

Democratizing Smart Energy Management for Households

From Knowledge to Competitiveness

Portugal-US Partnerships 2026 Summit

MIT Portugal Program



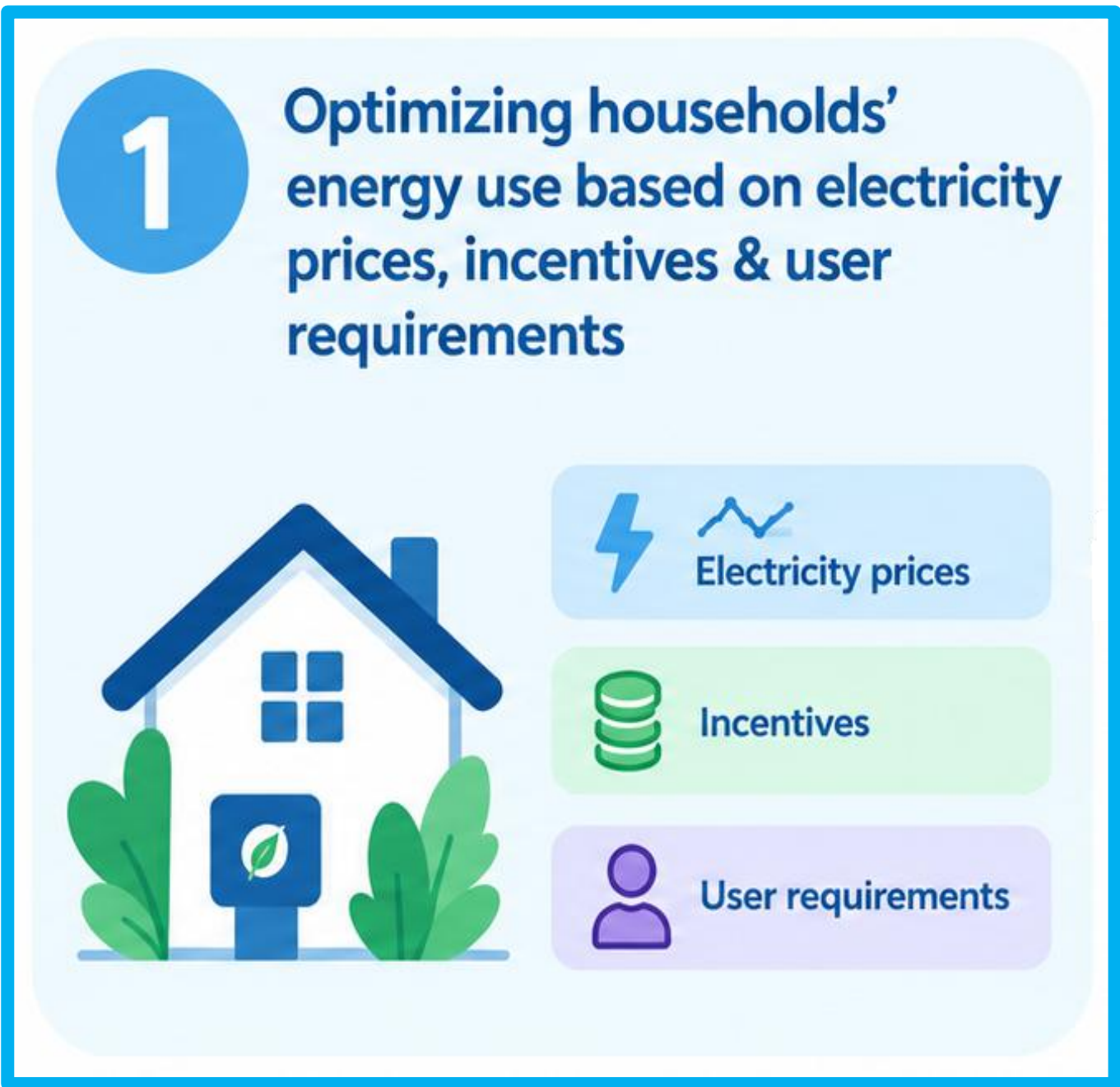
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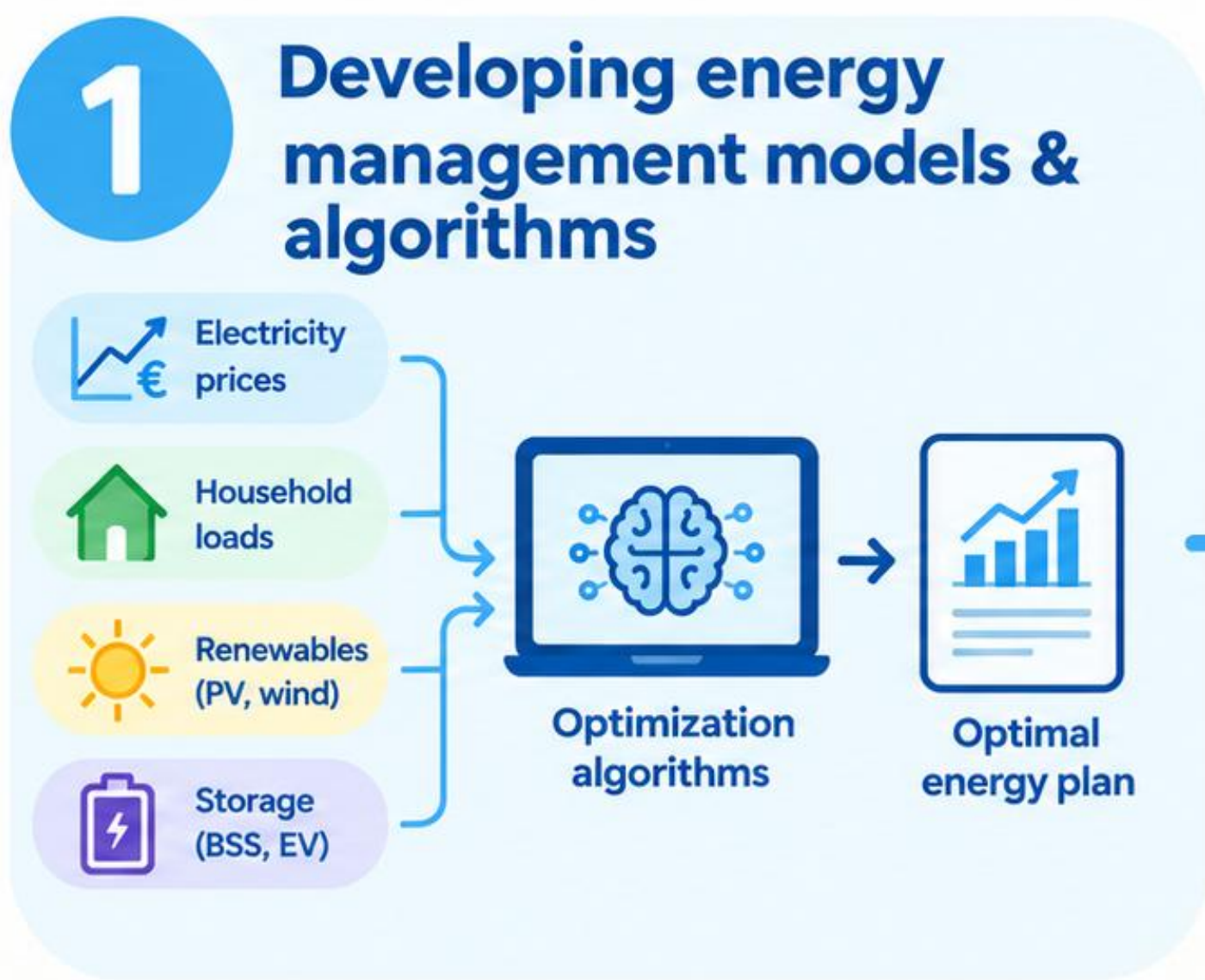
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Research Objectives



under the Doctoral Grant
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Sustainable Cities

Research Methodology



Key Impacts

1 Economic Impact – Monetary Saving

by reducing waste and energy costs

“More cost-effective household energy use”

2 Innovation – Intelligent Energy Optimizing

by using renewable energy wisely

“Data-driven and personalized energy management”

3 Societal Impact – Energy System Transition

by wider adoption

“Potential benefits for households, communities & energy system”

4 Energy Flexibility – Responsive Demand

by automated management and control of household's appliances

“Actionable flexibility metrics & user-aware demand shifting”

5 Monitoring – Smarter Consumption

by tracking electricity use in real time

“Peak usage awareness”



6 Dispatchability – More Effective Integration of Renewable Energy Sources

by having more responsive demand-side

“Grid stability and reliability”

Source of photo: <https://ska-elektrotechnik.de/blogs/elektrotechnik/paragraph-14a-enwg-2026>

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