

Article – April 2018

Levels of MaaS

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Connected Autonomous Vehicles (CAV) are something we've become to recognize as familiar and, although one might not be much into the details and technologies involved, there is a common understanding of which are the long-term goals and where manufacturers and stating their ground.

One of the CAV concepts widely spread and known is the notion of Autonomous Driving Levels, contributing for a clear perception of what is involved and the essences. This has proven to be instrumental in having a clear communication with multiple and diverse segments of the population, aiming for alignment for both CAV experts or everyday drivers.

The recipe was simple – choose the main variable that determines each level of maturity and create a simple and straight to the point line of speech. Often it is considering other industries and application fields that one finds common ground and successful approaches to shared needs.

Mobility-as-a-Service (MaaS) currently lives its early years – concepts are being discussed, challenging business models stand on the table, players are making a genuine effort to understand their role in it and how fit the strategic goals are, in the same way travelers wonder about the future and how their mobility needs will be met effortlessly.

This is the moment where communication is central. This is the moment where perception needs alignment. This is the moment to have a clear notion of the Levels of MaaS (L-o-M).

Using Levels-of-MaaS

The abundant knowledge and active discussions held will continue to foster the environment to perfecting the MaaS model and the involving businesses, as well as the cities and transport authorities. Levels-of-MaaS concerns having a common language to promote communication effectiveness and foster smoother discussions, focusing the energy spent by each stakeholder on the emergent issues and shared needs, while keeping the end-user in the center.

Players

The players of the MaaS game have distinctive roles to maximize the chances of success for themselves and the seamless service mobility ambitions to achieve. Their expectations and ambitions will determine the impact on the overall adoption of MaaS.

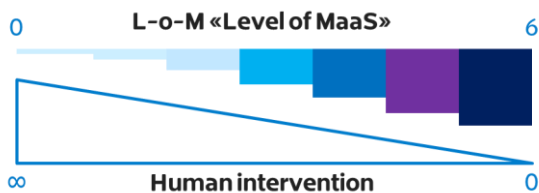
Player	Role	Expectations
Traveler	All services included are designed with the traveler in mind, following the social trends. He is the end-user. The level of automation in every single interaction determines the current level of MaaS.	That he is given as many options as possible and be suggested for the most advantageous giving his individual preferences, interacting as little as possible to activate services, with absolute clarity on data collected and assurance of its privacy and security.
Private Operator	They provide the service and own the private infrastructure and systems.	To be able to deliver services in a competitive environment, based on well-thought commercial and marketing strategies.
Public Transport	Provide a better public service through mass transit, creating economic conditions for public transport modes to be more efficient.	That people will prefer public transport and mass transit options, considering service quality improves through less individual transport traffic inside cities. Rely more on intelligent solutions, optimizing investment application in infrastructure, operations and fleet.
Central Government	To coordinate and moderate vertical and individual views, for the benefit of the overall range of services under their jurisdiction. To create the legal and administrative setting that allows MaaS to happen, acting as catalyst by promoting mobility policies.	To implement mobility policies aligned with safer and more sustainable transportation modes, with mechanisms to encourage specific transport options.

Tech side	Provide technological mobility solutions for the roadside, wearables, onboard and central systems. Contribute to define open standards (data and architecture) for IoT generalized presence. Work as differentiation enablers for operators and meta-operators.	To be able to sell and supply their systems and experience, using the most advanced and differentiated solutions.
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Human intervention – the defining variable

Much like with CAV, the degree of human intervention involved decreases, as MaaS maturity progresses up the scale. This is the defining variable, chosen for its simplicity, singled out from a crowd of other not-so-relevant dimensions.

Unlike other models for producing, a MaaS index of maturity which use multiple characteristics to feed a complicated scientific algorithm and, thus, calculating a somehow sterile number in the end, lost in its meaning amid the elaborated method.



Looking at the extremes is often a good way to understand a scale.

<p>Level 0</p> <p>Before leaving home, the traveler chooses from a finite set of apps how to go to work, making isolated choices for each transport mode. He is asked to declare destination, choose from individual mode options, reevaluate actively on his own during each step of the journey. Information is available, but requires searching. Often, he pays using separate systems and payment methods, using tangible tickets. Little data analysis is done and few commercial and marketing offerings are automated, on the service side.</p>	<p>></p>	<p>Level 6</p> <p>MaaS connects beyond mobility, interfacing with smart cities.</p> <p>As MaaS evolved, so did other systems involved in the traveler's day, such as work spaces, houses and general services including food, groceries, entertainment, sport or culture.</p>
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Let's start from the ground point of MaaS, the first of seven steps. Level 0 is the base level — likely the more commonly relatable with today — where there are account basic systems in place, individual modes of transportation already have a digitized interface and the traveler has information available online for each.

On the other end, Level 6 is the realization of much is happening simultaneously around MaaS and that the prevailing central element is the citizen, the traveler, each and one individual. At this stage, active artificial intelligent choices are taken, based on traveler specific behavior and profiling with minimal (to none) intervention needed by the traveler, already accomplished on the previous level 5.

Now that the boundaries are defined, let's consider the remaining stages and their high-level characteristics.

Levels of MaaS (L-o-M)

Level		
0	This is the base level, relatable with today.	There are account base systems in place, individual modes of transportation already have a digitized interface and the traveler has information available online for each.
1	There is one-to-one integration between some private services.	Duets of services start to develop joint offering (e.g. park+ride, tolling+fuel, parking+tolling, rail+parking)
2	Integrated payment across modes.	In this level, greater integration occurs but this time between a private operator and a public transport mode of operation. Integration shows promise but other PT modes skeptical and continue to stay aloof.
3	Unified interface for single account used in multiple modes.	Instead of having multiple channels, interface is unified across modes, providers and services.
4	All modes are integrated, private and public, including routing and payment.	Open data and standards are defined and commonly used.
5	Active artificial intelligent choices are taken.	Based on traveler specific behavior and profiling, minimal (to none) intervention is needed by the traveler.



6	MaaS connects beyond mobility, interfacing with smart cities.	As MaaS evolved, so did other systems involved in the traveler's day, such as work spaces, houses and general services (e.g. food, groceries, entertainment, sport, culture).
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