



Tactical Passenger Simula
Capturing the effect of ne
technologies and services
daily activity and travel
behaviour.

Research Institute
University of the Aegean

HARMONY H2020

Towards a new mobility era

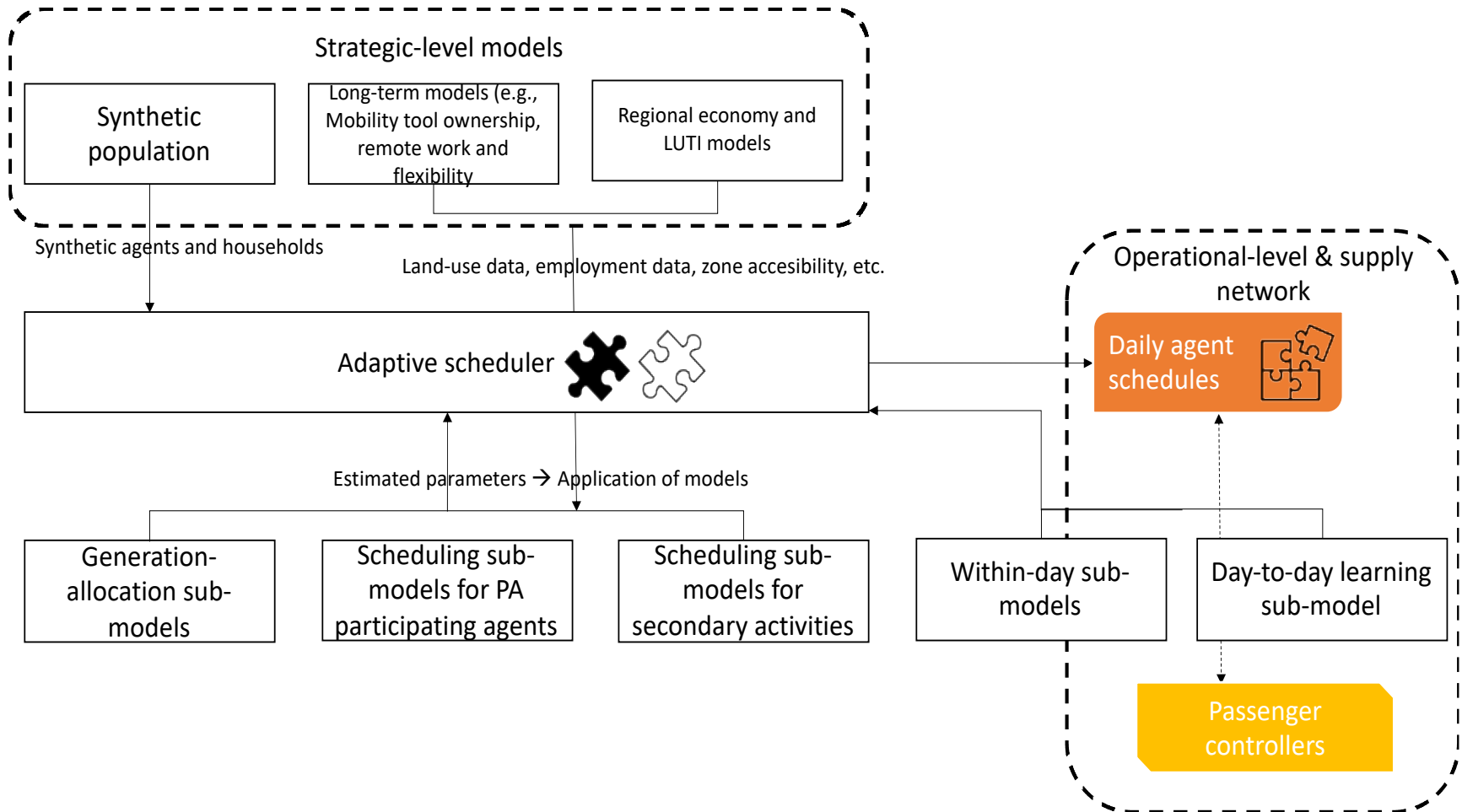


HARMONY

- Harmony's vision is to enable metropolitan area authorities to lead a sustainable transition to a low-carbon **new mobility era**. Our spatial and multimodal transport **planning tools** will update the Sustainable Urban Mobility Plans of the future.
- HARMONY is demonstrating **electric AVs** and **drones** in real-life conditions integrating them with the traditional transport modes to understand the requirements, reactions, barriers and collect real-world data. CAVs and drones data will be combined with telecom data along with socio-cultural, economic, spatial and environmental data will be analysed to derive thorough information to feed regional spatial and transport modelling and planning.
- Find out how we are integrating and demonstrating **electric autonomous vehicles** and **drones** in [Oxfordshire](#), [Rotterdam](#) and [Trikala](#).



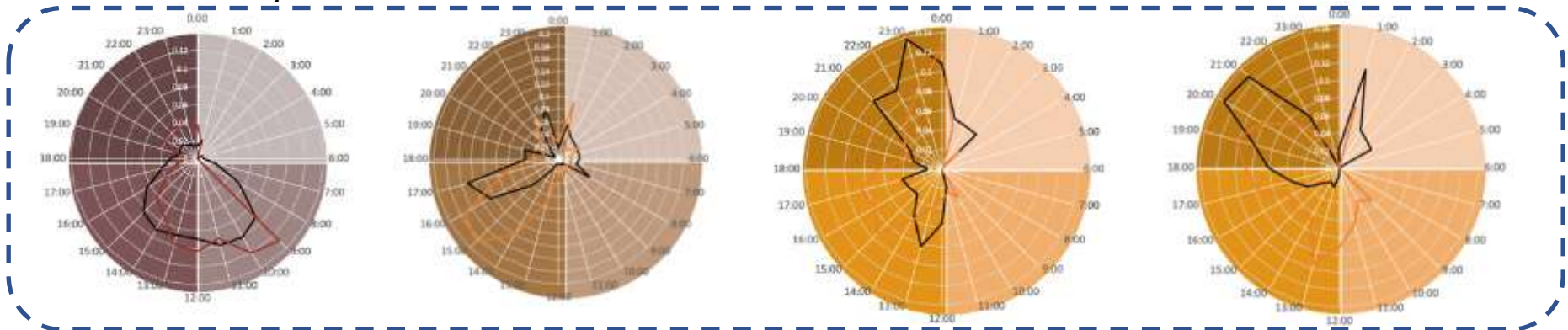
HARMONY Tactical Passenger Simulator (TPS) architectural overview





Example of TPS output

HH_ID	Pers on D	To url D	Tri pl D	Acti vityl D	Time _Star t	Trav elTi me	Mod e	Activ ityD uration	Prese ntZon e	Previo usZon e	Previo usActiv ityID
1	1	1	1	2	20	21	1	232	1586		
1	1	1	2	4	273	25	1	81	1592	1586	2
1	1	1	3	4	379	16	1	300	1578	1592	4
1	1	1	4	8	695	22	1	291	1586	1586	4
1	2	1	1	3	72	25	1	316	1578		
1	2	1	2	9	413	18	1	206	1589	1578	3
1	2	2	3	9	637	16	1	250	1586		9
1	2	2	4	8	903	28	1	317	1586	1578	9
1	3	1	1	4	231	29	1	260	1583		
1	3	1	2	9	520	12	1	298	1583	1583	4
1	3	1	3	1	830	10	1	371	1586	1583	9
1	3	1	4	8	121	14	1	363	1583	1586	1



Daily Dynamics



Scenarios and KPIs

The HARMONY TPS can be utilized to evaluate and assess different scenarios and KPIs

Example of KPIs and scenarios to be evaluated

1. Impact of presence of new mobility services such as AVs in the transport system
2. Effect of long-term choice or disruptive events (such as rise of remote work in the pandemic era)
3. Effect of policy interventions (such as a zero-emission zone) in the transport system
4. Intra-household dynamics impact on daily travel and activity decisions in future scenario settings with variable population dynamics and trends
5. Effect of attitudes and perceptions in mode choice and activity participation (e.g., environmental consciousness effect on more sustainable mode choice)



Data requirements for the Tactical Passenger

As the Tactical Passenger Simulator can be applied as a whole or in a modular setting, data requirements may vary. This slide covers the whole extent of required data

Activity diaries or activity and travel data from mobile sources

Detailed activity and travel diaries or schedules of a selected, representative sample of individuals in the study area

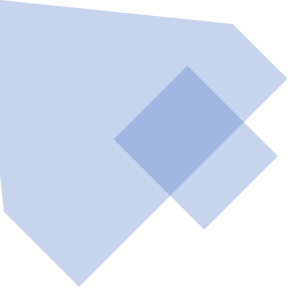
Accessibility indicators and zone attractions

1. Land-use and presence of attractors in zones (workplaces, schools, leisure, commercial, other attractors)
2. Network and supply side data

Stated-preference experiments

SP experiments especially focusing on:

1. Long-term individual and household choices such as remote work and residential choice
2. Vehicle and mobility ownership
3. Willingness-to-use or willingness-to-adopt new forms of mobility such as



Happy to move



Digital nomad

Sad to work from home



Happy to work from home



Happy with their current residence



Priorities for cities/planners/decision-makers

- Active travel >> Advanced mobility solutions
- Drivers of change: safety and health, social distancing
- National policy guides the local response
- The pandemic as an accelerator
- See the presentation by colleague C. Georgouli:
https://harmony-h2020.eu/wp-content/uploads/2021/05/ITF_Barriers-and-opportunities-in-sustainable-urban-mobility-planning-in-response-to-the-Covid-19-pandemic.pdf



Thank you!
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HARMONY

SPATIAL & TRANSPORT PLANNING FOR A NEW MOBILITY ERA



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