

# Urban Rail systems with optimized energy consumption

## ERRAC Evaluation Group – Checklist for the Risk Benefit Analysis of EU Projects

The ERRAC Evaluation Working Group has established a check list where they can assess the state of health of existing EU Funded Research Projects. The intention is to use the same list for evaluating on-going projects as well as for pre-evaluating the feasibility of projects during the preparation phase before they are submitted to the Commission.

### **The first set of check points are related to the ease of implementation.**

(The success of the project itself is taken for granted so the aim of the check points is to identify specific threats to the successful implementation of its results)

1. Why is the project being initiated?

The project will address excessive or inefficient use of energy within urban rail systems. It will further enhance and employ recently developed simulation tools to identify the most effective approaches to significantly reducing the energy consumption of urban rail systems. These identified approaches will be researched, implemented and demonstrated. Furthermore, new technologies for “green substations” will be developed.

2. By whom is the project being initiated?

Modenergy team (Modurban subproject) under leadership from Uwe Henning / Siemens

3. What are the objectives and forecast benefits?

See item 1 for the objectives.

- Improvement or solutions to reduce energy consumption in connection with equal level of passenger comfort

- Standardized methodology for energy related investigations in urban rail

4. How can that benefit be measured?

Using key performance indicators for energy consumption which are developed in FP6 Railenergy.

5. Who is taking the benefit?

- Benefit a is for the rail entire sector, operators and manufacturers, subpliers

- Society, via reduced CO2 emission

- passenger, by improving climate comfort

Who is taking the cost?

Costs are taken by the manufacturers which will design introduce new technologies, and by the operators which will buy these applications

6. How equitably are the costs and benefits being distributed? (i.e. a proper LCC analysis should be elaborated and agreed upon in the bid preparation or initial work phases)

**IMPORTANT NOTE:** with view on LCC, there will be a total cost reduction by reduced energy consumption, as well as reduced CO2 reduction.

This will give a return on investment for operators and industry in acceptable times.

7. Is any party going to lose anything if specific results are implemented?

This is a win-win process; nobody will lose anything when the results will be implemented.

8. Are all the real stakeholders for implementation of the results represented in the project or do they support the project in some other way?

All stakeholders are represented: operators and manufacturers

9. What are the consequences if part, or all, the implementation fails?

-The expected and needed energy reduction would be smaller.

-Increased levels of CO2.

10. Who is affected by these consequences of failure?

-Mainly operators due to increased level of energy bills

- Society due to higher CO2 emissions

11. Is there any up front investment necessary before the benefit can be taken? Surely yes, but refer to question 7 with a demonstrable and increased LCC. Only then should we start the full project.

Once project is finalised, no further investment in a precompetitive area is needed.

12. Is there anybody who has specific reasons to block implementation? (special interest groups or some potential industry partners excluded from the project?)

No

13. What are the reasons for their opposition? (Market protection, job protection, call on investment funding, etc...)

N/A

14. Is there a need to change laws or Technical Specifications for Interoperability in order to be able to implement the results?

Not know at this stage

15. How can the necessary changes best be implemented? (Through changes to Directives, national regulations or through the TSIs or mandatory or voluntary standards? What happens if there is no enabling legislation such as a Directive, as applied to most of the urban sector?)

N/A

16. What are the probabilities to succeed with the necessary changes to the law or TSIs? See 16

N/A

17. Are there any unknown parameters affecting implementation? (Fees, hidden costs or permissions required, etc...)

Not yet identified, unless energy costs will dramatically decrease

18. Is there a need to redesign products to gain any benefits from the project? See 12.

Will be part of cyclical product redesign and innovation implementation

19. Is there a need to make changes to already installed base of vehicles or infrastructure?

It depends on cost effectiveness to upgrade existing vehicles + infrastructure, but results will mainly focus on new vehicles + infrastructure

20. If there is no need to change the existing installed base, can the existing base be disadvantaged in any way?

No

21. Who pays for the above changes and how will investment be funded? LCC must demonstrate.

N/A

22. Is the project underwritten by all stakeholders, at an operational level, with an appropriate level of authority?

Currently expressed interest, not signed off at highest level yet

23. Are there any negative impacts of implementation foreseen which could threaten implementation in the longer term?

No

24. Are there any existing projects whose results could be in conflict with this one?

No, (see 26)

25. Are there any other projects supporting or depending on this one?

Supporting: Modenergy + Railenergy.

26. Are the results of the project immediately capable of implementation or is some additional research work likely to be required?

See 12

27. Can an 'Early Adopter' be identified and brought into the project from day one?

Not yet clarified

28. Are there any 'parallel' activities at the level of CEN/CENELEC/ETSI/IEC/ IEEE in this area?

No, on the contrary, this project would provide input to the standardization process

## The second set of check points deals with the project & threats to its future success.

(Economic and project auditing issues are excluded. Almost all of these items are required in the Bid documents and the agreed description of work negotiated with the Commission.)

29. Project participants (Composition of Consortium)

- AnsaldoBreda
- Siemens
- BT
- Alstom
- Knorr-Bremse / Merak
- Faiveley

Operators:

- LUL
- RATP
- Metro Madrid
- UITP
- VDV
- and possibly ATM (Milano)

Universities:

- Newrail
- CMM, Chile

30. Project mandate (Description of Work)

Not yet existing

31. Project organization (Management Structure)

Not yet existing

32. Representatives with an appropriate level of authority and expertise (Identified Experts)

Main experts of the Modenergy subproject participated in the creation of this project idea

33. Intellectual leadership of the project, system architecture, etc. (Technical Management)

Uwe Henning, Siemens

34. Mechanisms available to ensure that the project is not deviating from its original mandate and objectives within the defined review frameworks (Management Structure)

N/A

35. Measures taken to follow up deliverables are made on time and to the right quality (Project Quality Plan)

Will follow usual stringent project management quality using best practice from ongoing EU projects

36. Mechanisms to quickly and smoothly resolve conflicts within the project (Management Structure)

Will follow usual stringent project management quality using best practice from ongoing EU projects

37. Known sources of potential conflicts (Risk Assessment prior to contract signature)

Not yet identified

38. Any participant who may have an interest in failure of the project, should be identified at the Risk Assessment stage and mitigation measures considered

No.

39. Communication with the main stakeholders (Communication and Dissemination Plan)

N/A

### **The third set of questions could be industry or company specific**

(These are not normally made available for public use)

40. Who will pay for the proposed changes and how will investment be funded? If there is a market and demonstrable LCC, the companies will pay for changes, if not they won't and the project shouldn't start.

41. Is the project underwritten by all internal stakeholders, at an operational level, with an appropriate level of authority?

42. Are there any negative internal impacts of implementation foreseen which could threaten implementation in the longer term?

43. Are there any existing internal projects which could be in conflict with this one?

44. Are there any other internal projects supporting or depending on this one?

### **The fourth set of questions relates to completed projects researching into the same topic and deals with the degree of implementation achieved:**

45. Have the results already been implemented somewhere?

No

46. Have the results not been implemented in areas where similar conditions exist?

Not known

47. What are the reasons for this non-implementation? (Lack of funding, NIH, research overtaken by innovation, etc...)

N/A

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