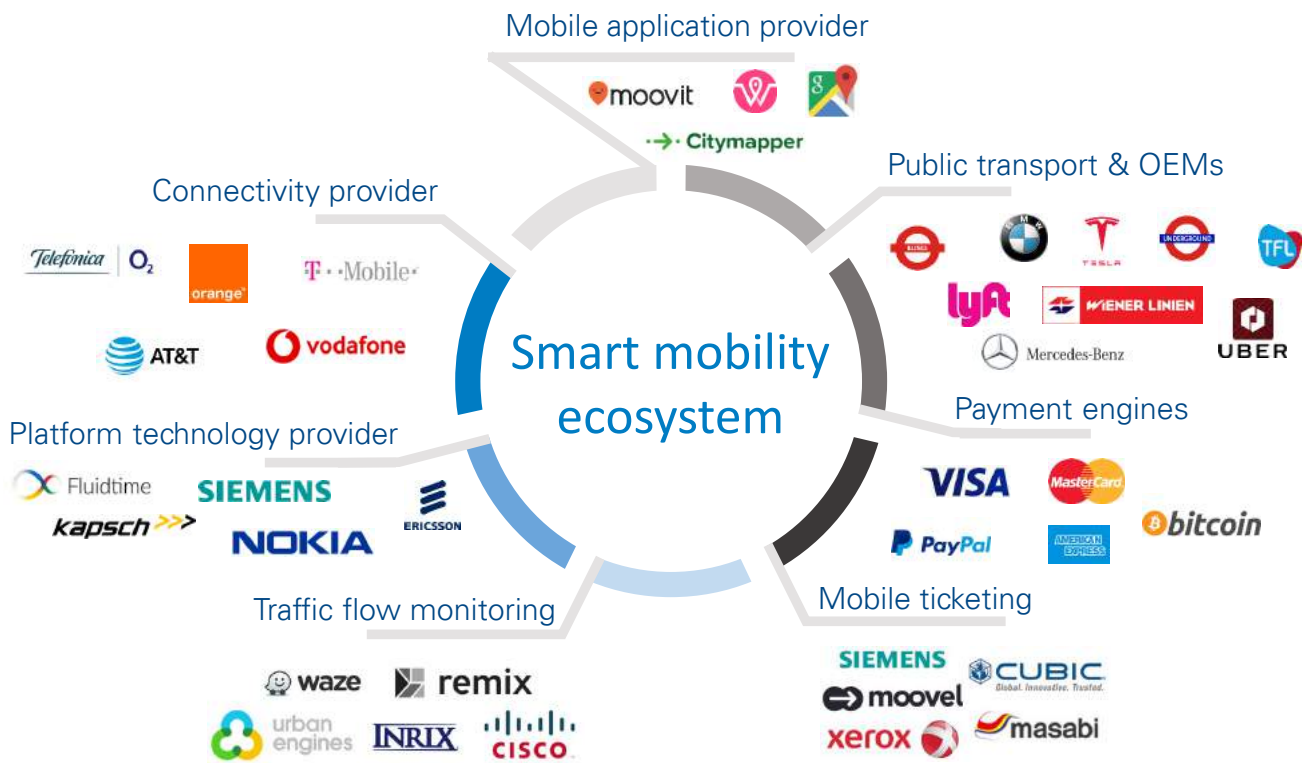
Figure 1: By design, an IMP can accurately distribute transit modes and efficiently match customer requirements at any point in time
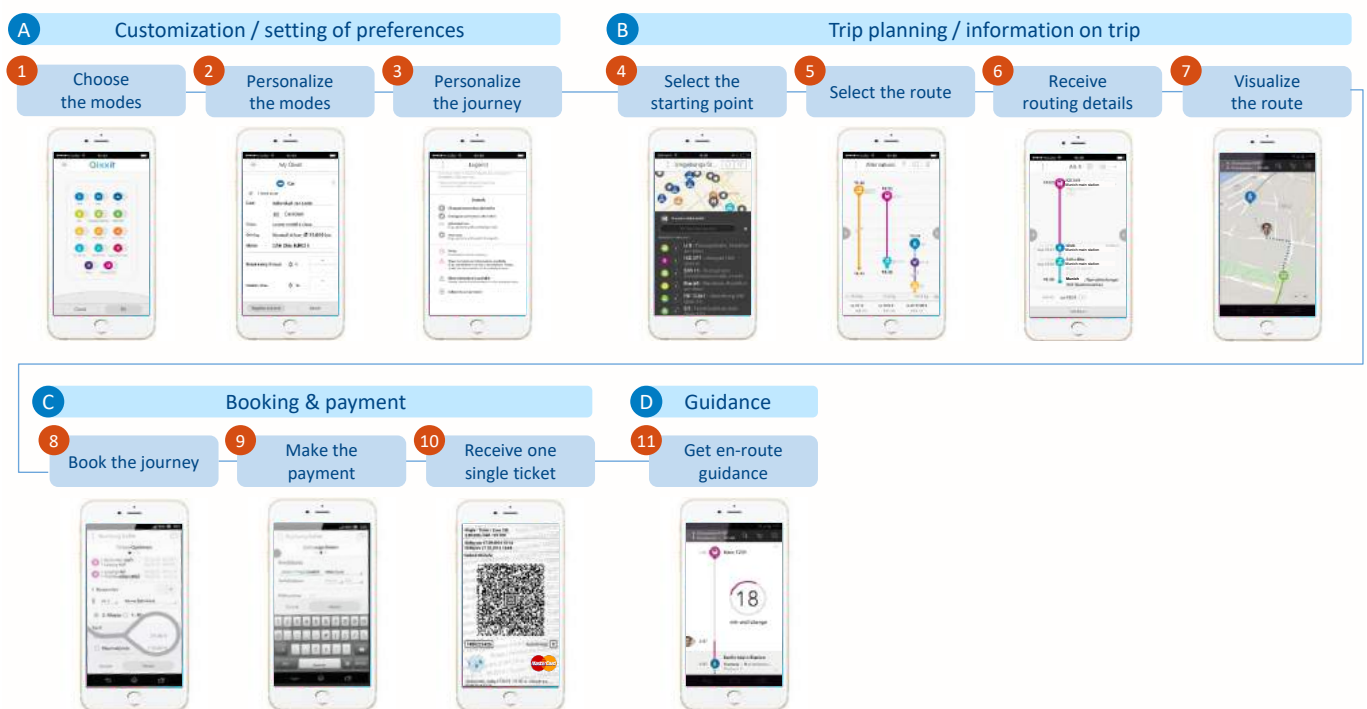
Source: Arthur D. Little, Qixxit

1   UN Population Division
2   Arthur D. Little estimate

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Figure 2: Players in the smart mobility ecosystem

Source: Arthur D. Little

allows for the highest level of convenience. In mobility, and even more so in public transport, this means that users care less about single transport modes or operators, and are, rather, interested in simple, integrated and highly customized, end-to-end solutions incorporating their individual travel preferences, such as speed, price, convenience and environmental impact.

An Integrated Mobility Platform (IMP) is a key solution to accommodate these customer preferences under a unified digital roof. By integrating different modes of transport, IMPs drastically simplify route planning, making traveling more efficient while providing a customized offer based on selected preferences. As IMPs also feed data back into smart-mobility back-end applications, thereby supporting future infrastructure development, these platforms will increasingly become the nucleus of modern mobility ecosystems. Figure 1 provides an illustrative user journey outline of an IMP.

Yet, setting up an IMP is a considerable challenge from both a business and a technical perspective. The sheer number of stakeholders involved means an IMP needs to merge multiple platform types, technologies, and value propositions strategically. This must be combined with sophisticated data analysis and projection capabilities in order to satisfy the needs of all parties involved. Figure 2 provides an illustrative overview of key segments and players in the smart-mobility ecosystem.

Smart-mobility ecosystem players, depending on their nature and competitive positioning, have a strategic incentive either to join existing platforms or to establish their own. Whereas private companies are aiming to increase their user bases to grow revenues, public companies generally have stronger interest in promoting mass transit. Similarly, automotive OEMs are seeking to capture a large share of the car-sharing market and push their own vehicles into municipal transportation systems. For large tech companies, such as Google, which seek to expand their map services, the data collection aspect of an IMP is of the most value.

As a result of this divergence in objectives, two main strategies of Integrated Mobility Platform providers can currently be observed in the market.

On the one hand, infrastructure-heavy "back-bone" platform providers, which traditionally originate from well-established public-transport operators, aim at long-term traffic improvements while, at the same time, offering more convenience for customers.

On the other hand, over-the-top (OTT) players often operate under the maxim of short-term user maximization to drive enterprise value. Yet, both strategic approaches rely on key factors to demine the future success of an IMP.

2. Value propositions and requirements

One of the main questions that emerges from these observations is *"How to make integrated mobility work?"* Aforementioned factors favor the concept of an Integrated Mobility Platform in general, as it addresses many of the current mobility challenges. In fact, one can observe that IMPs are being established all over the world, with different kinds of integration levels and value propositions (i.e., Citymapper, GoEuro, Google Maps, Moovel, Moovit, Qixxit, Rome2rio).

However, none of these players have yet emerged as prevailing providers with superior solutions. Consequently, it must be asked what the key success factors of integrated mobility are, and what the future of integrated mobility will look like.

From our viewpoint, there are three different business models along which those criteria can be explained (see Figure 3: IMP business models):

1. The Holding: Integrator of own transport modes

    A "Holding" player integrates its own modes of transport on one platform. Third-party modes must be accessed separately through proprietary apps. This integration allows the player to offer one ticket for different modes

and reduces barriers between travel segments for users (extra tickets). The revenue source in this business model consists primarily of ticket sales, whereas tickets paid via the platform cost the same as or less than if bought individually. Examples of integrating players include rail companies that provide long- as well as short-distance transport, and traffic authorities that operate several public-transport modes.

2. The Reseller: Integrator of own and broker of third-party transport modes

    The "Reseller" commissions third-party services. In addition, a Reseller may also assume the role of a "Holding" player and integrate its own modes of transport. On the mobility platform, there is no distinction between own and foreign modes, as the user is offered all services in one place. However, whereas tickets may be consolidated for own transport modes, separate tickets need to be issued for third-party services. This opens up the possibility of participating in sales of third-party tickets via the platform (margin) or benefiting from partner fees.

Figure 3: IMP business models

Source: Arthur D. Little

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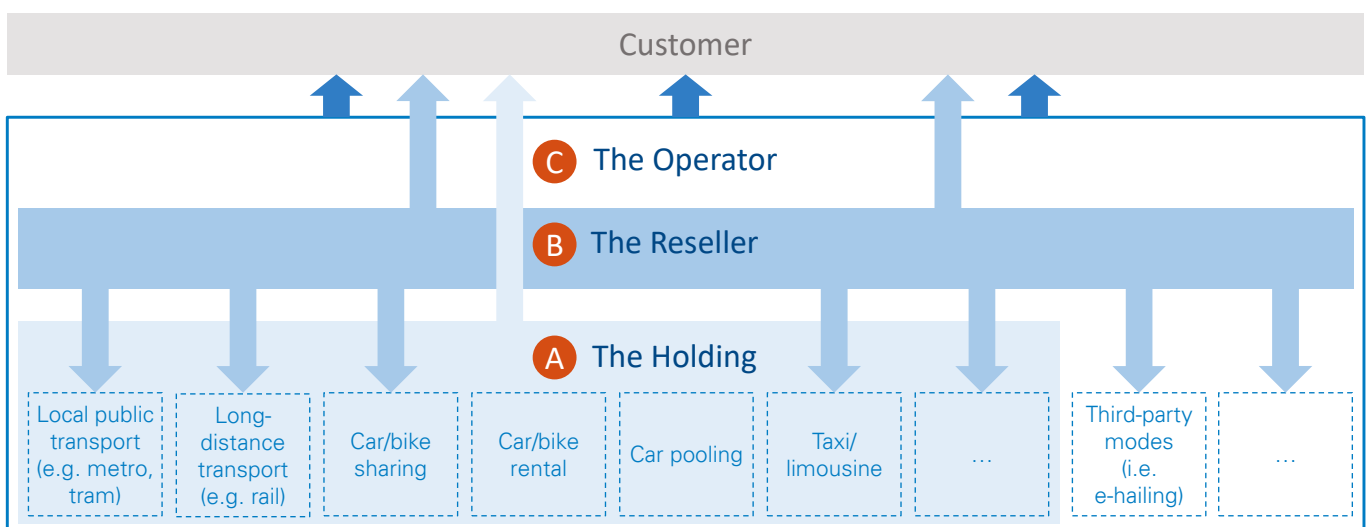
3   Application Programming Interface

In fact, most IMPs are over-the-top aggregators without their own transport-service offerings (i.e., GoEuro, Google Maps, Rome2Rio). Those players do not have proprietary assets, but commission the services of monomodal specialists (reseller model without integration). Examples of IMPs that follow the approach of Resellers plus Holding players include Moovel, Qixxit, and WienMobil Lab. This model has major downsides for the customer: the Reseller is not a single contact point for all sub-segments of the journey, and hence does not assume liability for all sub-segments.

3. The operator: Operator of own as well as third-party transport modes

If an IMP offers its own modes of transport and third-party services together under one brand, it acts as an operating aggregator. A user may buy one ticket for each trip that covers all relevant modes/segments of the trip. To do so, the IMP acts as an intermediary and forwards a share of the ticket fees from the users to the relevant third-party providers (subcontractors). As much as this model offers higher convenience and a better customer experience, it creates exposure to third-party obligations and liabilities for the IMP provider.

The idea of converging all transport modes relates to providing mobility-as-a-service, such as ITS Finland and the IMP in Dubai, S'Hail. (See showcase.)

Showcase Dubai

RTA

In 2016, Arthur D. Little supported Dubai's Roads and Transport Authority (RTA) in developing an IMP concept for the Gulf state. It gives Dubai citizens and tourists easy access to all mass-transit systems through a single interface – from information to payment.

The decision to introduce an IMP allows Dubai to ensure safe and smooth transport, as well as facilitate the Sheik's strategy of making it a smart, integrated and happy place.

The decision of which operating model is pursued, in turn, has an effect on which functionalities along the customer journey an IMP provides. Although most IMPs offer authentication as well as information and routing services, they fail to include later steps of the value chain (booking and reservation, payment, billing and clearing, customer care). Over-the-top aggregators, in particular, only provide booking and reservation functionalities in very selective cases. Despite APIs[3] increasingly allowing platform providers to access external systems and information, it is still

advantageous to be a transport company, as these can offer more functionalities from a single source.

The decision of which modes should be integrated into an IMP is essential for the success and further development of the platform. There are two dimensions to consider with regard to ecosystem coverage:

■ Transport-mode coverage

In a nutshell, comprehensiveness is key when it comes to the inclusion of available transport modes. If an IMP wants to serve as a single point of contact for the customer, it needs to offer access to all available transport services. If it fails to do so, an IMP is likely to by aggregated itself by a third-party provider, while being complemented with the remaining services. As the barrier to users switching applications is relatively low, transport-mode coverage is one of the most relevant decision criteria for an IMP.

■ Geographical scope

The extension of geographical coverage strongly requires a sound transport mode coverage. In other words, before geographical scope is enhanced, a provider should establish a solid market positioning in one region. However, as geographical reach, in turn, impacts customer reach, a circular effect can be observed: the more transport modes are available on a platform, the more attractive an IMP becomes for users. On the contrary, platform providers are more likely to join IMPs which already exhibit solid user bases.

On top of the degree of ecosystem coverage, generating a superior experience for the customer is crucial. From our viewpoint, there are three major aspects that determine whether an IMP solution has the potential to outperform competition in this regard:

■ Price transparency

Customers must be able to retrieve price information easily and transparently – without hidden charges, conditional fees, or indicative prices. Aside from the fastest or most eco-friendly trip, consumers often decide based on the cheapest route. Hence, transparency is key.

■ User friendliness

The number of interaction points required to book a ticket heavily determines the completion rate, i.e., the share of users that actually finalize bookings. The fewer steps that are needed, the likelier users are to use an app. Three steps or less to buy a ticket can be considered optimal – ideally

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3   Application Programming Interface

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without the need to set up an account, or giving users freedom of choice.

■ **Customer interface**

Although the intelligence of an IMP lies on the back end, the first point of contact of a user is the application. A lean, stable, and compelling interface with all relevant functionalities is required to catch and maintain interest in using the IMP. An agile software development approach helps to react to user requests and changes in preferences, and keep the solution up to date.

Those dimensions will also define the extent to which there will be customer pull or operator push for those solutions. In other words, are users the driving force in spurring demand for appealing mobility platforms, or are cities/authorities the pushing party? Both have their own interest – it might be the demand for seamless travel or to create a shift in transport-mode usage. In any case, Integrated Mobility Platforms are an essential puzzle piece in defining the mobility landscape of the future.
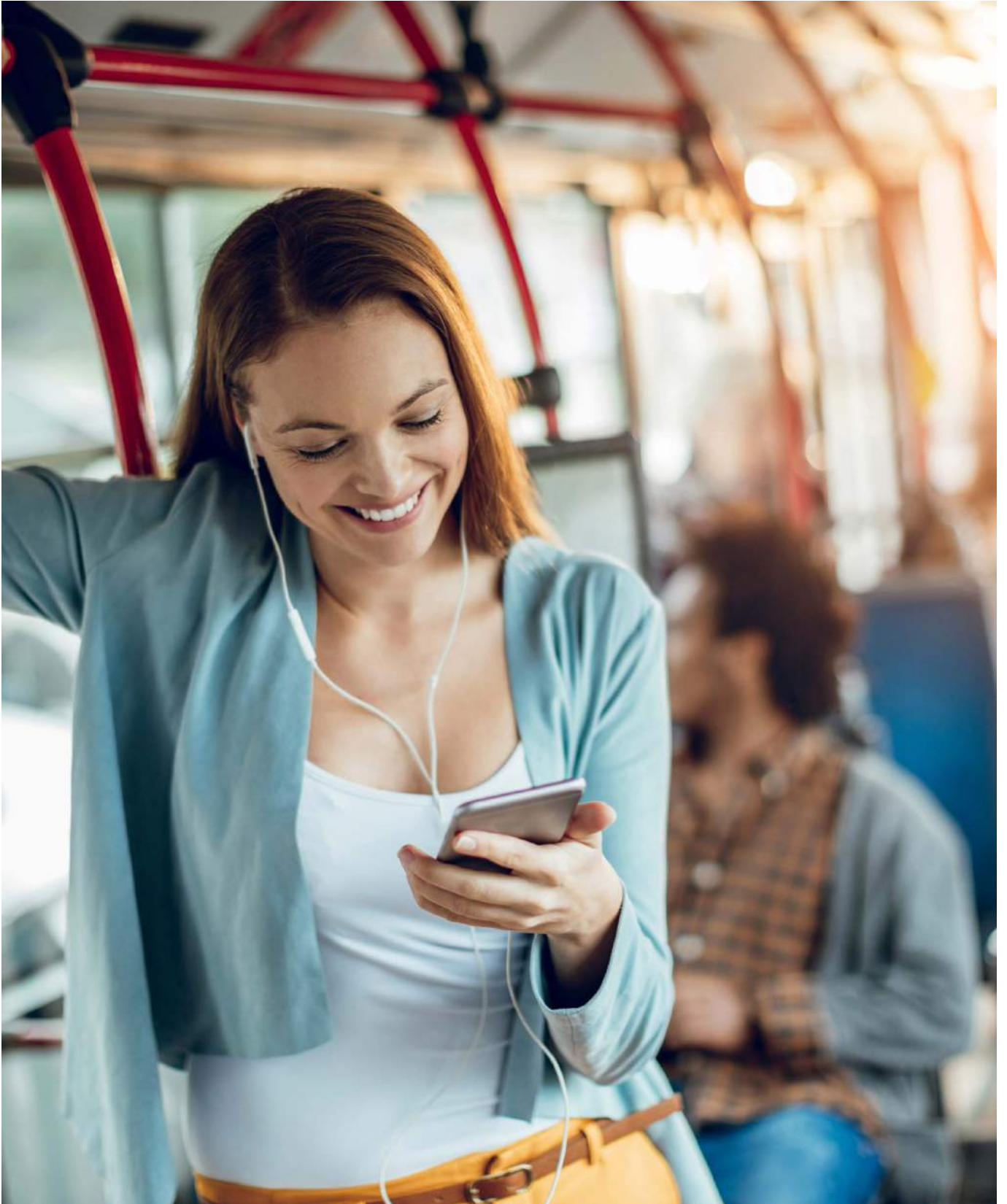
3. IMP key success factors

According to our observations, there are seven key success factors that are prevalent for leading IMP providers:

1. **Start small but fast:** Do not target the final picture from the start. Start with a limited set of transport modes and functionalities to be extended gradually. This approach enables early launch, as well as high agility, for quick reaction to new market developments. It also reduces implementation risks of a "big-bang" approach, such as ending up, in the worst case, with an outdated system after a long and costly implementation period.

2. **Stay agile and add new modes:** The transport mobility market is rapidly developing. We recommend keeping flexibility in defining the modes to be integrated/aggregated next. Fixing the full plan of transport modes at the beginning might not be seen as beneficial, as priorities might shift quickly, and thus opportunities can be missed.

3. **Offer end-to-end functionalities:** New global start-ups in the IMP space mostly offer routing and information functionalities. Nevertheless, the key benchmarks leverage their local presence to offer wider sets of functionalities, from information and routing over booking to payment functionalities. This creates a unique selling point compared to globally focused platforms.

4. **Keep it simple:** To gain user acceptance quickly and enable the smoothest interaction for the customer, the customer-facing processes should be as simple as possible. Best practices show lean booking and payment processes in not more than three steps.

5. **Use advantages of personalization:** Offering a wide range of functionalities and transport modes also bears the risk of creating complexity. Customer preferences differ from one person to another. With a high degree of personalization, a customer can select the optimal transport modes and functionalities that enable superior, customized experience and value-add.

6. **Offer security functionalities:** Superior security functionalities cannot be observed in the market of IMPs yet. Nevertheless, the need is rising and first players are starting to address it. An IMP should comprise functionalities aimed at increasing the security/safety of its customers for any kind of travel (i.e., automatic emergency calls and location-sharing features).

7. **Balance liability and customer experience:** While discussions on mobility-as-a-service offerings might be present these days, many existing IMP benchmarks operate as Resellers. The key reason is the high liability risk of offering third-party services under the own brand to generate a substantial impact on customer experience.

Conclusion – Who owns the customer?

IMPs offer tremendous opportunities for both platform providers and end users. Platform providers can significantly profit from IMP back-end applications to predict and manage future traffic flow, as well as benefit from front-end applications to drive sales through new (digital) channels.

End users, on the other hand, have the possibility of fully customizing their travels and thereby significantly improving the convenience factor of public transport.

Simultaneously, all service providers along the mobility value chain find applications for their products and services, thus receiving access to the most valuable part of an IMP – customer data. With an increasing number of players involved and an enlarging as well as more integrated product portfolio, direct access to the customer moves from transport mode operators into the digital space. This is a risk that needs to be understood, and eventually handled, by all players looking to enter to the smart-mobility ecosystem. Are you ready?

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Arthur D. Little

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