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Review of funding schemes for SMEs in technology verification

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CONTENT

CONTENT.....	I
LIST OF FIGURES	III
LIST OF TABLES	III
LIST OF ANNEXES	III
EXECUTIVE SUMMARY	I
1 INTRODUCTION.....	1
2 TASK 1: DESCRIPTION OF POSSIBLE FUNDING FOR VERIFICATION.....	3
3 TASK 2: IDENTIFICATION OF MAIN FUNDING SCHEMES FOR SMES IN MEMBER STATES	11
4 TASK 3: DESCRIPTION OF EACH SELECTED FUNDING SCHEME	13
5 TASK 4: ANALYSIS AND RECOMMENDATIONS.....	14
LITERATURE.....	31
ANNEXES.....	33

LIST OF FIGURES

Figure 1: EU scheme for the ETV process	4
Figure 2 Funding support for SMEs within the EU	23
Figure 3 Number of schemes with no technology restrictions	25

LIST OF TABLES

Table 1: Cost factors for the technology applicant in the ETV process	6
Table 2: Potential types of funding for the technology applicant in the ETV process.....	10
Table 3: Number of funding schemes identified per Member State	12
Table 4 : Funding schemes that include technology verification issues.....	16
Table 5: Funding schemes that “probably” include technology verification issues.....	18
Table 6: Overview of the number of funding schemes potentially supporting ETV.....	21
Table 7 Member states with particular shortage of funding schemes	24
Table 8 Budget analysis of schemes with no restrictions.....	26

LIST OF ANNEXES

Annex 1: Questionnaire sent out to the funding institutions

Annex 2: European Commission letter

EXECUTIVE SUMMARY

Arcadis and AEA are pleased to present to the European Commission the final report from the “Review of funding schemes for SMEs in technology verification” project.

The overall aim of this project was to establish how many funding schemes there are for SMEs within the European Union, which could support an SME undergoing the process of Technology Verification. This is in light of the ECs proposals to establish a EU wide Environmental Technology Verification system (ETV). An ETV system provides credible performance data for commercial-ready environmental technologies to speed their implementation for the benefit of purchasers, permittees, vendors and the public.

The project was split into the following tasks:

- Task 1 focused on the analysis of available information on potential types of funding which could be used to support SME's in undergoing technology verification.
- The second task looked at the main funding schemes for SMEs within the 27 Member States which could potentially provide the necessary support for ETV.
- In Task 3, the identified funding schemes were analysed in greater detail.
- The final task provided an analysis and recommendations on whether existing funding schemes could provide reliable support to SMEs undergoing ETV.

In Task 1 information was collected from existing ETV schemes and relevant literature, to identify possible timescales and costs involved in a typical ETV case, as well as the various steps involved in ETV and possible funding sources. Regarding the scope and meaning of the verification procedure, several approaches are possible for defining the technical specifications to be verified. These approaches were categorised in three models; the US model, the Canadian model and the mix model. Based on these models, and existing reports, an average cost of 89.300 euro for verification and testing was estimated.

Task 2 identified a total of 165 funding schemes supporting SMEs. In Task 3, these funding schemes were analysed in further detail. For this task, we expanded the reach of Task 2, including the objectives of each scheme, the eligible costs, conditions and criteria for support, and expected evolution in the future. We also made an evaluation of the available information in order to assess whether or not each scheme could provide support to ETV. In order to achieve this, specific attention was paid to possible support to technology verification, costs possibly compensated and limitations or conditions for support. This information was obtained through email and telephone questionnaires, to which 20 schemes responded.

In total, 84 schemes out of the 165 identified could provide support to technology verification. However, only for eight cases can it be concluded in an affirmative way that the funding scheme includes technology verification issues. This low number is not surprising as fund managing authorities usually only include references to existing and well know activities in their guidelines. For 14 more schemes it can be concluded that they “probably” include technology verification issues. This conclusion is drawn when very similar activities are covered by the fund, e.g. in the case of R&D / Innovation funds that provide funding for the last stages of bringing the innovations to the market, such as patenting and marketing costs.

The below table highlights those EU Member States with a particular shortage of schemes which could support ETV.

Member State	Number of schemes identified	Number of schemes that could provide potential support to ETV
Bulgaria	1	1
Czech republic	6	2
Denmark	7	2
Estonia	5	2
Greece	2	1
Ireland	6	1
Hungary	3	3
Italy	5	2
Latvia	4	2
Lithuania	4	2
Malta	7	2
Romania	3	1
Slovenia	3	1

For those Member States with shortages of funds that could potentially support ETV, it was found that ownership of funds mainly lay in the hands of private sector financiers (mainly banks) and the range of targeted measures is very limited. Reasons for limited range could be that there is a gap either in the supply side or it could be a lack of credible articulated demand. In the cases where the Member States had a good number of identified funding schemes with a shortage on funding schemes to support ETV (e.g. Czech Republic), it was recognised that the many funding schemes were mainly part of a larger scheme that were specifically categorised to explicitly cite the main purpose of funding. An analysis was carried out on the number of schemes which exist with no technology restrictions. It was found that 18 such schemes exist, with eight of the 27 Member States being represented.

In order to facilitate the use of funding schemes that could potentially support ETV, we identified a range of recommendations, including fostering policy learning by identifying and spreading good practices, extending the outreach of current funding programmes, and changing the criteria of current schemes.

1 INTRODUCTION

1.1 ENVIRONMENTAL TECHNOLOGY VERIFICATION (ETV)

Innovative environment-friendly technologies are needed to address the environmental challenges faced by Europe and the world, such as climate change, scarcity of natural resources and the loss of biodiversity. At the same time, developing and using these technologies opens up new technology fields and creates new business opportunities.

However, convincing the market of the merits of a particular environmental technology is not an easy task for the technology provider. This is especially true for SMEs. The market up-take of eco-innovation is often hindered by perceived risks, lack of awareness of their economic and environmental benefits or lack of skills or preparation to use them efficiently.

An established mechanism to objectively validate the performance of environmental technologies could facilitate this market up-take of innovative technologies and would certainly increase buyers confidence in new technologies¹.

ETV systems have been established in the USA and Canada and are disseminating in Europe and globally (eg. initiatives in Japan, Singapore, Korea). The schemes in Europe involve:

- Verification and certification programmes focussing on monitoring techniques: MECERTS (UK), UBA type-approval system in Germany, ACIME (France).
- Customer focussed schemes (verifying and evaluating measurement technologies based on customer needs): EXERA (France), EI (UK), WIB (the Netherlands).

The European Commission is considering a unified EU-wide ETV system, targeting environment-friendly technologies ready for the market. With such a procedure, technology vendors could more easily obtain acceptance/authorisation for their technologies in new markets, and technology users would have more security regarding the performance of new technologies.

Environmental Technology Verification systems (ETV) are designed to offer credible verification of the performance and potential environmental impacts of new technologies. They are generally voluntary systems, based on qualified third parties and recognised procedures, ensuring the reliability of their assessment of technologies. They are flexible enough to meet the different requirements and market situations of the technologies addressed.

ETAP Newsletter N°9, November 2007

In order to fully understand the scope of ETV, the definitions of Environmental Technologies and of Verification need to be clear. They are presented in the following boxes.

¹ EC, DG ENV (2004)

For the purpose of the consultation, verification is to be understood as the independent quantitative assessment of the performance of an environmental technology, based on performance claims or pre-determined protocols.

It is to be distinguished from certification, which aims at guaranteeing that a technology meets technical standards or regulatory requirements permanently.

Verification is most useful in areas where standards do not exist, in which case it may act as a standard precursor for specific products, tools or instruments, or in areas where standards are normally not applied.

Consultation paper on an EU system for ETV, 11/2007

The definition of environmental technology refers to environmentally sound technologies as stated in Chapter 34 of agenda 21. They are defined as those technologies whose use is less environmentally harmful than relevant alternatives².

Environmentally sound technologies protect the environment, are less polluting, use all resources in a most sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable manner than the technologies for which they were substitutes.

Agenda 21, Chapter 34

The main objectives of the ETV scheme can thus be stated as³:

- To provide technology developers with the possibility to have a reliable third-party verification of the environmental performance of their new technologies, thus increasing their credibility vis-à-vis customers and facilitating their market take-up.
- To provide technology users, customers and public authorities with reliable information on innovative environmental technologies, thus facilitating their acceptance by the end-users, allowing to compare and possibly benchmark technologies thus ultimately protecting the environment better.
- To provide the high level of recognition, both within the EU and internationally, allowing technologies to be accepted on different markets on the basis of one verification.

The EU ETV system would begin in a few thematic areas and would enlarge its scope progressively. Based on research projects in this field and on the experience of the US and Canadian systems, potential areas for the initial stage include monitoring techniques (such as continuous emission monitors or water quality control), waste water treatment technologies, equipments for renewable sources of energy and energy efficiency, air pollution abatement technologies including Greenhouse Gas abatement, clean technologies including waste and resource recycling⁴.

² EC JRC - IPTS (2007)

³ EC JRC - IPTS (2008)

⁴ EC DG ENV (2008a)

1.2 ETV POLICY CONTEXT AND DEVELOPMENT

At the beginning of 2004, the European Union adopted the Environmental Technology Action Plan (ETAP) to improve the development and wider use of environmental technologies (which were described as "*all technologies whose use is less environmentally harmful than relevant alternatives*"). Implementing the ETAP will entail various actions, one of which involves improving testing and performance verification related to environmental technologies (chapter 4.1.3. in the ETAP communication⁵). In this respect, the objective would be to provide a European framework for verifying the performance characteristics of new environmental technologies through commonly recognised and transparent protocols.

DG ENV dedicated the third ETAP conference to ETV. Following on from this, several research initiatives on ETV in different fields have been set with the assistance from EC DG RTD: PROMOTE, EURODEMO, TestNet and AIRTV.

Two consultations and a number of workshops were organised, aimed at gathering the views of various businesses and other interested parties on the main options identified for a EU wide ETV system. These were used to feed into a Commission initiative in 2008, the results of which results are available in the consultations analysis report of July 2008.⁶

DG JRC/IPTS has published a report analysing various aspects of ETV systems in 2007, and has recently finalised a study on the costs of ETV systems thus contributing to the impact assessment report of an EU scheme for ETV⁷.

⁵ EC DG ENV (2004)

⁶ EC, DG ENV (2008b).

⁷ EC, JRC - IPTS, 2008

1.3 OBJECTIVES

As indicated in the Terms of Reference, the cost and benefits of the implementation of an ETV system should be assessed by some means. Depending on the field of technology, the costs of a technology verification procedure can be high for an SME. The possibility to support SMEs submitting innovative technologies for verification through a new scheme but using existing supporting mechanisms is one of the scenarios in the cost benefit analysis that should be examined.

The objectives of this project were therefore:

- To review existing funding schemes in Member States.
- To analyse the extent to which these schemes could off-set the cost of undergoing a technology verification procedure for a SME and the conditions possibly attached to this support.
- To make recommendations on whether existing funding schemes could provide reliable support to the implementation of the EPV scheme in SMEs.

2 TASK 1: DESCRIPTION OF POSSIBLE FUNDING FOR VERIFICATION

Several technology verification systems are already established in the world. In particular, the US Environmental Protection Agency and Environment Canada have been running such programmes for a decade. More recently, South Korea and Japan have launched similar programmes (on a pilot basis in the case of Japan).

Some Member States have established schemes which, although not addressing the whole scope or the same objectives of ETV, fulfil related needs. In the field of monitoring techniques in particular, three Member States have established verification or certification programmes (MCERTS in the UK, UBA type-approval system in Germany, ACIME in France) and, for two of them, have laid down arrangements for mutual recognition of the schemes.

Some associations of industrial customers (EXERA in France, EI in the UK, WIB in the Netherlands) have also put in place a similar system, verifying new control and measurement technologies based on customers needs.

An EU system would build on existing schemes and use existing capacities and skills as far as possible, extending their benefits to the whole single market and ensuring a high level of recognition both within Europe and potentially worldwide. The main features of such an EU scheme are presented in chapter 2.1, where the verification process itself is analysed. In chapter 2.2 specific costs for the technology are attributed to the verification process steps and in chapter 2.3 the types of funding possibly covering those costs are analysed.

2.1 VERIFICATION PROCESS

Based on the research done by IPTS, at this stage it seems that a possible EU scheme should be based on the following operational principles⁸:

- The ETV scheme verifies the claim put forward by the technology developer or vendor, after review of the claim to ensure that it addresses the relevant technical information and environmental impacts;
- The verification itself is based on the assessment of test data provided by the technology developer or vendor, following quality assurance procedures;
- If further tests are needed to assess the claim, a qualified laboratory performs the additional tests; available protocols and test standards are used whenever relevant;
- At the end of the process, a synthesis report is made publicly available describing the technology and performance claim and a certificate awarded to the technology vendor for use in business-to-business relations.

Those different steps are presented in Figure 1.

⁸ EC DG ENV (2008a)

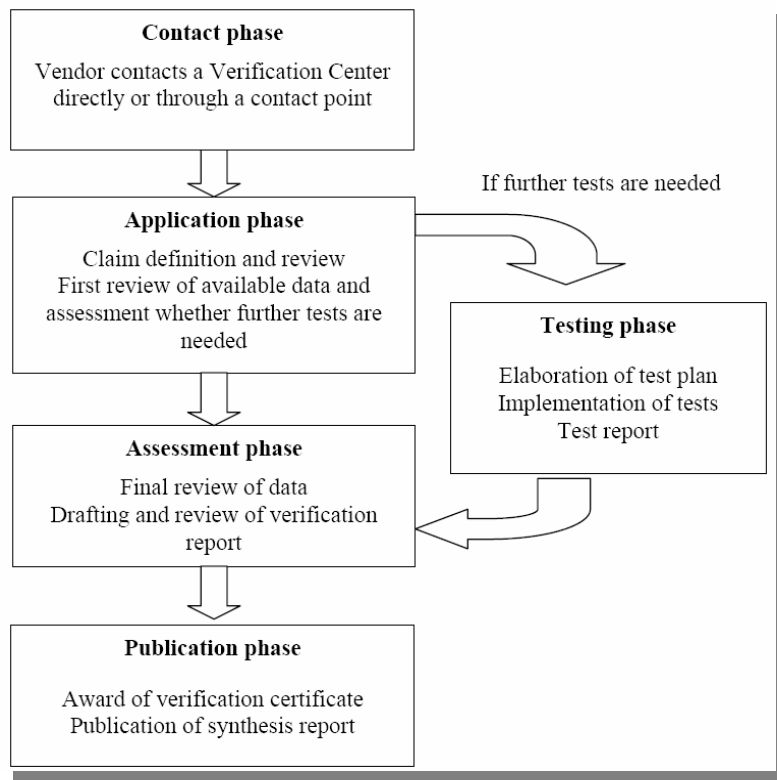


Figure 1: EU scheme for the ETV process

The ETV scheme in the USA identifies some additional steps in the ETV process, which are not to be integrated by the European ETV system:

Steps prior to the actual ETV process (according to the US EPA-model), related in the first place to the verification organisation and stakeholders (if applicable):

- Identification of area-specific technology categories across all environmental media — air, water, and land.
- Identification of verification factors: Once a technology category is accepted for verification, stakeholders identify the verification factors, or performance considerations, about which purchasers and permittees need information to make decisions.
- Verification protocol: When the full list of verification factors has been identified, a verification protocol is usually developed by the verification organization. The protocol is either based on existing test procedures or is newly developed. Stakeholders and panels of technical experts review the protocol to determine whether the data to be collected in the verification test will definitively address the verification factors when published in the final verification report. In some cases, the protocol is developed prior to testing. In other cases, a generic protocol is developed after the verification is complete and reflects lessons learned during the testing experience.
- Test/quality assurance plan: Once vendors and their products are identified for a particular test event, a test/quality assurance plan is developed by the verification organization and the vendors. Sometimes, a generic verification protocol is developed prior to testing and the test/quality assurance plan is based on the protocol. Other times, the test/quality assurance

plan is developed first, prior to testing, and a generic verification protocol is developed after verification is complete. If the technology is tested in the field, the test site is generally identified when the test/quality assurance plan is developed so that the plan can be tailored to a particular test location.

- **Testing:** once the test plan is developed, the tests need to be performed in order to generate the necessary data.

Step after the actual ETV process: Outreach: The technology vendor is usually solely responsible for outreach activities related to the performance verification of their product. However, companies and products that have been verified by the verification organisation are sometimes posted on the website of the verification organisation.

Regarding the scope and meaning of the verification procedure, several approaches are possible for defining the technical specifications to be verified. These approaches were categorised in three groups or models⁹:

- **The US-model.** In this model, the verification is based on generic protocols defined for a group of technologies, providing guidance for the testing of technologies in this group, ensuring the reproducibility and comparability of test results, and the level of quality required for verification (following the main line of the US EAP programme).
- **The Canadian model,** in which the verification is based on verification claims, prepared by the technology developer in agreement with the verification organisation, defining in details the technical specifications representative of the performance of the technology and the exact conditions of use under which these specifications should be met, as a basis for quantitative tests and verification (following the main line of the Canadian programme).
- **The mix model,** in which the verification is based on verification claims, prepared by the technology developer and reviewed by the verification organisation before agreement, with a view to check that the claim gives a fair and complete picture of the technology, possibly integrating additional specifications recommended by groups of stakeholders or stemming from a basic and standardised screening of the environmental impacts over the whole life-cycle of the technology (intermediary approach between the 'US' and 'Canadian models').

⁹ EC JRC – IPTS (2008)

2.2 COSTS FOR THE TECHNOLOGY APPLICANT / VENDOR

One of the critical points for the success of the ETV scheme is the cost for the applicants, with the probable consequence that other sources of funding will be required.

The cost to verify a technology includes two major components: testing and reporting. The other costs to verify a technology, such as audits, inspections, and test plan development, are not as significant as the testing and reporting costs (NSF, 2008; Klicius, 2007).

The cost of an ETV test can be shared by the applicant / vendor, verification organisation, and other collaborators. To the extent that other partners can provide in-kind or funding contributions to an ETV verification test, the verification fee for vendors can be reduced (NSF, 2008).

The cost of testing (to produce the reliable data required) is usually paid directly to the testing organization and analytical laboratory by the applicant (ETV Canada, 2008b). Verification fees paid by the applicant to the verification organisation can include different items such as a formal application fee, the actual costs of verification, a renewal fee, etc. (ETV Canada, 2008b):

Based on the different possible steps in the actual ETV process (according to the EU scheme), different cost factors for the technology vendor / applicant such as human capital, administrative costs, operational costs, etc. can be distinguished (Table 1:). For the “pre-steps” in the ETV process, the technology vendor often has no direct costs, except indirectly via the verification fee, of which money is also used to fund these pre-steps.

Table 1: Cost factors for the technology applicant in the ETV process

<i>Step in verification process</i>	<i>cost for the technology vendor</i>
Contact phase	Human capital costs (staff time, possibly hiring or training of new staff).
	Administrative costs (travels, papers, communication, etc).
	via verification fees
Application phase	Human capital costs (staff time, possibly hiring or training of new staff).
	Administrative costs (travels, papers, communication, etc).
	via verification fees
Testing phase	Transport of equipments if tests are not on-site
	Hiring of equipments (monitoring, data collection and analysis).
	Training of external staff (of labs for example) to the technology tested.
	Time of internal staff required to follow the tests.
	Possible impact on other activities in the company (if tests on-site or if equipment shared with production, etc).
	Laboratory costs.
	Costs for the set up of tests.
	Data collection and monitoring costs.
	Human capital costs (staff time, possibly hiring or training of new staff).
	Administrative costs.
	via verification fees
	Costs linked to services to be delivered by a third party.

	(R&D costs, in case the testing phase shows that the technology does not work properly, and further R&D is necessary)
	(Investment costs, in case the testing phase shows that the technology does not work properly, and further investments are necessary)
Assessment phase	Human capital costs (staff time, possibly hiring or training of new staff).
	Administrative costs.
	via verification fees
Publication phase	Human capital costs (staff time, possibly hiring or training of new staff).
	Administrative costs (travels, papers, communication, etc).
	Marketing costs.
	via verification fees

An estimation of the amount of time and costs involved in a typical ETV case is not possible in absolute figures, but some ranges are available in literature. It is however not always clear what's included in these verification costs:

- 3,000 – 20,000 EUR (Ertel, 2007).
- In EU: 5,000 – 20,000 EUR: verification costs for the vendors, without costs of testing, which is mostly between 10,000 – 70,000 EUR depending on the technology (EC, DG ENV, 2008a).
- In USA: 2,500 – 71,000 EUR: verification costs for the vendors (EC, DG ENV, 2008a).
- In Canada: 10,650 - 14,200 EUR: verification costs for the vendors which accounts for about half of the true cost of verification (= 20,000 – 30,000 EUR) and without costs of testing, which can be up to 71,000 EUR depending on the complexity of the technology (EC, DG ENV, 2008a; ETV Canada, 2008b):
 - CAD\$ 2,000 (1226 EUR): formal application fee: half of it is non-refundable and the other half is credited to the applicant if verification is pursued.
 - CAD\$ 15,000 - 20,000 (9,200 – 12,600 EUR): actual cost of verification (this includes the work done by the verification entity); this amount also includes the cost for the production and printing of 400 copies of the Technology Fact Sheet (CAD\$1,500); 200 of the 400 copies are kept by ETV Canada for promotion purposes.
 - CAD\$ 2,000 (1226 EUR): renewal fee for every three year period.
- 5,000 – 30,000 EUR would be principally acceptable if benefits are visible (May, 2007).
- 5-10% of the marketing budget (May, 2007).

Important issues with regard to costs are (May, 2007):

- The acceptable costs for the vendors are depending on the quality, public acceptance and marketing effect of the program.
- The costs for tests should be fully or partly publicly-funded in order to ensure the neutrality of test labs.
- For companies with a focus on international markets, additional costs arise for the harmonization of existing ETV systems and a new European ETV system.

The most recent cost estimates were evaluated in the IPTS study¹⁰, estimating the approximate yearly costs of a running ETV system, structured following the three ETV models as presented in chapter 2.1., disregarding any costs related to the system's inputs or output. However, the system's frontiers were chosen in such a way that testing costs for tests carried out independently by the producer were not considered as ETV costs.

For the mix model, they estimated the average total costs of 44.300 euro per verification, including information diffusion, stakeholders, general management, quality management, claim and technology eco-profile, and verification/reporting/award (annex V of the IPTS study).

However, all cost elements that can vary significantly from one verification case to another (for example, testing, protocol, test plan development, stakeholder workshop) are not included in the calculation, since they do not form part of this model.

In the EU ETV model, the vendor has already executed the testing and accompanying protocol and test plan, before he enters the system. These may however be required by the system administrator if the data provided by the vendor do not meet the system's quality assurance requirements, or they do not cover some crucial performance parameter. This means that the vendor/producer of the technology will have to assume the responsibility of a part or of the totality of these costs. Information on these costs was provided by the US scheme, and are estimated as 45.000 euro average per verification (chapter 4.6.).

This brings the total vendor's cost up to an average of 89.300 euro for verification and testing.

¹⁰ EC JRC – IPTS (2008)

2.3 TYPES OF FUNDING FOR THE DIFFERENT STEPS IN THE ETV PROCESS

In general, funding bodies can be public (EU; national; regional; local) or private: banks; business angels; venture capital; industry) (Davies, 2007).

Several types of funding exist that can be used to reduce the amount of own capital needed for the funding of a technology verification:

- Grants (US EPA, 2005; Davies, 2007; US EPA, 2008b; ETV Canada, 2008c):

Grants are a financial aid, dispersed by one party, often a Government Department, Corporation, Association, Foundation or Trust, often to a business, a non profit entity or an educational institution. It is the most interesting funding option for companies. In order to receive grants however, they need to go through an application process, which generally requires some form of Grant Writing often referred to as either proposals or submissions.

- Can be granted by the national, regional or local governments (also called subsidy), associations and foundations.
- Some are granted annually; others are not regularly granted.
- Some are granted specifically for one type of (environmental) technology, others have a more general application field.
- Some are granted by a case-by-case basis.
- Some are granted in phases: e.g. the EPA's Small Business Innovation Research (SBIR) program: in the first phase, a company receives seed money to prove that its new idea can work. In the second phase, the company receives further funds to move the technology to the marketplace.
- Some involve the reimbursement of expenses (often only development costs); in some cases this reimbursement is usually reinvested in new technology.
- Some can involve a loan interest subsidy.

- Loans (Bundgaard-Jorgensen, 2007; Heron & Company, 2007; Davies, 2007):

Loans are a debt where the borrower initially receives an amount of money from the lender, which they pay back, usually but not always in regular instalments, to the lender. This service is generally provided at a cost, referred to as interest on the debt. A borrower may be subject to certain restrictions known as loan covenants under the terms of the loan. This type of funding is thus much less attractive for companies to cover for the costs of technology verification.

- Loans are often for fostering innovation and technology, mostly not specified for environmental purposes; some loans are risk-shared.
- Loans can be preferential loans or subordinate loans.

- Guarantees:

A guarantee is the act of becoming a surety, a person or party who agrees to be responsible for the debt or obligation of another. For instance, the government can facilitate SMEs access to finance by guaranteeing the loans granted by banks and other financing institutions.

- Guarantees are no "free" or direct funding, they merely help SMEs to access funding.
- Guarantee instruments are often developed for specific categories of SMEs with the most difficult access to bank credit (such as start-ups and eco-innovative SMEs).

- Tax incentives:

Enterprises can offset R&D expenses against their corporate taxes and require a direct fiscal credit.

Another possible categorisation is on the basis of the main purpose for the funding (mainly for public funding):

- Support to Research.
- Support to pre-competitive development.
- Support to testing of prototypes.
- Support to demonstration.
- Support to introduction to the market and industrial launch.
- Support to adaptation to standards and certification.
- Support to patenting and marketing.
- Support to human resource development and training.

As mentioned previously, for the pre-steps in the ETV process the technology vendor needs to execute testing and accompanying protocol and test plan need to be developed, before he enters the system. Or, they are required by the system if the data provided by the vendor do not meet the system's quality assurance requirements, or they do not cover some crucial performance parameter. This means that the vendor/producer of the technology will already have costs before applying, so as to generate available data.

Based on the available information, it was only possible to link the different types of funding with the different steps in the ETV process, not with the different cost factors per process step (see also Table 2:). It seems that most types of funding can be used for the different steps in the ETV process.

To participate in technology verification, the technology vendor, and/or the vendor's advocate, is occasionally required to provide a cash contribution (e.g. equal to or greater than 50% of the cost of verification testing). Verification testing activities that must be cost shared include, but may not be limited to, verification plan development, field testing mobilization and execution, data analysis and validation, reporting, stakeholder activities, and outreach activities. The actual cost share percentage may be determined on a technology-by-technology basis (GHG centre, 2008).

Table 2: Potential types of funding for the technology applicant in the ETV process

<i>Step in verification process</i>	<i>Potential type of funding for the technology vendor</i>
Contact phase	Own capital
Application phase	Grants
	Loans
	Guarantees
	Tax incentives
Testing phase	Grants
	Loans
	Guarantees
	Tax Incentives
Assessment phase	Own capital
Publication phase	Grants
	Loans
	Guarantees
	Tax incentives

3 TASK 2: IDENTIFICATION OF MAIN FUNDING SCHEMES FOR SMES IN MEMBER STATES

In the second task, the main funding schemes for SMEs in the 27 Member States were identified at national or regional level, which could potentially provide the necessary support for ETV.



3.1 TASK 2.1. DEVELOPMENT OF A CHECKLIST TEMPLATE

A checklist-matrix was developed, providing the initial information on the funding schemes, including:

- Identification of the funding scheme: name, Member State and region, contact details of funding institution or managing institution.
- Scope of the funding scheme: technology areas and sectors.
- Key characteristics of the funding scheme: focus on environmental performance, primary aim to stimulate innovation, allocation of available budget.
- Information characteristics of the website: the quality and level of detail of information available, the language and an indication of whether the information is up-to-date.

These characteristics were used to make a selection of funding schemes to be examined more in detail under task 2.3.

Schemes - by Member State				Funding Institution(s) - Managing Institution(s)					Scope of scheme		
Member state	Region	Name funding scheme	Information source - website	Company / authority	address	names	telephone	e-mail	Technology area	Sector	excluded sectors / technologies

Funding scheme characteristics					Information characteristics Website				
Eligible for SMEs	Focus on environmental performance	Part of a larger funding scheme programme	Primary aim to stimulate innovation	Allocation of the available budget	The average processing time for applications (months)	Language	Level of detail rating (A=largely available - D=no relevant info)	Information quality rating (A=very good - D=poor quality)	up-to-date information

Funding					
Total yearly funding budget (€)	The maximum funding for each type of organisations (% of eligible costs)	The maximum funding for each type of organisations (EUR)	Maximum amount of funding per project (€)	Maximum amount of funding per project participant (€)	Type of funding: subsidy or loans

3.2 TASK 2.2. DATA COLLECTION

Data collection was performed based on an internet based search and desk research. A total of 165 funding schemes supporting SMEs were identified, and for each the matrix was completed. The matrix is included as an attachment to this report. An overview of the number per Member State is presented in Table 3.

Table 3: Number of funding schemes identified per Member State

Member State	Number of schemes identified
Austria	11
Belgium	17
Bulgaria	1
Cyprus	10
Czech Republic	6
Denmark	7
Estonia	5
Finland	4
France	5
Germany	11
Greece	2
Hungary	3
Ireland	6
Italy	5
Latvia	4
Lithuania	4
Luxembourg	6
Malta	7
Netherlands	6
Poland	9
Portugal	6
Romania	3
Slovakia	4
Slovenia	3
Spain	6
Sweden	6
United Kingdom	8

3.3 TASK 2.3. SELECTION OF FUNDING SCHEMES TO BE ANALYSED IN DETAIL

The information initially collected through the matrix was not sufficient enough to allow for prioritisation of funding schemes. The basic information characteristics were generally quite good (except for some Member States like Poland, Latvia, Romania, Slovenia, Malta, Cyprus, Czech Republic and Estonia, Finland, Hungary, Malta, Spain, Sweden).

More detailed research needed to be done for the objectives of the scheme and the eligible projects and costs. The selection of the schemes was therefore made in a later stage, during task 3.

4 TASK 3: DESCRIPTION OF EACH SELECTED FUNDING SCHEME

In Task 3, the funding schemes were analysed in detail. The checklist-matrix developed under Task 2 was extended with additional fields to include the following details for each of the funding schemes:

- Objectives and vision of the scheme.
- Eligible costs.
- Conditions and criteria.
- Analysis of potential support to technology verification.
- Evolution.
- Additional information and remarks.
- More detailed information source.

Data collection was based on the information sources from the internet search performed in task 2.2. Specific attention was paid to possible support to technology verification, costs possibly compensated and limitations or conditions for support.

Emails were sent out to the funding institutions, including a brief questionnaire (see Annex 1) and a letter signed by the European Commission (see Annex 2). A total of 82 emails were sent out. For those funding schemes on which no response was received, a reminder was sent by email. A total of 56 reminders were sent out. A total of 20 institutions replied to the questionnaires, sometimes covering several funding schemes.

Further follow-up was made for those email replies that required additional investigation. All follow-up interviews were carried out by phone.

The completed matrix is included as an attachment to this report. Based on the information that was gathered, the question whether or not the schemes could provide support to technology verification was analysed and the conclusion was included in the column "*potential support to technology verification?*". Based on this conclusion, a selection criterion could be determined in the column "technology verification issues included" and the schemes were subdivided in the following categories:

- Yes
- Probably
- Possibly
- Less relevant
- No

If not enough information could be found to draw a conclusion, that was also indicated in the column "technology verification included" as "no relevant information found".

5 TASK 4: ANALYSIS AND RECOMMENDATIONS

5.1 TASK 4.1 ASSESSMENT WHETHER EXISTING FUNDING SCHEMES COULD PROVIDE A RELIABLE SUPPORT TO THE IMPLEMENTATION OF THE EPV SCHEME IN SMES

In this sub-task we evaluate whether existing funding schemes could provide reliable support to SMEs for the implementation of the EU wide ETV scheme to evaluate performance and potential impacts of new technologies. The extent to which the range of schemes provides "reliable support" could be assessed on the basis of the data collected in the research phase under task 3. Basically the funds studied can be subdivided in Research & Development (R&D) / Innovation Funds, SME promotion funds and Environmental Funds.

In general, 81 out of 165 identified schemes will probably not support technology verification. However, of those 81 schemes, for 4 schemes no sufficient information was found to make a decision whether or not they could provide support to technology verification. Also, 13 schemes were "umbrella" programmes containing several smaller schemes. The smaller schemes were included in the matrix as well, with the indication of the larger programme they belong to. (See attached matrix, column "*part of a larger funding scheme programme*").

In total, 84 schemes could provide support to technology verification. This conclusion was drawn based on internet research, questionnaire responses and phone calls, and is underpinned with arguments (see attached matrix, column "*potential support to technology verification?*"). A degree of uncertainty needs to be taken into account. The possibility for support has been categorised as being certain (yes) , probable or possible.

- The category "yes" has only been attributed when the support was confirmed by the funding institution and the eligible costs covered sufficiently the costs identified in chapter 2.
- The category "probably" was attributed when very similar activities are covered by the fund or the objective indicates a high probability for support, but no confirmation was obtained by the funding institution (either no response was obtained, either because they were reluctant to give a full confirmation). Similar activities were, for instance, patenting and commercialisation / marketing costs, preparation of industrial market launch, expert advice through technological / research centres, and specialised technical advisors, adaptation to standards, demonstration projects, testing of prototypes, etc. Objectives indicating probable support were, for example, "to support the companies in respect of pilot projects for developing, designing and testing innovative products, processes and services that have positive impacts on the environment".
- The category "possibly" was attributed to the schemes with a higher degree of uncertainty on whether they could provide support. However based on the objectives of the funds and eligible costs, one can still expect them to provide support to a technology verification, for instance, schemes supporting the R&D of innovative technologies. In such a case, only the technologies that are still under development and not yet on the market can apply for such funds. In most cases, if these schemes want to support technology verification, they will need to broaden their scope or vision to include technology verification.

Only for 8 cases, listed in Table 4 can it be concluded in an affirmative way that the funding scheme includes technology verification issues. This low number is not surprising as fund managing authorities usually only include references to existing and well know activities in their guidelines. In countries where the ETV schemes are not implemented yet, many managing authorities are unable to confirm if they can be covered, even when this question is explicitly asked. The 8 funds at hand all belong to the category of R&D/Innovation Funds, with a total yearly budget of 759 Million euros.

Six of the schemes provide grants, for the total of 51.4 Million euro, and the other two are soft loans, providing for the remaining over 700 Million euro. Only six Member States are covered and in the UK only through technology specific schemes, focussing on low carbon energy and energy efficiency technologies.

In Table 4, an estimation was given, for each funding scheme, of the number of verification projects that could be supported by it. Of course the funding schemes will not merely fund verification projects, so the number of verification projects that will actually be granted funding is difficult to predict, as this will also depend on other project applications that might be given priority. The estimation was based on the cost calculations of JRC-IPTS as discussed in chapter 2.2, and did not take into account the percentage of eligible costs in the schemes.

- Maximum number of verifications projects that could benefit including verification and testing costs:

With a cost per verification being estimated at an average of 89.300 euro, this means that at least 11 verification projects could benefit from grants in Ireland. In Slovakia, that number amounts to 39, in Cyprus to 54, and in UK even to 235 (the latter however being limited to low carbon energy or energy efficiency technologies).

- Maximum number of verifications that could benefit including only testing costs:

If part of the verification costs could be subsidised through the ETV scheme, the main cost remaining for the vendor would be the testing costs, estimated at an average of 45.000 euro per verification. In this case, the number of verification projects that could benefit from grants would double.

One can reasonably expect that these figures are sufficient to cover the possible demand for technology verification in those Member States, compared to the number of verifications that is to be expected per year. From historical figures from the US and Canadian ETV systems, it can be assumed that each sectorial verification entity may undertake 5 to 13 verifications per year, and with about 5 sectors representing the majority of the demands to be expected, that would give the total of 25 to 65 verifications per year for Europe¹¹.

¹¹ EC JRC – IPTS (2008)

Table 4 : Funding schemes that include technology verification issues.

Member state	Name of funding scheme	Company / authority	The maximum funding for each type of organisations (% of eligible costs)	Maximum amount of funding per project (ME)	Type of funding: subsidy or loans	Total yearly funding budget (M euro)	Average number of ETV projects that could benefit including verification and testing	Average number of ETV projects that could benefit, including only testing
Cyprus	"EUREKA Cyprus" Programme	the Research Promotion Foundation (RPF)	75%	0.17	Grant	2	22	44
Cyprus	Programme "Research for enterprises": Specific action programme "experimental development of products and services"	the Research Promotion Foundation (RPF)	45%	0.17	Grant	2.9	32	64
Germany	ERP-Innovationsprogramm	KfW Bankengruppe	50 - 100 %	2,5 - 5	Loan	707.2	7919	15716
Ireland	Science, Technology, Research and Innovation for the Environment (STRIVE) programme 2007-2013 - CGPP - Cleaner Greener Production Programme	Environmental Protection Agency (EPA)	75%	0.2	Grant	1.0	11	22
Malta	Royalties scheme	Malta Enterprise Enterprise Centre		0.05	Loan	0.2	2	4
Slovakia	Slovak RD Agency grants: programme "Promotion of research and development in small and medium sized enterprises."	Slovak Research and Development Agency	25%	0.167	grant	3.5	39	78
United Kingdom	Hydrogen fuel cell and carbon abatement demonstration programme	Department for Business, Enterprise and Regulatory Reform (BERR)	EU	no limit	grant	21.0	235	467
United Kingdom	Marine renewables deployment fund - wave and tidal stream demonstration scheme	Department for Business, Enterprise and Regulatory Reform (BERR)	25%	12	grant	21.0	235	467
TOTAL						759		

However, some of the above schemes have explicit selection and exclusion criteria that might be difficult to overcome. For instance, the schemes of Cyprus explicitly fund consortia, which have to fulfil minimum requirements such as being composed of a hosting organisation and one or more partner organisations (that can be research organisations, SMEs, enterprises' associations or non-profit organisations).

The German loan programme addresses established companies that have been operating in the market for more than two years. It provides long-term financing for market-oriented research and development of new products, processes and services (programme part I) as well as their introduction on the market (programme part II). In programme part II applications may be filed by self-employed professionals and enterprises planning to introduce an innovative product, process or service in Germany or planning to participate significantly in its introduction on the market. The applicant must have contributed significantly to the development of the innovation. The phase of introduction on the market ends at the latest three years after the start of commercial use.

The Slovakian programme only provides grants to projects focused on the research and development of innovated products, technologies or services. Applied research and development projects with a maximum duration of 24 months are eligible and results of the feasibility study need to be attached to a project proposal.

For the UK programmes there are different conditions and limitations based on the target and aim of the programme such as state aids, open to applications all year, announced calls at targeted times, certain eligibility criteria from development stage, etc.

For 14 more schemes, listed in Table 5, it can be concluded that they “probably” include technology verification issues. This conclusion is drawn when very similar activities are covered by the fund, e.g. in the case of R&D / Innovation funds that provide funding for the last stages of bringing the innovations to the market, such as patenting and marketing costs. In the case of general SME promotion funds that provide loans, the rules about eligible cost are often not so strict, as long as the expenditures are included in the business plan submitted with the funding application. On the other hand, one could wonder whether SMEs will consider the availability of loan funds as a sufficiently liable support. Ten Member States are covered, bringing the cumulative total with the above affirmative category to 14 Member States.

Table 5: Funding schemes that “probably” include technology verification issues.

Member state	Name funding scheme	Company / authority	The maximum funding for each type of organisations (% of eligible costs)	Maximum amount of funding per project (M€)	Type of funding: subsidy or loans	Total yearly funding budget (M euro)
Austria	ERP - Programm Technologie	AWS - Austria Wirtschafts-service	25%	not readily available	Loan	not readily available
Estonia	Environmental Investment Center - Loans	Environmental Investment Center	75%	1,9 (minimum 0,03)	Loan	not available
Finland	Financing of the Foundation for Finnish Inventions	Foundation for Finnish inventions	Not readily available	0,2	Grant or loan	not available
Finland	Development Loan	Finnvera plc	75%	0,4	Loan	+/- 17 M
France	R&D-projects, innovation projects	OSEO	25%-60%, 5% to 15% bonus percentage	not readily available	Grant - Subsidy and Loan	not available
France	Contrat de développement innovation et Fonds de garantie innovation	OSEO	loan between 40.000 and 400.000 €	loan between 0,04 and 0,4 (0,6 in certain regions).	Loan and guarantee	not available
Germany	Pilot projects under the Programme for Promoting Application-Related Environmental Technologies (PFAU)	BIG Bremen - Economic Development	50%	0,15	Grant	not available
Germany	Launching innovative products and services on the market	BIG Bremen - Economic Development	50%	0,04	Grant	not available
Luxembourg	Innovation loan	Societe Nationale de Credit et d'Investissement (SNCI)	SME 25% Large company 25%	not readily available	Loan	not available
Luxembourg	General investment support scheme for SMEs	Ministry of Middle Classes, Tourism and Housing	50%	0,1	Grant - subsidy, interest rate subsidies	not available
Portugal	SIFIDE Fiscal Incentives	AdI - Agência de Inovação	no maximum	no maximum	Tax incentive	not available
Slovenia	Slovenian Enterprise Fund - SEF	Slovene enterprise Fund			Guarantees, grants	55 M
Spain	InnoEmpresa - Lines of action II (technological innovation and quality)	MINISTERIO DE INDUSTRIA, TURISMO Y COMERCIO	Aid ceilings vary depending on the area in which the project is being carried out : up to 50%	not readily available	Grant - subsidy	not available
United Kingdom	Applied Research Grants - Carbon Trust	Carbon Trust	SME 50% Large company 50%	0,32	Grant	not available

Again, some of the above schemes have explicit selection and exclusion criteria that might be difficult to overcome. For instance, the French R&D projects scheme is based on the project category that reflect the risk level of the project. All of the German programmes specify that all applications for assistance must be submitted before the project begins.

The Portuguese SIFIDE tax incentive needs testing institutions to be recognised by a Portuguese scientific board. Although there was not yet a formal report of these kind of activities, the SIFIDE scheme is enough flexible to support them. Technology verification can be considered as an extra activity at the end of the development phase.

One of the criteria possibly limiting the support of the Slovenian fund is that the proposed new programmes should generate new jobs and the programme should include the promotion of operations on the international markets, promotion of the purchase of high-tech equipment, promotion of research work and innovations.

There are 62 more funding schemes that can “possibly” cover Technology Verification, at present or in the future. Through these schemes, SMEs can also be helped in the 12 remaining Member States: Belgium, Bulgaria, Czech Republic, Denmark, Greece, Hungary, Italy, Latvia, Lithuania, Poland, Romania, Sweden and the Netherlands.

These schemes have a higher degree of uncertainty on whether they could provide support to technology verification.

For instance, in Poland the responses showed that there are no national funding schemes currently available for SMEs which could be directly adopted to cover the ETV costs. However, there is a large potential for the near future through a new ordinance concerning the “INITECH” - Technological Initiative. Funding will be made available for R&D units and SMEs for activities aimed at the market entrance, including development of necessary technical documentation, and covering the costs of standardisation, certification and technical testing procedures of new products and technologies.

Also, the National Fund for Environmental Protection and Water Management and the regional Voidvodship funds might cover technology verification in the future. For that however, they will first need to modify their priorities. Those priorities are set on a yearly basis, and the Voidvodship fund has recognised the ETV system as an effective tool supporting their decision-making process concerning funding of investment projects¹². For the National Fund adaptation of the priorities seems more difficult, as eco-innovation currently is not a priority, and changes will be needed in the legal regulations which are the basis for the functioning and establishing priorities of the National Fund.

For five Belgian (Flemish) funding schemes (by IWT Flanders) we concluded that they “partly” include Technology Verification issues. Verification activities are eligible for funding as long as they can be considered to be necessary and relevant for the R&D phase. Once they become part of pure certification, demonstration, marketing or sales activities they are not supported.

¹² Institute for Ecology of Industrial Areas (2008)

It can be concluded that in all Member States the existing funding schemes could at least possibly provide a reliable support to the implementation of the EPV scheme in SMEs. However, a few question marks are still associated with most of the selected funding schemes, as schemes might need to adapt their specific criteria. An overview of the number of schemes per Member State that can possibly support an ETV scheme is presented in Table 6.

Table 6: Overview of the number of funding schemes potentially supporting ETV

Member State	Number of schemes identified	Number of schemes that could provide potential support to ETV
Austria	11	4
Belgium	17	6
Bulgaria	1	1
Cyprus	10	4
Czech Republic	6	2
Denmark	7	2
Estonia	5	2
Finland	4	4
France	5	4
Germany	11	9
Greece	2	1
Hungary	3	3
Ireland	6	1
Italy	5	2
Latvia	4	2
Lithuania	4	2
Luxembourg	6	3
Malta	7	2
Netherlands	6	3
Poland	9	4
Portugal	6	4
Romania	3	1
Slovakia	4	4
Slovenia	3	1
Spain	6	4
Sweden	6	3
United Kingdom	8	6
Total	165	84

For 14 Member States this can be concluded with a high probability. The funds can be subdivided in R&D/ Innovation Funds, SME promotion funds and Environmental Funds, providing grants, loans or guarantees. It is not sure though that SMEs will consider the availability of loan funds as a sufficiently liable support.

Funding schemes with the objective to introduce technologies to the market offer the greatest potential to support ETV. Those focussed purely on research are less relevant, as research and development is out of the scope of technology verification. Although verifying new technologies can trigger additional R&D and investments, the costs associated to R&D are not associated to verification. Many funding schemes however focus on R&D, but also include the phase just before the market introduction. In this case they are relevant for technology verification. Similarly, when schemes focussing on R&D see verification as the final phase in the “development”, they can also provide support. Funds focussing on “adaptation to standards” are also relevant to technology verification, as it involves a certification.

Most schemes offer a sufficient budget per project to cover the technology verification costs as discussed in section 2.2. SMEs can often count on a bonus percentage, depending on the size of the company: the smaller the company, the higher the extra funding. For some schemes, one of the criteria to determine the amount of funding is the level of industrial risk associated to the project: the higher the risk, the larger the funding. It is obvious that technology verification projects will score lower on that criterion, as at the moment of verification, only a commercial risk is remaining to fail to verify the claim or to obtain low performance test results, or to the uncertainty of whether the technology will be welcome by customers .

Most of the funding schemes cannot confirm completely that ETV activities can be supported, because of the fact that a technology verification system currently does not exist yet, and thus there is no demand for such funding from SMEs. We recommend that firstly strong communication is set up with the funding institutions to make them aware that such system will be implemented, and that they can anticipate on future funding demands of companies for the related costs involved. Specific attention should be paid to the awareness raising of the decision-makers and managers of the funding institutions to show the need for such funds, in order for them to shift priorities and open possibilities for funding technology verification. Only after such close contact the real potential for support will be revealed.

5.2 TASK 4.2 IDENTIFICATION OF GAPS IDENTIFIED IN SOME MEMBER STATES OR TECHNOLOGY AREAS

For the purposes of this analysis, schemes attributed in the “yes”, “probably” and “possibly” categories outlined in section 5.1 are considered.

The below graph illustrates the distribution of schemes which would support ETV within SMEs, within the EU Member States.

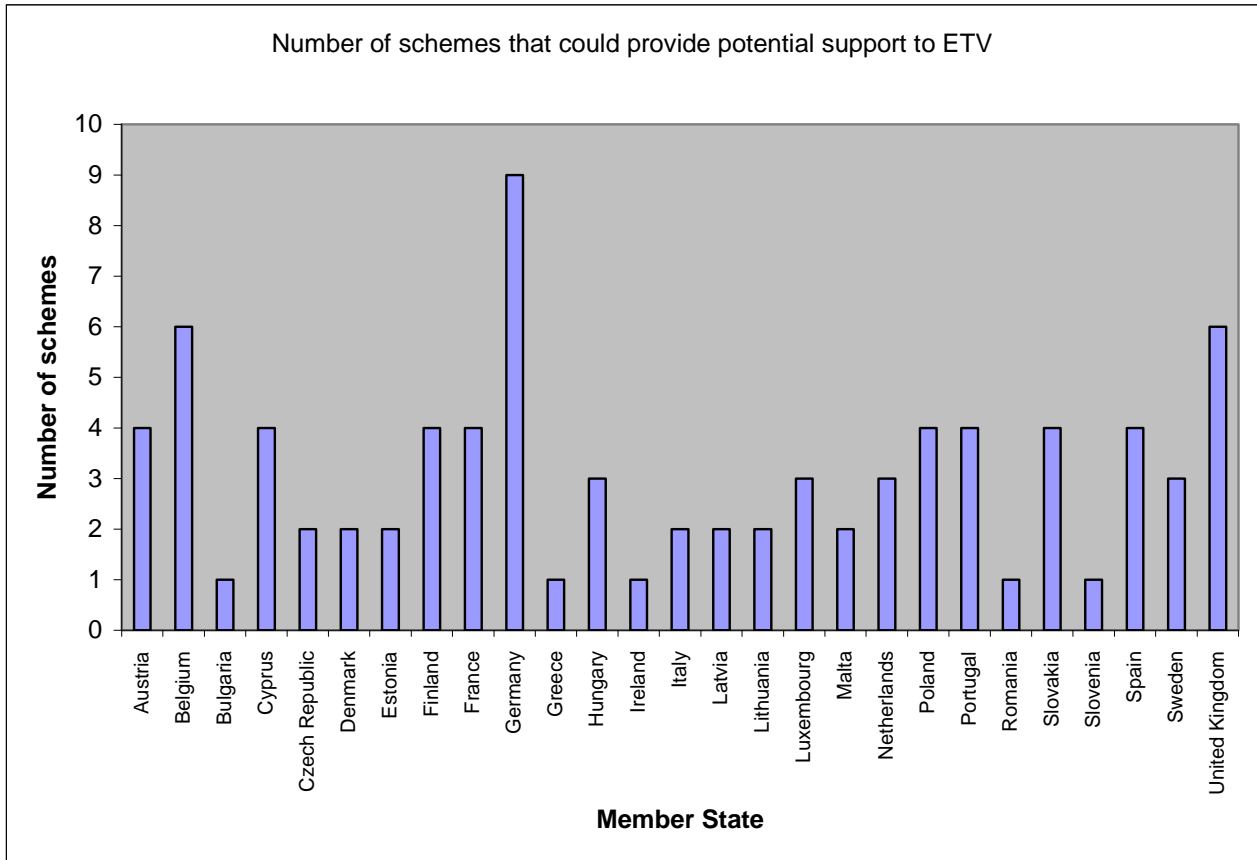


Figure 2 Funding support for SMEs within the EU

As can be seen, there is a wide difference in terms of the level of support available across the EU. With nine schemes identified, German SMEs have access to the greatest number of funding schemes. The UK and Belgium aren't far behind, each with six identified schemes.

The following table highlights those Member States with a shortage of suitable funding schemes.

Table 7 Member states with particular shortage of funding schemes

Member State	Number of schemes identified	Number of schemes that could provide potential support to ETV
Bulgaria	1	1
Czech republic	6	2
Denmark	7	2
Estonia	5	2
Greece	2	1
Ireland	6	1
Hungary	3	3
Italy	5	2
Latvia	4	2
Lithuania	4	2
Malta	7	2
Romania	3	1
Slovenia	3	1

Analysis of the information already collated on funding schemes has allowed the identification of the following characteristics, which could explain shortages of funding schemes in the above Member States.

Information collated shows that ownership of most funds in all the Member States is very similar (many funds included mainly regional banks and public sector entities as financiers). For the Member States with many funding schemes the ownership is mainly by public sectors institutions with a range of targeted measures, involving grants, equity and debt schemes and tax relief. Whilst for those member states with shortages of funds that could potentially support ETV, as shown in the table above private sector financiers (mainly banks) dominate and the range of targeted measures is very limited. Reasons for limited range could be that there is a gap either in the supply side or it could be a lack of credible articulated demand. In the cases where the member states had a good number of identified funding schemes with a shortage on funding schemes to support ETV (e.g. Czech Republic), it was recognised that the many funding schemes were mainly part of a larger scheme that were specifically categorised to explicitly cite the main purpose of funding.

Schemes which support ETV should also be considered in terms of the technology groups they support. Schemes which don't not have any specifications on which technologies they will/will not support offer the best options for a SME. This is because it will place fewer restrictions on what they are able to develop, thus leaving them open to be more innovative.

In the UK for example, there are six identified schemes which could potentially support ETV, with two of these confirmed as offering definite support. However, both of schemes are specific in their technology focus, only funding projects which have a low carbon and energy efficiency (ie renewables) slant.

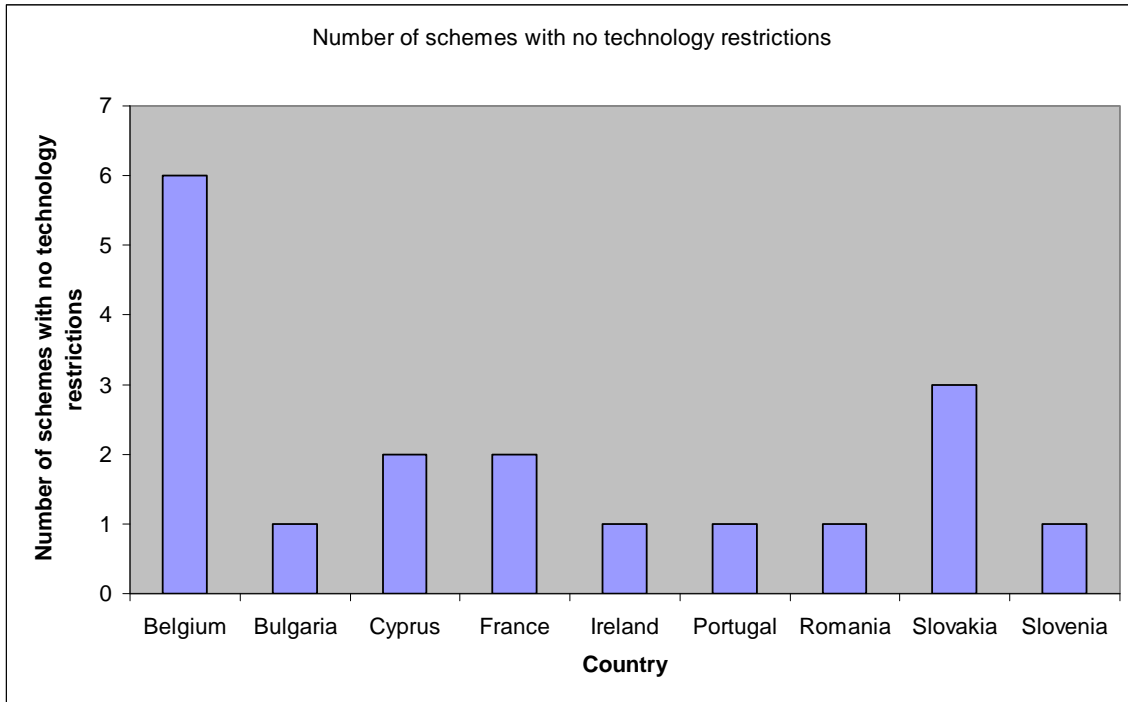


Figure 3 Number of schemes with no technology restrictions

The above graph shows which Member States have schemes with no technology restrictions. Many of the schemes examined did not give any details if they do/do not exclude particular technologies. These schemes have not been included on the above graph, as it cannot be said with certainty if they do support all technology groups.

Whilst Figure 3 highlights schemes with no technology restrictions, two of those identified were found to have sector restrictions. The Bulgaria scheme (National Innovation Fund) includes all technology types, but excludes projects from the forestry and agriculture sectors. Likewise, the Slovenian “Slovenian Enterprise Fund – SEF” scheme also has sector exclusions, excluding any projects from the agriculture, hunting, forestry, aquacultures, coalmining and steel industries.

The table below shows the number of ETV projects which could potentially benefit from the schemes outlined in Figure 3.

Table 8 Budget analysis of schemes with no restrictions

Member State	Scheme	Total yearly funding budget (M €)	Average no of ETV projects that could benefit including verification & testing	Average no of ETV projects that could benefit including only testing
Belgium	R&D company projects	15	168	333
Belgium	SME Innovation Studies	2	22	44
Belgium	SME Innovation Projects	8.5	95	189
Belgium	Subordinated loans for SMEs	2.4	27	53
Belgium	Eureka	20	224	444
Belgium	Sustainable technological development (DTO)	Not available	Not available	Not available
Bulgaria	National Innovation Fund	7.5	84	167
Cyprus	"EUREKA Cyprus" Programme	2	22	44
Cyprus	Programme "Research for enterprises": Specific action programme "experimental development of products and services"	2.9	32	64
France	R&D-projects, innovation projects	Not available	Not available	Not available
France	Contrat de développement innovation et Fonds de garantie innovation	Not available	Not available	Not available
Ireland	Science, Technology, Research and Innovation for the Environment (STRIVE) programme 2007-2013 - CGPP - Cleaner Greener Production Programme	1	11	22
Portugal	SIFIDE Fiscal Incentives	Not applicable – scheme provides tax incentive	Not applicable	Not applicable
Romania	National Credit Guarantee Fund for Small and Medium Sized Enterprises – NCGFSME	Not applicable – scheme provides guarantees	Not applicable	Not applicable
Slovakia	Slovak RD Agency grants: programme "Promotion of research and development in small and medium sized enterprises."	3.5	39	78
Slovakia	(direct) loans	Not available	Not available	Not available
Slovakia	Credit of environmental and other projects (financed from the means of the Nordic Investment Bank)	Not available	Not available	Not available
Slovenia	Slovenian Enterprise Fund - SEF	55	616	1222
TOTAL			120	

The above figures are based on the estimated cost of ETV applications, as outlined in section 5.1. As can be seen, these schemes are capable of covering the estimated 25 to 65 verifications per year for Europe¹³. Whilst this is positive, it should be noted that only eight of the 27 Member States have access to such schemes. Extending the scope of such schemes, to ensure the establishment of at least one per Member State could be one way of increasing the uptake of ETV.

¹³ EC JRC – IPTS (2008)

5.3 TASK 4.3. SUGGESTIONS ON HOW TO FACILITATE THE USE OF THE IDENTIFIED SCHEMES TO SUPPORT EPV

Due to limited information it was not possible to give strengths and weakness of the funding schemes identified specific to each Member State. However one major weakness observed across the different Member States analysed is that there is limited if not entirely lack of entrepreneurial skills support. SMEs are most times not only faced with problems concerning their financing, but also that they often lack entrepreneurial skills, resulting in for example the failure of them potentially identifying suitable funding schemes and hence promoting the demand side for funding.

Another weakness seen more in particularly with the Member States that showed shortage of funding to support ETV was the lack of interaction between public and private sectors. Though not very significant in this study this interaction would certainly help in stimulating funding such as the R & D/ innovation funds and as highlighted in section 5.1 the R & D /Innovation funds that provide funding for the last stages of bringing innovations to the market would “probably” support ETV. This problem is especially apparent when it comes to links between funding institutions and probably academic institutes. Innovation-driven economic growth requires optimal co-operation, and there can be plenty of scope for improvement in this area. For policy makers, therefore, an important question is: how can SMEs create significant value from the technology, knowledge, and innovation potential of academic institutions, and how to define policy guidelines or build public actions that substantially enhance the dissemination of knowledge between business entities and academic institutions. This knowledge transfer process would improve the competitiveness of SMEs and also the competitiveness and attractiveness of investors thus improving the supply side of funding.

The study shows that despite differences in the countries analysed and the weaknesses noted above, the funding schemes identified that could support ETV have several strong points that make them attractive options to build on and promote ETV support. These points would include:

- Most schemes identified offer a sufficient budget per project to cover the technology verification costs.
- SMEs can often count on bonus percentage, depending on the size of the company: the smaller the company, the higher the extra funding.
- In all 27 Member States, there exist funding schemes which could provide a reliable support to the implementation of the EPV scheme in SMEs.

Overall, therefore one of the main conclusions from our analysis is that the ETV system should build on existing schemes and use existing capacities and skills as far as possible.

Recommendations

To facilitate these funding schemes that could potentially support ETV, the following can be considered.

The current funding institutions should at least promote varied financial instruments and support. If a funding scheme is part of a larger programme which could potentially support varied categories such as demonstration, marketing support etc. then the larger funding schemes should be left open to attract all kinds of support; but it would be ideal if it was to be categorised into smaller funds on the basis of the main purpose of funding. This would promote easier visibility and identification of funds. This will further increase the avenues of financing. In this study good examples are seen in the Cyprus and Germany. For example in Cyprus's case Research Promotion Foundation (RPF) is the name of the authority that runs 6 out of the 10 identified funding schemes. The six schemes are of different (see attached matrix) categories and out of these schemes we could be able to at least find one scheme that falls under our affirmative category “yes” that the funding schemes offers technology verification issues.

The European Commission should consider improving among other measures the outreach of funding programmes they run. Access to market information as well as to relevant funding options (both national and European) should be made visible more so for the emerging economies. To foster this outreach, funding institutions that are participating in the ETV should be required to incorporate in their promotional material clear references to the support provided by the European Union schemes and to ensure that each final beneficiary is made aware in writing of the origin of this support. This would have an impact on raising the awareness and stimulating other SMEs into action. For example the EUREKA programme is a pan-European network for market-oriented, industrial R&D. It aims to enhance European competitiveness through its support to businesses, research centres and universities who carry out pan-European projects to develop innovative products, processes and services. All the 27 members states are its members and only in 10 Member States did this study identify funding on the EUREKA programme. The question to ask therefore is: could it be a weakness in the outreach of the programme, in the context of this study it would be right to say yes.

Fast-growing markets both in the EU neighbourhood and beyond also present an untapped potential for many European SMEs. But they are not easy to access for SMEs due to complex regulatory environments, linguistic and cultural barriers, lack of knowledge of potential market and difficulties in identifying the right partners need to be overcome. In this context there should be promotion of networking among all stakeholders to exchange knowledge and good practices. This can be through an on-line collaboration platform consisting of public portal and interactive tool to support networking and disseminate results. Case studies should show how SMEs have achieved concrete benefits. Case studies describing such experiences of SMEs all over Europe, if properly disseminated, will be expected to have an important impact in raising awareness and improve policies to access finance. The objective would be to identify good practices relating to policies on access to finance, help participating countries to implement them and to monitor progress in order to ease SME access to finance, in particular for innovative and 'growth-oriented' firms.

Other than financial support there should also be promotion of entrepreneurial support which should focus on building capacity and capability, human capital development and marketing.

Many of the identified schemes have specific criteria attached to them which make them more difficult for SMEs to access. In many cases, simply changing this criteria would be an effective way of increasing usage. In Cyprus, of the four schemes found, two stipulate that the SME must be part of a consortium in order to qualify. In order to meet the criteria of the Financial Assistance Invest scheme in Northern Ireland projects have to be internationally focused. These are some examples of very specific criteria, which may be off putting to some SMEs.

Many of the schemes investigated were found to have time and cost restrictions. Successful application to some of the loan schemes examined was dependent on the stage of development of the technology. This can have implications for the strategy of the vendor. Depending on the stage of development of the technology, the vendor will need to apply for one or the other scheme: the strategy of the vendor needs to be different when the technology is already put on the market, or if it is still under development. Also, depending on the available funds in the MS, he will need to include his technology verification in the last phase of R&D for uptake in R&D schemes, or include it in the first stage of the market introduction.

For example, in the Czech Republic, of the two identified ETV supporting schemes, the INNOVATION project states that R&D cannot be supported; development must already be completed at the time of submission of the application. Removing stage restrictions is one way of increasing uptake of such schemes.

In general there appears to be a large number of schemes which do support R&D activities; in fact some stipulate that verification activities need to be included during R&D phase to be eligible (for example, the Bulgaria National Innovation Fund).

Removing technology and sector restrictions could also increase uptake of ETV funding schemes. As Figure 3 shows, only nine of the Member States have schemes which have no restrictions. It is important that these schemes should be accessible to all.

LITERATURE

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ANNEXES

Annex 1: Questionnaire

QUESTIONNAIRE FOR MEMBER STATE INSTITUTIONS

REVIEW OF FUNDING SCHEMES FOR SMES IN TECHNOLOGY VERIFICATION

Introduction

AEA and ARCADIS Belgium have been awarded by EC DG Environment to perform a study on existing funding schemes in the European member states.

The objectives of the project are as follows:

- To identify the main member state funding schemes, eligible for Small and Medium Enterprises (SMEs):
 - based on internet search
 - based on written questionnaires when additional information could deliver valuable additional input to the study
- To assess the relevance of the different schemes in relation to technology verification purposes
- To identify gaps on member state or technology area level

This questionnaire is specifically designed to collect information on:

- the objectives of the funding scheme(s)
 - the costs or activities (e.g. **technology verification**) possibly covered by the scheme(s)
 - the conditions and limitations linked to the scheme(s)
-

Identity of the respondent

1. Name and surname:

2. Organisation:

3. Position:

4. e-mail:

5. Tel number:

6. Address:

Questionnaire for (Member State) Institution

This questionnaire covers the funding scheme(s) listed in the table below. Thus, for each question, we would like to ask you to take these schemes into consideration. If your institution (or related ministry, institution, department) manages an additional scheme that could possibly support activities (costs) related to technology verification and has not been included in the table, it would be greatly appreciated if you could add it to the list.

Funding scheme	Subscheme or description

General characteristics of the scheme (can you please number the schemes and respond accordingly when a differentiated answer is appropriate?)

1. Are the schemes eligible for SMEs?

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2. What are the main objectives of the scheme?

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3. Can the scheme possibly support enterprises from all sectors? Is the scheme open for all technologies or are there any technology areas excluded?

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4. What's the maximum available funding per project / application (+/- €)? Or in % of (eligible) costs?

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5. What's the yearly available budget of the scheme?

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6. Does the scheme run over a fixed and already known limited time period? If yes, is it possible that a similar scheme will be opened after that period?

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7. What are the main conditions and limitations connected to the (different) scheme(s)?

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8. Is it possible to include the internet pages (links) where we can find relevant information on the (different) scheme(s)?

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Specific characteristics related to technology verification (can you please number the schemes and respond accordingly when a differentiated answer is appropriate?)

Additional information on technology verification and it's cost factors:

- The verification procedure usually runs in the development and demonstration, or marketing and sales phase of the life cycle.
- The activities connected to a verification process are mainly application, testing of the technology (internally and or externally) and reporting on test results
- Consequently, the main costs related to technology verification are amongst others: human capital costs (time, training, ...), administrative costs, (third party) services (laboratory expenses, ...) and equipment

8. Taking into consideration the above described elements (see text box), can the (different) scheme(s) possibly support the activities involved in technology verification? If yes, did the scheme already support similar activities, f.i. certification or other demonstration activities?

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9. Taking into consideration the above described elements, what are / are not eligible costs, supported by the above mentioned scheme(s)?

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10. In case the scheme currently doesn't support technology verification or similar costs: is it possible that the (vision of the) scheme might evolve and cover this type of costs in the (near) future? A credible technology verification could, for example, stimulate enterprise growth and (green) economic development in general?

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Annex 2 : European Commision letter