



PRO INNO EUROPE

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LEARNING PLATFORM

**Good practice Identification –
Advice for transferability
Public Procurement
Luminaire Exchange 2:1 for the
Climate**

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EUROPE

Table of Contents

- CHAPTER I: Good practice identification..... 2**
- 1 General description of the good practice..... 2**
- 2 Please describe the selected good practice in terms of: 2**
 - 2.1 Uniqueness:..... 2
 - 2.2 Relevance:..... 3
 - 2.3 Effectiveness:..... 3
 - 2.4 User satisfaction: 3
 - 2.5 Recognition:..... 4
 - 2.6 Context dependency: 4
 - 2.7 Replication:..... 5

- CHAPTER II: Advice for transferability..... 6**
- 3 Introduction to the proposed action..... 6**
 - 3.1 What are the main actions to be promoted to meet the objective? 6
 - 3.2 What is the problem for which the cited measure is trying to provide an answer? 6
 - 3.3 What is the general status of the recognition in the market of the necessity to invest in the proposed policy theme? 6
 - 3.4 How is the main policy theme communicated in the market/which guidance material is already available? 6
 - 3.5 What is the expected outcome of the proposed actions? 7
- 4 The innovation policy measure and its context..... 7**
 - 4.1 National and regional governance: please provide a description of the modalities of implementation of the proposed actions. Examples of elements to be taken into account are the role of the institute, the nature and characteristics of that institute that are important for a successful implementation of the good practice. 7
 - 4.2 National and regional economic structure of the region where the practice has been developed. We are looking for the main factors for success for implementing the suggested measure. 7
 - 4.3 The policy measure itself: what was it all about? Who were the actors involved, what actions have been undertaken and which result and impact has been achieved?..... 8
- 5 The adaptability and transferability of the proposal 8**
 - 5.1 Why is it worthwhile to invest in the proposed action/tool? Did the feasibility study and good practice identification demonstrate substantial added value? 8
 - 5.2 If there is to be decided to invest in the proposed action/tool, what are the main factors to pay specific attention to? 9
 - 5.3 What is the expected impact of implementing the proposed action/tool? 9
 - 5.4 Based on the insights gained in the feasibility studies and good practice identification, what is the judgement/advice on the support that already has been created by stakeholders?..... 9
 - 5.5 What is the advice on how to disseminate the action/tool? 9

CHAPTER I: Good practice identification

1 General description of the good practice

“Luminaire Exchange 2:1 for the Climate” (Leuchtausch 2:1 fürs Klima®) is the city of Hamburg’s ambitious programme for upgrading lighting in the whole of the city’s public buildings. The programme was started in 1994 and its ultimate aim is to reduce CO2 emissions through energy efficiency. The programme’s name focuses on the fact that a standard public building lighting upgrade will typically reduce the lighting energy consumption by a factor of 2. Hamburg is one of the largest cities of Germany, and also serves the dual function of a federal state. Environmental concern is generally regarded as very high in Germany, and the programme offers the opportunity for all involved actors to contribute to a dramatic reduction CO2 emission through a win-win arrangement.

2 Please describe the selected good practice¹ in terms of:

2.1 Uniqueness:

Measure Name:		“Luminaire Exchange 2:1 for the Climate” (Leuchtausch 2:1 fürs Klima®)	
General description/rationale:			
Energy management for buildings of the public sector			
<ul style="list-style-type: none"> • central purchase of energy • technical measures with the help of investments • giving information and performing campaigns to reduce the use of resources by changing the behaviour • training and instruction energy controlling 			
Innovative characteristics as regards:			
Methodology	Organization	Function	Results end 2005
<ul style="list-style-type: none"> ⊃ setting economic conditions for the realisation “Climate protection is worth while” ⊃ analysing and optimising the proceedings and the purchase (e.g. spill over of procurement practice to industry) ⊃ exact and detailed instructions and standardisation for external services ⊃ lower investments by bulk purchase and 	<ul style="list-style-type: none"> ⊃ The programme is administered by the City’s Environmental Office ⊃ Investments of 3-5 Mio. Euro are available, plus investment loans / finance scheme: partial and complete financing 	<ul style="list-style-type: none"> ⊃ Hamburg utility (HEW) manages all the financial matters and is managed through the electricity bills. ⊃ The utility deals with project management, payment for the investment and financial transactions once the go-decision has been made. There is a thorough energy savings and carbon emissions reduction function in the programme and 	<ul style="list-style-type: none"> ⊃ renewal and modernisation of illumination in public buildings ⊃ lowering the costs of electricity with help of modern lightning techniques ⊃ lower investments ⊃ exchange of 220.000 lights ⊃ more than 502 projects ⊃ investments 27,4 Mio. € ⊃ savings 26,4 Mio. kWh per year

¹A technique or methodology that has proven to reliably lead to the result that has been aimed for; An activity or procedure that has produced outstanding results in another situation and could be adapted to improve effectiveness, efficiency, ecology, and/or innovativeness in another situation.

Europe-wide tender ↯linked-up contracts for external services (resp. 66,6%) ↯horizontal and programmatic proceeding		the Environmental Office supervises and publishes aggregate savings. It pays a small fixed fee to the expert for the first initial audit	↯savings 3,9 Mio. € per year / >60%
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2.2 Relevance:

Problem	Solution that was provided
↯High lighting energy consumption by public buildings ↯University and education buildings have installation requiring high lighting energy consumption ↯dramatic level of CO2	↯renewal and modernisation of illumination in public buildings ↯lowering the costs of electricity with help of modern lightning techniques

2.3 Effectiveness:

Between 1995 and mid-1999, around 20 million DEM had been invested in a total of 255 Hamburg public buildings. Of these investments, more than 30% went to schools and university buildings, with a typical payback time of 8-12 years. Since 1994, electricity prices dropped by approx 35% which put a lot of strain on the project finance, with a 20% price drop between 1994 and 1996. This cost reduction was achieved mainly through bulk purchasing but **also through increased efficiency in logistics, planning and design, which in an outcome of the learning process of all actors involved. As a consequence of the increased skills, lower costs, and high investments level**, the programme turns out more than 100 % profitability. A total reduction of more than 60% of lighting energy consumption **saves 3,9 Mio. € per year** and savings of approx. 26,4 Mio kWh electricity per annum have been achieved to-date.

The success of the programme is based on the following factors:

- ↯Clear political mandate and budget for innovative technologies in combination with a policy aim (sustainability, efficiency).
- ↯Professional, centralised process management
- ↯Horizontal approach: technological solutions for horizontal problems (in many buildings), not procurement for one single building
- ↯Combination of global markets and local services
- ↯Organisational specialisation: technical and economical expertise combined with strategic procurement process

2.4 User satisfaction:

User group	Primary target group (yes/no)	Feedback provided	Explanation for feedback
University and schools	yes	Very satisfied	public customer will not have to make any up-front investment
Stakeholders	yes	Very satisfied	“Luminaire Exchange 2:1 for the

			<p>Climate” of the City of Hamburg shows significant opportunities for reducing the energy consumed by lighting public buildings. Substantial savings of energy could be made if all existing lighting in offices and public buildings in the EU cities were upgraded to current practice for new installations; over half this energy could be saved if the upgrade was to best practice standards. The Hamburg stakeholders encourage European decision makers to make the incremental investment needed to achieve high-quality, energy-efficient lighting when they are renewing their lighting systems in their building/infrastructures. The stakeholders have also succeeded in promoting their project and making it know to other communities in Germany.</p>
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2.5 Recognition:

The project was awarded with the **European Greenlight-Award 2004**

2.6 Context dependency:

Specific characteristic /circumstance at hand	Solution that has been offered from within the action/tool	Explanation of the effectiveness of the provided solution
Old lighting systems	planning of lightening, quantity determination, supervision of construction at site done by engineers	development of optimal technical solutions by external consulting experts
No common lighting design	Development of lighting design criteria on the base of German DIN standard	Promotion of new technologies Harmonisation with the European CEN standard
Disparate supply system	Development of a sophisticated logistics system to handle transportation of luminaires from manufacturers to the site where they are needed	better purchase by quantity discount, rationalisation effects in project management and in the realisation
Need to maximise the economy of scale	technology-oriented, “horizontal” approach	Lighting, heating systems, appliances etc. are dealt with as separate technologies in parallel programmes, rather than in an integrated, whole-buildings approach
Disparate information on city’s lighting installations	common data-base and calculation tool (see 2.7)	greater environment impact by a wide-ranging realisation

2.7 Replication:

Hamburg has developed a programme tool called the “the Room Book” (Raumbuch). It is an on-line data base and calculation tool where data on all buildings are kept and as it grows, it provides a systematic source of previous experiences and an overview of the state of the lighting installations in the cities facilities. The Room Book is a copyright document which is currently licensed to other German states. As of September 1999, **Baden-Württemberg, Bremen, Hessen, Niedersachsen and Saarland have joined the programme and are utilising the “Room Book”, and the procurement methodology developed by Hamburg.**

Modalities of implementation to be respected

The modalities of this approach can clearly be transferred since other partners have already adopted similar approaches. Greater awareness of the issues surrounding energy efficiency and encouraging the growth of this sector of activity will ensure that more and more interest will be shown in these types of initiatives. For a successful implementation of this type of project elsewhere it is recommended to (i) look at the other “transferred projects” (see above) (ii) respect the horizontal approach of the initiative (procurement of technological solutions for horizontal problems in many buildings, not procurement for one single building), (iii) to combine the global market and local services, and (iv) to organise strategic procurement process by involving technical and economical expertises.

Expected outcome

Hamburg’s procurement methodology has been successfully transferred to other German regions mentioned above. However, the context in different region / city differs will differ from country to country. Therefore it is difficult to quantify the possible impact of the initiative in other European regions having their own economic characteristics. Nevertheless the types of positive impacts found in the original Hamburg case can be expected to be similar in nature in other city/countries.

Added value for investing in this initiative

Energy efficiency and environment are strategic issues for European society and even the world. It is a stated policy area in many transversal fields such as innovation, clusters, environment and of course the energy sectors and impacts on citizens and companies alike. The first added value is clearly a response to a policy priority with a concrete practical project. Investing in this type of initiative will not only allow to renew and modernise the lighting systems (or other energy consuming products) in public buildings but can contribute to lowering the costs of electricity by using modern lightning technologies and to maximise the economies of scale. The saving of 3,9 Mio. € per year achieved in Hamburg could be an important asset for the regional /local stakeholders wishing to transfer the Hamburg’s practice.

CHAPTER II: Advice for transferability

3 Introduction to the proposed action

3.1 What are the main actions to be promoted to meet the objective?

- To create convergence and synergy between the (public) procurement and innovation policy communities;
- To develop awareness building and disseminate, good practices/handbooks/training/ coaching on procurement for innovation;
- To help innovative firms (including SMEs) develop lead markets;
- To pilot/ initiate trans-national cooperation in procurements for innovation;
- To address societal challenges through the introduction of new and better solutions;

3.2 What is the problem for which the cited measure is trying to provide an answer?

In general:

- Unfamiliarity with innovation;
- Risk averseness;
- No mandate for innovation procurement;
- Immaturity of the concept;

“Luminaire Exchange 2:1 for the Climate” of the city Hamburg:

- dramatic level of CO2 emission;
- University and education building have installations requiring high lighting energy consumption;
- High lighting energy consumption by public building;

3.3 What is the general status of the recognition in the market of the necessity to invest in the proposed policy theme?

The use of public procurement to enhance innovation has recently seen a significant increase in political discussions. The Lisbon Progress Report highlighted the need for “using public procurement more as leverage to promote innovative private sector solutions” including it as part of Action 1 “Investing more in knowledge and innovation.” The Aho2 report confirmed the need for action in this field calling upon governments to “use public procurement to drive demand for innovative goods, while at the same time improving the level of public services.”

3.4 How is the main policy theme communicated in the market/which guidance material is already available?

There are no similar initiatives or projects currently underway that replicate the proposed initiatives. There is however a series of Networks, projects and studies that could play a part in developing these ideas and in launching the project with interested actors.

There are also some studies and handbooks about public procurement. For example the EU "Guide on dealing with innovative solutions in public procurement: 10 elements of good practice" provides useful indicators of gaps in current procurement practices and areas of interest that could be areas of focus for the initiatives proposed under thematic area.

3.5 What is the expected outcome of the proposed actions?

The following outcomes are expected from the proposed action:

- Creating communities: bringing together policy makers from innovation and procurement domains.
- Dissemination of good practices: Exchange of good practice through handbooks, training, brochures, portal.
- Awareness raising: Getting and keeping it on the political agenda.
- Learning and capacity building: Through network meeting, training and community building.
- Trans-national pilot projects.

4 The innovation policy measure and its context

4.1 National and regional governance: please provide a description of the modalities of implementation of the proposed actions. Examples of elements to be taken into account are the role of the institute, the nature and characteristics of that institute that are important for a successful implementation of the good practice.

Nr	Step Name	Short description
1	Identify potential partners PRIOR TO A PRO INNO CALL	Identify 1-2 lead partners who attract other participants
2	Build network AS PART OF PROINNO CALL AND AS PART OF THE PROJECT	Bring together appropriate stakeholders (network meetings)
3	Develop common action plan	Set targets and milestones for network
4	Develop first deliverables for dissemination of good practice	Define actions and experts/stakeholders who can develop the agreed deliverables
5	Set up of sectoral groups	Define dedicated sectoral groups
6	Build sustainable learning platform	Database of experts, portal, training material, handbooks will maximise the project impacts

The modalities of this approach can clearly be transferred since other partners have already adopted similar approaches. Greater awareness of the issues surrounding energy efficiency and encouraging the growth of this sector of activity will ensure that more and more interest will be shown in these types of initiatives. For a successful implementation of this type of project elsewhere it is recommended to (i) look at the other “transferred projects” (ii) respect the horizontal approach of the initiative (procurement of technological solutions for horizontal problems in many buildings, not procurement for one single building), (iii) to combine the global market and local services and (iv) to organise strategic procurement process by involving technical and economical expertises.

4.2 National and regional economic structure of the region where the practice has been developed. We are looking for the main factors for success for implementing the suggested measure.

Germany has the most important economic power in the world after the US and Japan.

The success of the programme is based on the following factors:

- ✧ Clear political mandate and budget for innovative technologies in combination with a policy aim (sustainability, efficiency);
- ✧ Professional, centralised process management;
- ✧ Horizontal approach: technological solutions for horizontal problems (in many buildings), not procurement for one single building;
- ✧ Combination of global markets and local services;
- ✧ Organisational specialisation: technical and economical expertise combined with strategic procurement process;

4.3 The policy measure itself: what was it all about? Who were the actors involved, what actions have been undertaken and which result and impact has been achieved?

“Luminaire Exchange 2:1 for the Climate” (Leuchtentausch 2:1 fürs Klima®) is the city of Hamburg’s ambitious policy for upgrading lighting in the whole of the city’s public buildings. The policy was launched in 1994 and its ultimate aim is to reduce CO₂ emissions through energy efficiency. The policy’s name focuses on the fact that a standard public building lighting upgrade will typically reduce the lighting energy consumption by a factor of 2. Hamburg is one of the largest cities of Germany and also serves the dual function of a federal state. Environmental concern is generally regarded as very high in Germany and the programme offers the opportunity for all involved actors to contribute to a dramatic reduction CO₂ emission through a win-win arrangement.

Results:

- ✧ renewal and modernisation of illumination in public buildings
- ✧ lowering the costs of electricity with help of modern lightning techniques
- ✧ lower investments
- ✧ exchange of 220.000 lights
- ✧ more than 502 projects
- ✧ investments 27,4 Mio. €
- ✧ savings 26,4 Mio. kWh per year
- ✧ savings 3,9 Mio. €per year / >60%

5 The adaptability and transferability of the proposal

5.1 Why is it worthwhile to invest in the proposed action/tool? Did the feasibility study and good practice identification demonstrate substantial added value?

The substantial added value of the programme is the following:

Energy efficiency and environment are strategic issues for European society and even the world. It is a stated policy area in many transversal fields such as innovation, clusters, environment and of course the energy sectors and impacts on citizens and companies alike. The first added value is clearly a response to a policy priority with a concrete practical project. Investing in this type of initiative will not only allow to renew and modernise the lighting systems (or other energy consuming products) in public buildings but can contribute to lowering the costs of electricity by using modern lightning technologies and to maximise the economies of scale. The saving of 3,9 Mio. €per year achieved in Hamburg could be an important asset for the regional/local stakeholders wishing to transfer the

Hamburg's practice. The initiative provides also bridges between different communities who do not interact yet.

5.2 If there is to be decided to invest in the proposed action/tool, what are the main factors to pay specific attention to?

- Cooperation with external consulting experts for the development of optimal technical solutions.
- New technologies must be in harmonisation with the European CEN standard.
- Participation of a whole region: greater environment impact.

5.3 What is the expected impact of implementing the proposed action/tool?

“Luminaire Exchange 2:1 for the Climate” will cause renewal and modernisation of illumination in public buildings. It lowers the costs of electricity with help of modern lighting techniques. It decreases also the investments. Hamburg's procurement methodology has been successfully transferred to other German regions: **Baden-Württemberg, Bremen, Hessen, Niedersachsen and Saarland**. However, the context in different region/city differs will differ from country to country. Therefore it is difficult to quantify the possible impact of the initiative in other European regions having their own economic characteristics. Nevertheless the types of positive impacts found in the original Hamburg case can be expected to be similar in nature in other city/countries.

5.4 Based on the insights gained in the feasibility studies and good practice identification, what is the judgement/advice on the support that already has been created by stakeholders?

“Luminaire Exchange 2:1 for the Climate” of the City of Hamburg shows significant opportunities for reducing the energy consumed by lighting public buildings. Substantial savings of energy could be made if all existing lighting in offices and public buildings in the EU cities were upgraded to current practice for new installations; over half this energy could be saved if the upgrade was to best practice standards. The Hamburg stakeholders encourage European decision makers to make the incremental investment needed to achieve high-quality, energy-efficient lighting when they are renewing their lighting systems in their building/infrastructures. The stakeholders have also succeeded in promoting their project and making it know to other communities in Germany.

5.5 What is the advice on how to disseminate the action/tool?

“Luminaire Exchange 2:1 for the Climate” City Hamburg is an interesting initiative. Energy efficiency and environment are strategic issues for European society and even the world that become more important every year. The project caused renewal and modernisation of illumination in public buildings. It lowers the costs of electricity with help of modern lighting techniques and so decreases the investments. There will be a great amount of saved money because of the initiative. The project is relative easy to transfer to other regions and is already successfully transferred to other cities in Germany. Also other energy consuming products can be the scope of the initiative.