



IMPACT AND SOCIO-ECONOMIC COST-BENEFIT ANALYSIS

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FOT-Net Data Workshop 3: A common methodology for road automation FOTs and pilots



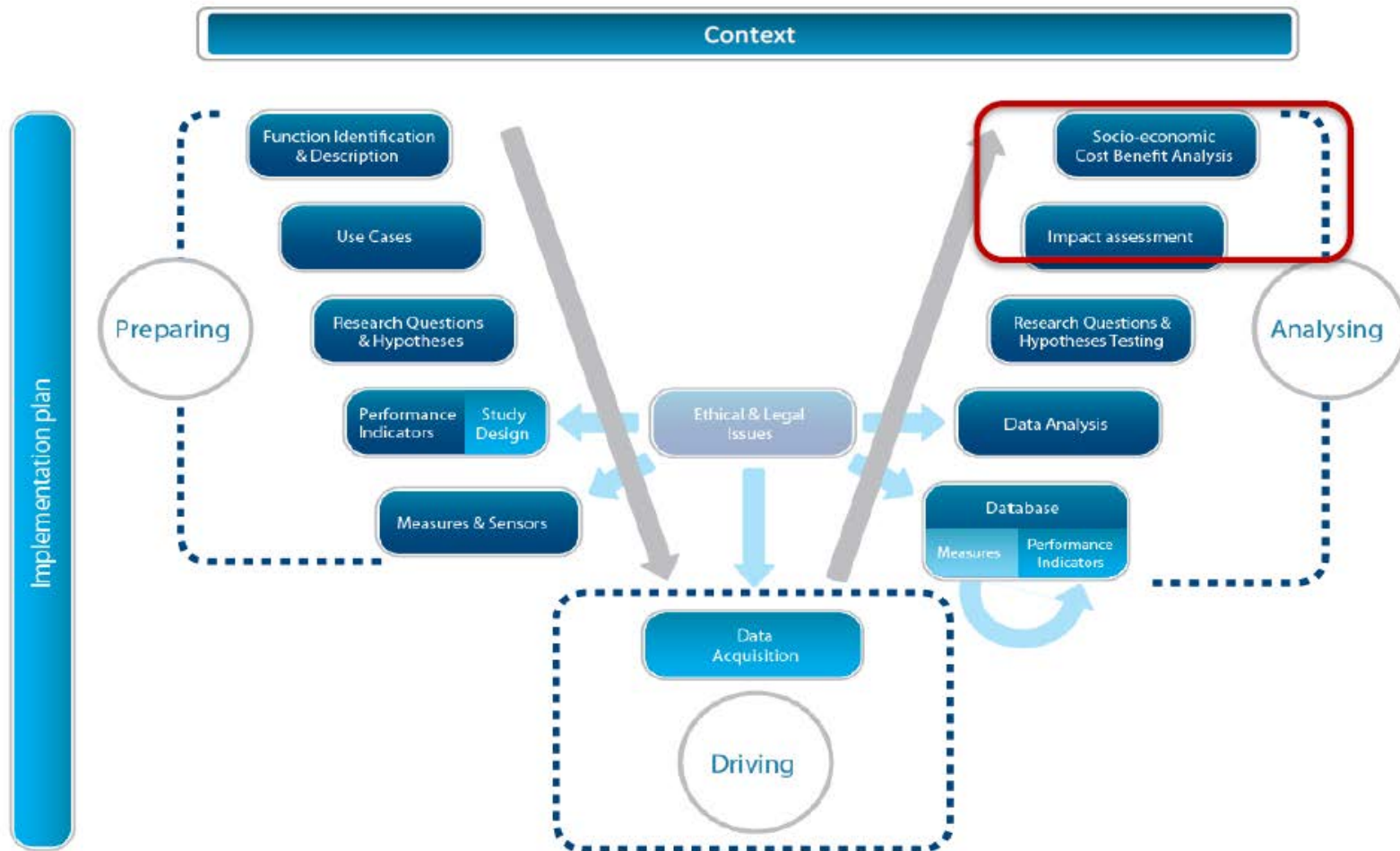
This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 610453

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GOALS OF ASSESSMENT

- Increase knowledge about impacts of ITS
- Provide the impact assessments in numerical estimates for cost benefit analysis
- Provide decision maker with information in concise format
- Provide information to stakeholders about potential business cases
- Enhance deployment of ITS
- Make suggestions for future work and develop methods and tools for evaluation

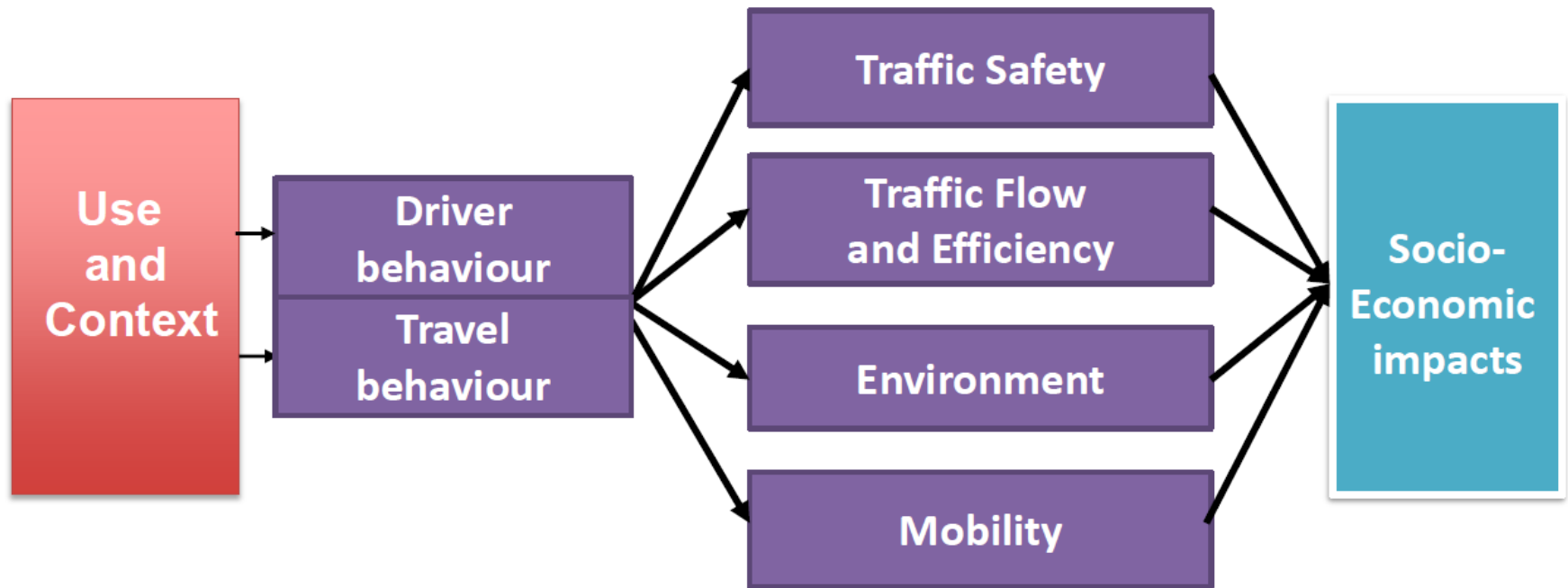
THE FESTA "V"



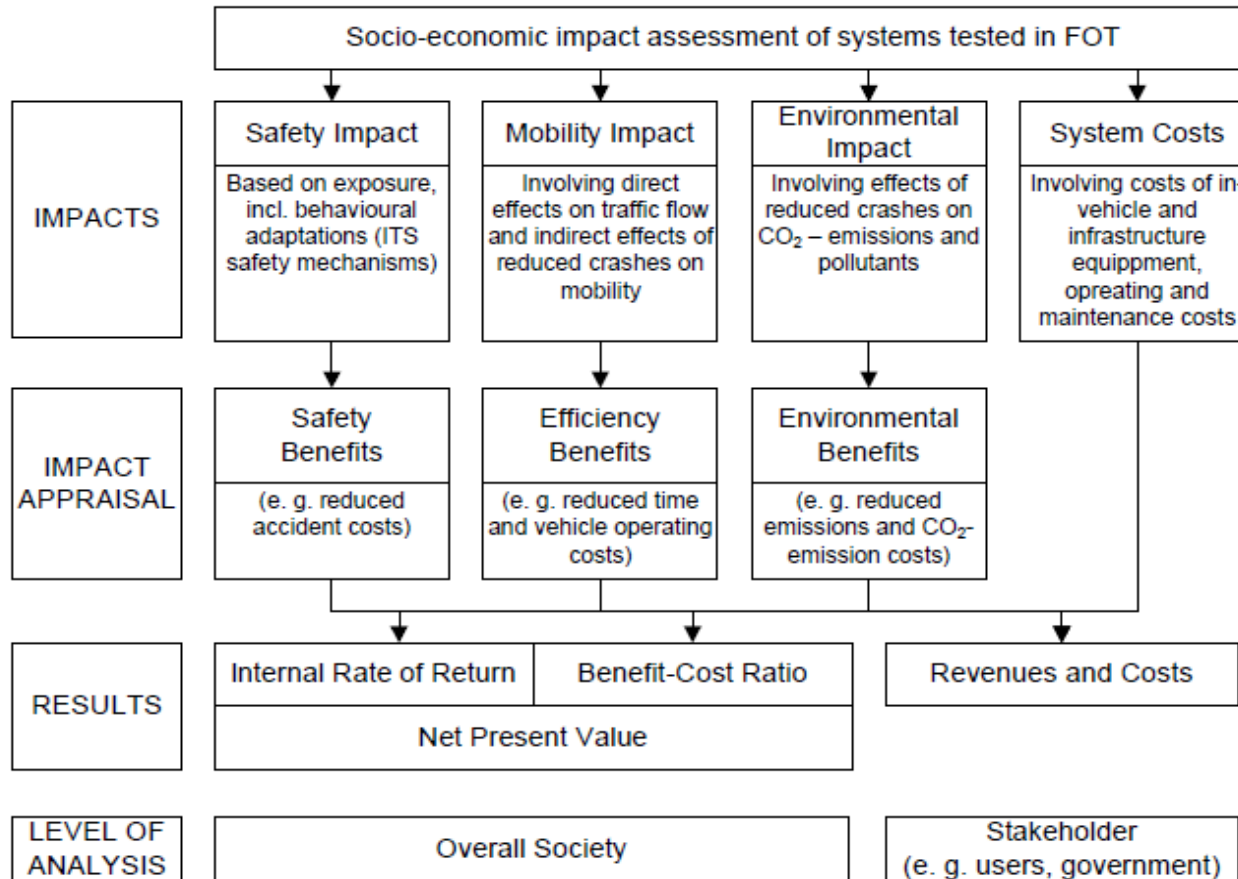
APPROACH IN IMPACT ASSESSMENT

- Previous phases in the FOT as starting point
 - Implementation of the functions in the test sites
 - Definition of the research hypotheses and data needs
 - Study design → Plan how to collect data and organise data for the analysis
 - Data collection
 - Several synchronised datasets with quality checking of the data
- Driver reactions to ITS in the focus
- Combination of methods to include the new results from field as part of a holistic expert assessment

IMPLICATIONS OF DRIVER BEHAVIOUR CHANGES



IMPACT ANALYSIS BY FESTA



IMPACT AREAS

- In “traditional” FOTs
 - Driver behaviour
 - Safety
 - Mobility (travel behaviour and patterns)
 - Efficiency (traffic flow)
 - Environment (emissions)

IMPACT AREAS

- In “traditional” FOTs
 - Driver behaviour
 - Safety
 - Mobility (travel behaviour and patterns)
 - Efficiency (traffic flow)
 - Environment (emissions)
- In AD FOTs
 - Drive behaviour (AV, transition AV2human, human)
 - Interaction with other road users
 - Situation awareness
 - Mobility
 - Travel behaviour & patterns
 - Transport system, incl. MaaS
 - Safety
 - Efficiency (traffic flow)
 - Environment (emissions)
 - Electric AVs?
 - Society
 - Built environment
 - Public health
 - Equality

EXAMPLE OF EXPECTED IMPACTS

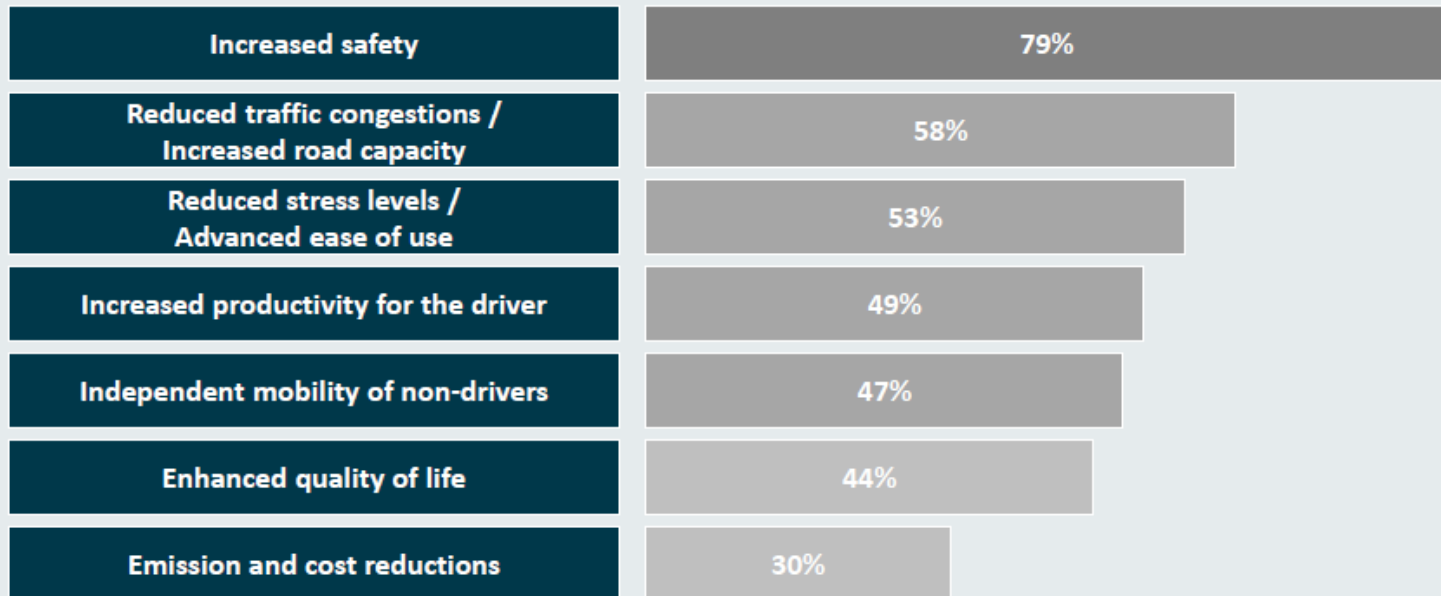


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According to you, what are the main benefits of autonomous driving? (Multiple choice)



CHALLENGES FOR IMPACT ASSESSMENT IN AV FOTS

- Some implications are due to impacts on other road users
 - Interaction between AV and VRUs & conventional vehicles
 - Behavioural adaptation of drivers of conventional vehicles?
- Many impacts take time to form
 - Mobility patterns (PT use, car ownership, harm of delays)
 - Transport system (new mobility services)
 - Land use (location of housing, parking facilities)
 - Public health (accessibility to health services, walking & cycling)
- How to measure or assess these?

COST BENEFIT ANALYSIS (CBA)

- Summarises benefits and costs at a societal level
- Phases
 - Preparatory work
 - Measuring impacts (positive and negative)
 - Appraising impacts in a common monetary value
 - Confronting the discounted benefits with the costs
- CBA framework
 - Definition of baseline - cases to be compared
 - Geographical scope – uses general data to extrapolate the findings from country level to EU level (network, fleet, traffic data; network models; accident data and costs)
 - Costs to be expressed for a common base year
 - Deployment scenario
 - Impact table

CHALLENGES FOR CBA

- How to estimate the benefits in terms of money?
 - Impacts of travel quality
 - Working/entertainment while travelling in AV
 - Land-use benefits?
 - Impacts on equality?
- How to estimate the costs?
 - Extra costs compared to what? (Baseline)
 - Whose costs? (Complex ecosystem)
 - E.g. should we include and how to estimate e.g. impact on life-cycle costs of AVs (operating, maintenance, infra requirements, etc.)?

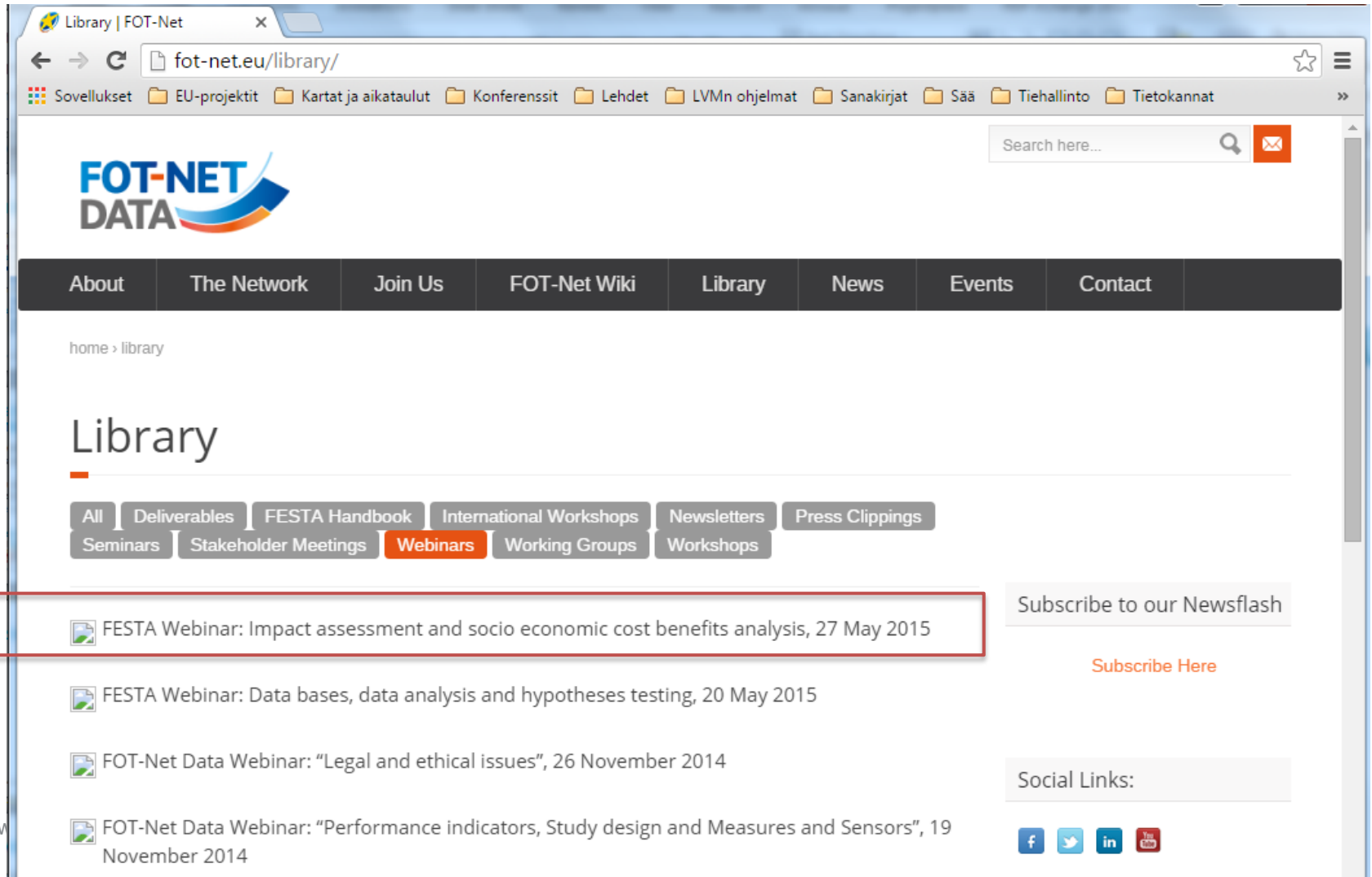
BENEFITS OF COMMON IMPACT ASSESSMENT FRAMEWORK

- Exchange best practices
- Design tests and studies to maximize the insight obtained
- Make better use of each others findings
- Enable meta-analysis
- Can arrange complementary evaluation across the world

The Trilateral Impact Assessment Subgroup for Automation in Road Transportation



WEBINAR MATERIAL AVAILABLE



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GROUP WORK

- Select an impact area and discuss where your focus would be in impact and socio-economic cost-benefit analysis
 - Select something new
- How would you proceed to determine the impact (method)?
 - What additional information would you need?
- How would you determine the benefits and costs in terms of money related to the impact?



For more information &
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