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Contents

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Foreword

This Special Report (SR) has been produced by ETSI Special Task Force STF 376, reporting to the ETSI Board. ETSI STF 376 was established with the aim to improve the participation of innovative SMEs in European ICT standardization. The project has taken a pro-active approach with the following high level objectives:

1)   to increase the participation in ETSI standardization of R&D performing SMEs;

2)   to increase the competitive advantage of European R&D performing SMEs by connecting them to the standardization process.

The project performed a wide analysis of the current best practices/behaviour of successful SMEs using standardization for improving their results, and then developed tools/methods/best practices which can be applied by SMEs, and more particularly, by SME advice and support agencies, in their efforts to support the development and growth of SMEs.

ETSI STF 376 and the development of the present document have been co-financed by the European Commission and EFTA under the Standardization Action Grant SA/ETSI/ENTR/000/2008-11.

1   Scope

The present document addresses the subject of the SME participation in Standardization.

It is based upon the outcome of ETSI STF 376. This STF, co-financed by the European Commission and EFTA and reporting to the ETSI Board, has conducted a study into SME participation in ICT standardization, evaluating the main benefits of participation and the main barriers which prevent SMEs taking a direct role. A number of case studies were developed of SMEs who actively participate in standardization. The present document provides the background to the project and describes the methodology used. It presents the main findings from a survey and from the case studies. It also proposes a number of tools and best practices which have been researched and which should support a greater level of SME participation in ICT standardization.

2   References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

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2.1   Normative references

The following referenced documents are necessary for the application of the present document.

Not applicable.

2.2   Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1]   Commission Recommendation 2003/361/EC of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises.

NOTE: Available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:124:0036:0041:en:PDF. .

[i.2]   SME Performance Review 2008: "First Section of the Annual Report on EU Small and Medium-sized Enterprises", EIM Business & Policy Research, January 2009.

NOTE: Available at: http://ec.europa.eu/enterprise/policies/sme/files/craft/sme_perf_review/doc_08/spr08_annual_reporten.pdf.

[i.3]   Eurostat Statistics in Focus 72/2007: "Community Innovation Statistics".

NOTE: Available at: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-07-072/EN/KS-SF-07-072-EN.PDF

[i.4]   Council of the European Union, 2769th COMPETITIVENESS (Internal Market, Industry and Research) Council meeting: "Council conclusions on a broad-based innovation strategy: Strategic priorities for innovation action at EU level".

NOTE: Available at: http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/intm/91989.pdf.

[i.5] European Commission COM(2008)133: "Communication from the Commission to the European Parliament and the Council: Towards an increased contribution from standardisation to innovation in Europe", March 2008. .

NOTE: Available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0133:FIN:en:PDF.

[i.6] European Commission: "2008 ICT Standardisation Work Programme".

NOTE: Available at: http://ec.europa.eu/enterprise/sectors/ict/files/wp2008_en.pdf.

[i.7] European Commission DG Enterprise website.

NOTE: http://ec.europa.eu/enterprise/policies/european-standards/index_en.htm#top

[i.8] European Commission COM(2004)674: "Communication from the Commission to the European Parliament and the Council on the role of European standardisation in the framework of European policies and legislation", October 2004.

NOTE: Available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2004:0674:FIN:en:PDF.

[i.9] CEN/CENELEC Guide 17: "Guidance for writing standards taking into account micro, small and medium-sized enterprises (SMEs) needs", 2010.

NOTE: Available at: http://www.cen.eu/cen/Services/SMEhelpdesk/Guide17/Pages/default.aspx.

[i.10] http://en.wikipedia.org/wiki/Delphi_method

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

Small and Medium-sized Enterprise (SME): autonomous enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding €50 million, and/or an annual balance sheet total not exceeding €43 million

NOTE: Enterprise defined under European Commission Recommendation 2003/361/EC [i.1].

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

BWA	Broadband Wireless Access
CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical standardization
COPRAS	Cooperation Platform for Research And Standards
DG	Directorate General (of the European Commission)
EC	European Commission
EFTA	European Free Trade Association
ESO	European Standards Organization
ETSI	European Telecommunications Standards Institute
EU	European Union
ICT	Information and Communication Technology
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronic Engineers
IETF	Internet Engineering Task Force
IPR	Intellectual Property Rights
ISO	International Organization for Standardization
IT	Information Technology
ITU	International Telecommunications Union

NORMAPME	European Office of Crafts, Trades and Small and Medium sized Enterprises for Standardization
OMA	Open Mobile Alliance
OMG	Object Management Group
R&D	Research and Development
SDO	Standards Development Organization
SME	Small and Medium-sized Enterprise
STF	Special Task Force
SWOT	Strength, Weakness, Opportunity and Threat
W3C	World Wide Web Consortium

4   Executive summary

4.1   Introduction

There is growing evidence that an integrated approach to ICT standardization by Small and Medium Enterprises (SMEs) can achieve significant benefits. **Much ICT standardization is already taking place at an international or global level, as indeed most ICT markets are global markets. And yet much of the advice available to SMEs on their standardization policy is focused on encouraging involvement at a national level,** with National Standards Organizations (NSOs) consolidating national opinion and taking that to the appropriate European or international SDO. This may be based on the belief that standardization activities are a straightforward additional cost for SMEs.

Since most ICT standardization fora and consortia, and European Telecommunications Standards Institute (ETSI) as an ESO, are organized on a direct participation per member company basis, **such advice is inappropriate in the context of ICT standardization and ETSI and any support policies developed under this thinking will fail when applied to SMEs involved in the ICT industry.** And furthermore the advice may be based on an incorrect belief in the value of standardization, without taking into account the benefits of direct participation. International fora and consortia have no obligation to take account of SMEs' needs, they also have no encouragement to do so. They do not recognise national standards bodies, and an SME representative body has much less weight in a direct participation model than numerous SMEs participating individually. **SME standardization support processes at European, national and regional level must take account of the reality of the ICT standardization sector.**

Micro, small and medium-sized enterprises represent 99 % of all enterprises in the EU and collectively provide for approximately 70 % of employment in the EU. **SMEs are a significant source of innovation in Europe and merit a dedicated approach,** and standards are a real opportunity for SMEs to increase their competitive advantage and to gain international recognition and new possibilities for collaboration.

SMEs and micro-enterprises make up a significant proportion of ETSI's membership. **Over 25 % of ETSI's members are SMEs: ETSI can count over 200 SMEs including micro-enterprises among its members.** Some 60 % of these SME members are active participants in the standardization process, having recently registered for and attended a standards meeting. And it is estimated that approximately 10 % of official positions (chair, vice-chair, rapporteur, etc.) in ETSI Technical Bodies are filled by representatives from SMEs.

Therefore in ETSI's limited experience, SMEs appear to be both willing and able to engage in the standardization process. Indeed, ETSI's SME members appear to recognise that standardization can be a real opportunity for SMEs to disseminate and exploit their results, but also to increase their competitive advantage and to gain international recognition and new possibilities for collaboration. ETSI's SME members clearly experience benefits in participating directly, since they continue to remain members of the organization and participate actively.

4.2   Study overview

ETSI has been conducting a study in 2009 and 2010, co-financed by the EU and EFTA, to evaluate how to improve the participation of SMEs in ETSI standardization. This study is known at ETSI as Specialist Task Force (STF) 376. Supported by a high level expert group which met at regular intervals during the study, a linear analytical framework has been used.

In an initial phase of this study, an online survey was distributed to almost 9 000 ICT SMEs throughout Europe to evaluate their perception of standardization, the barriers they face in participating, and the drivers which encourage them to use standards. 18 follow-up telephone interviews were conducted with a number of SMEs who requested in their survey responses to be contacted by ETSI.

Specific SMEs have been analysed in more details in case studies, mostly SMEs having had successful experience with their participation in the standardization process. However also less successful SMEs were sampled, as was the case of an industrial development agency having set-up a specific program to fund direct SME participation in standardization.

This field work was accompanied with a more formal approach where tools or initiatives to support SME participation in standardization have been listed and analysed. In addition, indicators were analysed and developed to help measure the impact of such initiatives both inside the SME and from a support agency perspective.

Finally, a list of recommendations was built and discussed with the high level expert group. They have been presented during a final workshop gathering most of the stakeholders, including representatives of other SDOs.

4.3 Main results

The data collection process demonstrated that SMEs having participated in standardization identify a number of positive outcomes from their participation. Three participations level were identified.

- As a user of standards: without being a member of an SDO, the SME chooses to follow the progress made on a standard by making use of publicly available information. However it does not access draft copies of the standard and is only able to see the contents of a standard when it is finally published.

- As a passive participant: the SME is a member of an SDO and is already involved in the development of standard. It can choose to participate in meetings, but is not yet a leading contributor. As a member, the SME benefits from access to draft specifications and from following discussions during the development of the standard.

- As an active participant: the SME participates in standards meetings and also actively makes contributions to the standard. It may even take a leading role such as rapporteur, chairman or vice-chairman in order to drive the work in their desired direction.

Depending on the degree of involvement, there were many benefits identified. The most prominent ones are (in no order of preference):

- Increased reputation of the company.

- Greater networking opportunities.

- Contact with potential customers in the standards committee.

- More commercial or research partnership opportunities.

- Competitive advantage knowing what's in the standard in advance and understanding the background.

- Exposure to industry best practices and new ideas.

- Better competitive intelligence.

- Influence on the contents of the standard.

- Benefit from common marketing campaigns often funded by larger players.

- Source of new recruits: SMEs can quickly access pools of experts who have in-depth knowledge of the technology and of the standards process.

4.4 Recommendations

Beside the identified benefits outcome of participation, some barriers limiting the participation have been identified. The three main one are:

- The cost: firstly of travels, with meeting places not always optimized to reduce the costs, but also the cost of manpower to prepare and attend those meetings.

- The time required to understand and then going through the whole standardization process, which can be a long-term investment with no immediate gain.

- The difficulties and uncertainties related to IPR - whether protecting one's own IPR or accessing that of others.

To overcome these, the SMEs interviewed expressed a number of expectations and made suggestions on how to improve the standardization landscape to ease SMEs participation. These suggestions have been turned into recommendations and discussed within the experts group to evaluate their pertinence and feasibility in the ETSI case. Out of the 17 potential recommendations, 8 have been identified as high priority:

1) Education: a standardization training offer adapted to SMEs should be developed. Use of e-learning of short (1 day) seminars is seen as an efficient approach.

2) Mentoring: newcomers should be mentored in their first steps in ETSI. More experienced SMEs, SMEs associations and current or former chairmen could be the mentors. Funding for mentoring remains an issue.

3) Support programs: SMEs support programs developed at national or European level should include a support to standardization activities. The successful Irish case demonstrates the added value of such an approach. Awareness raising campaign at SME support agencies should be organized to encourage such practices.

4) Free membership test period: a free, limited time access to ETSI should be promoted to allow SMEs to test and understanding the process. This is in-line with the existing guest status which should be better promoted among SMEs.

5) Advertise the IPR policy: many of comments received in relation with IPR denote an insufficient knowledge of existing procedures. ETSI IPR rules and existence of tools such as the ETSI IPR database should be more advertised.

6) Human resources: it is recognised that efficient participation in standardization committees requires specific skills. A human resource profile should be proposed, highlighting the technical, language and social skills to master to efficiently participate in standardization committees.

7) Assessment tool: the decision to participate or not in the standardization process is often taken at senior level. Decisions are taken based on the Return on Investment (RoI) and criteria to evaluate this RoI should be proposed.

8) Communication: it appears that a number of the issues encountered by SMEs result from a lack of awareness - of processes, of available support, of the status of an activity. Communications campaigns targeting SME should be organized. A first step for this would be to add SME related webpages to the ETSI website.

5   Context and objectives

5.1   Importance of SMEs in European industry

Small and Medium-sized Enterprises (SMEs) currently represent 99 % of European enterprises and collectively provide for approximately 70 % of employment in the EU [i.2]. Around 40 % of the enterprises with 50 to 249 employees can be considered innovative i.e. they introduced new or significantly improved products or processes in the time frame of 2002 to 2004 [i.3]. **SMEs are therefore a significant source of innovation in Europe and merit a dedicated approach,** and standards are a real opportunity for SMEs to increase their competitive advantage and to gain international recognition and new possibilities for collaboration. The European Commission, in its Directorate General for Enterprise, develops policies and programs to support SMEs in all fields of action at the European scale, including support for SMEs in standardization.

5.2   European standardization policy support

The Commission of the European Communities has identified standardization as key as a means to foster innovation in its Strategy for Growth and Jobs. More precisely, the Competitiveness Council of 4th December 2006, in its conclusions, emphasized the need to enhance the European standards-setting systems [i.4].

Regarding this rationale, in its communication COM(2008)133 of March 2008 ("Towards an increased contribution from standardization to innovation in Europe") [i.5], the EC has identified nine key elements for focusing EU standardization policy on innovation. These elements aim to strengthen the contribution of standardization to innovation and competitiveness. Amongst these nine points, some concern a current priority of the European Commission, **the access to standardization made available to all stakeholders, in particular SMEs**. In particular, the Commission insists on the following point: "[…] *how the standardization process could be revised in order to improve the standardization activities and the cost-benefit balance of participation for SMEs [...].*

In 2008, the ICT Standardization Work Programme issued by DG Enterprise [i.6] solicits proposals on the horizontal **actions of awareness, promotion, information and education, to generate key messages and proofs of the benefits of standardization for SMEs**. The European Commission website for DG Enterprise [i.7] clearly mentions the challenges related to the involvement of Small and Medium Enterprises in the standardization processes:

> *"Standardisation is the voluntary process of developing technical specifications based on consensus among all interested parties (industry including Small and Medium-sized Enterprises (SMEs), consumers, trade unions, environmental Non Governmental Organisations (NGO), public authorities, etc.). It is carried out by independent standards bodies, acting at national, European and international level.*
> *While the use of standards remains voluntary, the European Union has, since the mid-1980's, made an increasing use of standards in support of its policies and legislation.*
> *Standardisation has contributed significantly to the completion of the Internal Market in the context of 'New Approach' legislation, which refers to European standards developed by the European standards organisations.*
> *Furthermore, European standardisation supports European policies in the areas of competitiveness, Information and Communication Technologies (ICT), innovation, interoperability, environment, transport, energy, consumer protection, etc.*
> *Standardisation is an excellent tool to facilitate international trade, competition and the acceptance of innovations by markets. A key challenge for European standardisation is to strengthen its contribution to the competitiveness of Small and Medium-sized Enterprises (SMEs)."*

More details have been given in the staff working paper supporting the 2004 Communication on "the Role of European Standardisation in the Framework of European Policies and legislation" [i.8] regarding the targets and difficulties related to the involvement of SMEs in the standardization processes:

- **Improve involvement of SMEs in European standardization:** "Small and Medium-sized enterprises (SMEs) in standardisation work and the use of European standards present a particular problem in the sense that access to standards must be improved."

- **Lower the participation barriers:** "Standards development is time-consuming and costly in terms of the human and financial resources that have to be provided to achieve a meaningful input into the process. The participation of SMEs and societal stakeholders can be hampered by a lack of resources and technical expertise."

5.3　European standardization landscape

The landscape of European standardization is constituted by 3 ESOs (European Standards Organizations): CEN (European Committee for Standardization), CENELEC (European Committee for Electrotechnical Standardization) and ETSI (European Telecommunications Standards Institute), in addition to the National Standards Organizations (NSOs) in each European country. ETSI together with the other ESOs, CEN and CENELEC, provides standards to support European Union policies towards the development of the single market, and supports EC policies aimed at increased SME involvement. Each of the three ESOs has different rules of functioning to conduct these missions:

- CEN is the European multisectoral Standardization organization active in all fields except the electrotechnical and the telecommunication field. **CEN functions by a national delegation representation**. The CEN National Members (30 NSOs) work together to develop voluntary European Standards.

- CENELEC provides standards in the electrotechnical domain, and functions in a similar manner to CEN (they share the same management centre). **CENELEC also functions like CEN by national representation**.

- ETSI produces globally-applicable standards for Information and Communications Technologies, this includes, mobile, radio, converged, broadcast and internet technologies. **ETSI has a direct member representation and participation model**, where each member represents their own interests, and the ETSI work programme and standard approval is decided upon by the ETSI members themselves. ETSI has over 700 organization or company members, within which **25 % are SMEs, and 4 % are Micro enterprises**. To improve the participation of SMEs, ETSI practices a price differentiation policy for the membership fees (currently 3 000€ for microenterprises, 6 000 € for SMEs, and between 9 300 € to over 150 000 € for other members according to their turnover), and it reserves one seat in the ETSI Board for an SME representative.

In addition to the three ESOs, other players exist in the standardization landscape. There are numerous international standards bodies, fora and consortia which produce formal or informal standards and specifications for ICT. Since almost all of these specifications are voluntary, they can be freely used by industry anywhere in the world. International formal standards bodies include the ITU, ISO and IEC. Regional bodies such as the IEEE, and fora such as the W3C, IETF, OMG, OASIS, OMA, TMForum etc. play an important role for industry, and are open to wide participation. Some have a narrow technical focus, some have quite a broad focus, **but all except ISO and IEC practice a direct participation model**: companies or individuals must join these standards bodies and represent themselves, as they generally do not recognise national standards bodies as representative bodies.

5.4   Objectives of the study

While several studies have been made to increase the participation of SMEs in standardization through the national representation scheme, very few have been made in the context of the global ICT sector, where technology and markets ignore frontiers, national standards bodies are less involved, and direct participation of interested parties is the accepted method of participation in standardization. And yet much of the advice available in Europe to SMEs on their standardization policy is focused on encouraging involvement at a national level, with NSOs consolidating national opinion and taking that to the appropriate European or international SDO. This may be based on the belief that standardization activities are a straightforward additional cost for SMEs. **Since most ICT standardization structures are organized on a member company basis, and not national delegation basis, such advice is inappropriate in the context of the ICT industry and ETSI in particular, and any support policies developed under this thinking will fail when applied to SMEs involved in the ICT industry.** And furthermore the advice may be based on an incorrect belief in the value of standardization, without taking into account the benefits of direct participation.

The STF 376 project aims **to develop evidence to support the involvement of SMEs in ICT standardization, and to look at all of the benefits which may accrue from such direct participation**. With sufficient evidence, the project aims to develop the tools, briefing and support material to enable ETSI to properly inform and assist advisors to SMEs on the standardization advice they offer.
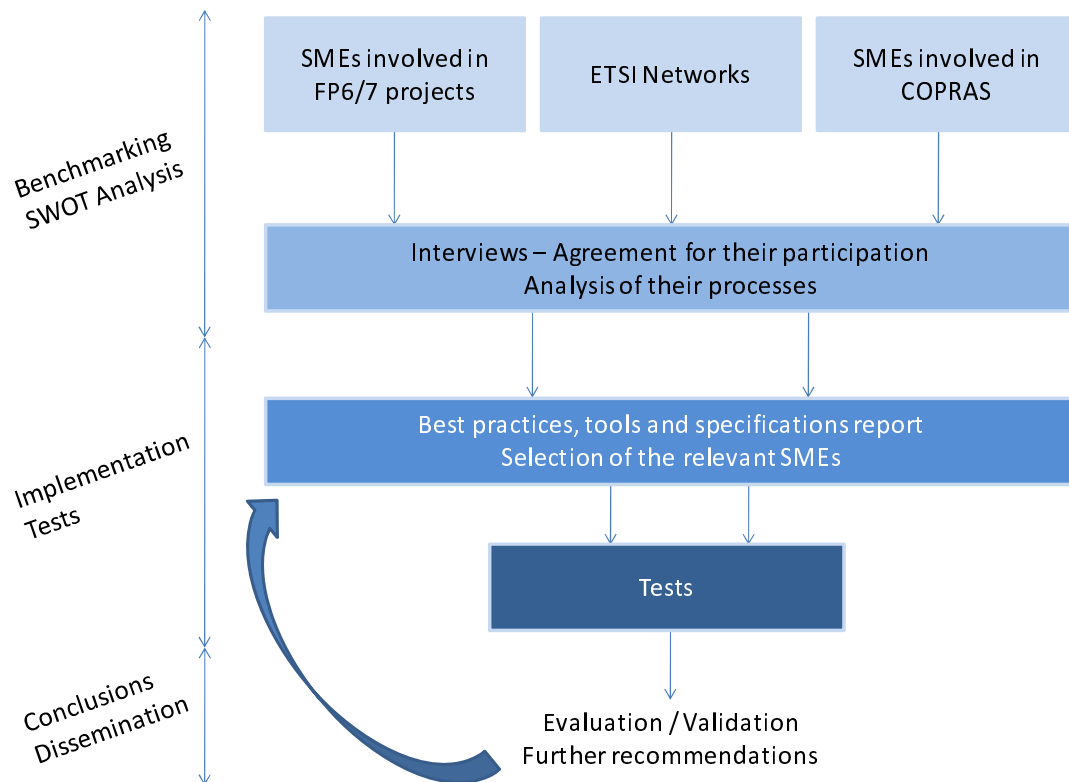
The high level objective of this project is to actively encourage and support the direct participation of SMEs from the ICT sector in the standardization process.
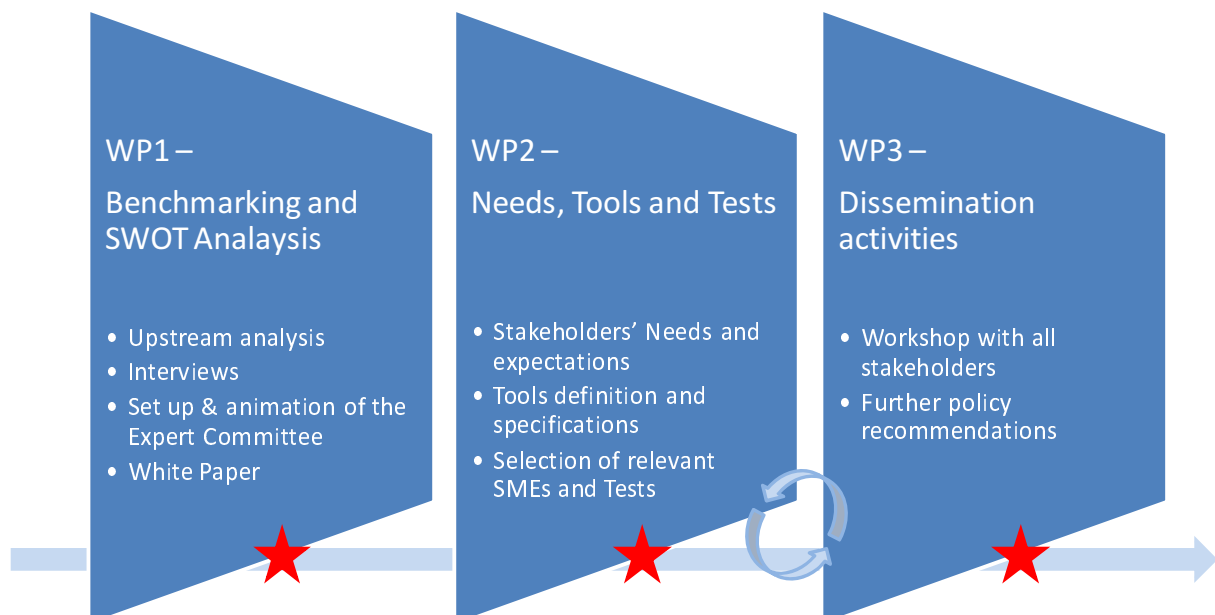
6   Methodology

6.1   Methodology overview

The project was structured into three main phases with multiple sub-tasks in each phase.

Figure 1: Phases and high-level tasks of the project

The project followed three main work packages, as shown in figure 2:

Figure 2: Project work-package structure

The project began with a benchmarking and analysis stage, which was structured in 4 separate tasks:

a) An intensive upstream analysis of current SMEs' practices concerning the contribution of their involvement in the standardization process to the improvement of their results. This analysis has focused on SMEs already active in ICT standardization.

b) A survey of a minimum of 200 people involved in the standardization and innovation fields, through questionnaires, completed with phone interviews.

c)   The creation of an Expert Committee, composed of individuals with outstanding track records related to standardization and innovation, representing stakeholders from various sectors and various geographical areas, including NORMAPME, the European Office of Crafts, Trades and Small and Medium-Sized Enterprises for Standardization. The members of this Expert Committee were tasked to ensure the right decision making process within the project and to provide new ideas for a better study development.

d)   Finally, the writing of a white paper gathering all the collected information during the first tasks. Results of the white paper were discussed within a stakeholders' workshop. The Expert Committee has provided recommendations for inclusion in the White Paper.

The second work package was composed of 3 tasks:

e)   Firstly, the functional needs of stakeholders were characterised. In a series of case-study interviews, the processes to encourage the emergence of high valued standards from innovation have been drawn. These processes were based on pro-active approaches derived from the ones used in the field of innovation management.

f)   The tools required to support the processes previously identified have been drawn too and implemented. These tools summarized documentation, methods and best practices such as interview guidelines, education and training, auto-assessment tools and targeted financial support.

These tools also include promotional material for ETSI such as the case studies, dedicated web pages for SMEs and a leaflet, to use in implementing the results of this project. Such material will be used in briefing and 'educating' consultants or advisors to SMEs in various national support structures. This support material is being made available to those briefed, for integration into existing information packages and awareness programmes.

g)   The third task aimed at testing the tools/best practices over a selection of SMEs. Their behaviour when submitted to the pro-active approach has been used to update the processes and tools definition.

The final stage of the project has been the organization of a workshop with stakeholders of standardization and innovation in Europe (ESOs, international standards bodies, innovation community, public funding agencies, etc.). The results obtained were discussed in order to finally write recommendations for a wider implementation within European research and innovation policy.

6.2   Data collection

SME and micro-enterprises make up a significant proportion of ETSI's membership. Over 28 % of ETSI's members are SMEs: ETSI can count over 200 SMEs including micro-enterprises among its members. Some 60 % of these SME members are active participants in the standardization process, having recently registered for and attended a standards meeting. And approximately 10 % of official positions (chair, vice-chair, rapporteur? etc.) in ETSI Technical Bodies are filled by representatives from SMEs.

Therefore in ETSI's limited experience, SMEs appear to be both willing and able to engage in the standardization process. Indeed, ETSI's SME members appear to recognise that standardization can be a real opportunity for SMEs to disseminate and exploit their results, but also to increase their competitive advantage and to gain international recognition and new possibilities for collaboration.

6.2.1   Upstream Analysis

During the first task of this mission, a desk research has been performed to compile a list of documents (reports, memos, and analyses) from existing European initiatives related to innovation and the standardization process in the ICT field, in order to identify structures, bodies and agencies or programmes to support SMEs.

This bibliographical analysis contains:

- An overview of policies for SMEs at the European level.

- Main institutions, bodies and programmes to support SMEs.

- Examples of National level support for SMEs of main European countries.

- Description of the European Standards Organizations (ESOs).

- Dedicated programmes to standardization.

A database of R&D performing SMEs identified in the ICT field has been built. The database includes general information: name, field, contact point, involvement in standardization etc. This database contains over 2 000 enterprises and was used exclusively for a survey of SMEs on their knowledge and best practices related to standardization.

6.2.2   Web Survey

ETSI carried out an online survey from June to August 2009. This survey was essential to provide objective information on issues related to SME participation in standardization, and to be able to derive suggestions for overcoming weaknesses and supporting the strengths of SME in ICT sector standardization in Europe.

The survey was distributed to almost 9 000 ICT companies mainly in the EU, including the 2 000 companies compiled in the database, and we received more than 200 answers. The main results from this survey are summarized later in this report.

This survey dealt with:

- General information details on the SME investigated (business sector, date of foundation, location, size and turnover…).

- Its involvement in ICT R&D or in collaborative programmes and projects.

- Its involvement regarding the production of standards:

    - degree of involvement, standards used, participation in standards bodies;

    - participation in standards development.

- The benefits or barriers that may be encountered when engaged in the standards development process.

6.2.3   Phone interviews

Following the web survey, phone interviews have been made to collect more specific information on the basis of the answers made on the online questionnaire.

18 direct interviews with SME representative have been conducted during September and October 2009. These were selected from the SMEs having expressed an interest within the web-survey to be further interviewed and those known by the ETSI project team members (generally ETSI SME members). 15 interviews were conducted by phone and 3 face to face. Interviews lasted from half an hour to one hour and a half.

The interviewed persons had different profiles ranging from the one having a very limited knowledge of the standardization process while believing they were participating in standardization, to one having contributed to standardization committee for 20 years.

6.2.4   Case studies (see annex A)

Beyond the web survey and the phone interviews, 10 detailed case studies were investigated and written up. The STF team selected 9 relevant SMEs that were participating significantly in the standardization process to derive an in depth analysis and have the most complete view of current behaviour of SMEs in standardization, and to develop a view on the standards' concrete added value to the SMEs. These case studies included SMEs who use the process of standardization in their activities, and who are today considered as "success stories". They also included SMEs who tried to use standards and participate in standardization to improve their results, but who did not succeed as well as others. These case studies were not restricted to standardization activities in ETSI.

For the tenth case study, the STF analysed the Enterprise Ireland Telecom Standards Initiative, a scheme to finance Irish SMEs to directly participate in international standardization.

The main purpose of these case studies was to understand the history of each SME interviewed, to highlight:

- The process to go into standardization, and the main success conditions.

- The current place of standardization in their activities.

- The return of investment to participate in standardization.

- The difficulties and barriers encountered.

- The best practices and tools used.

The final purpose was to conclude on some common expectations, needs and recommendations to improve the involvement of SMEs in the standardization process.

7 Analysis of the results obtained

7.1 Results of the web-based survey

7.1.1 Demographic and background information

The online survey performed during this study highlighted some relevant information about SMEs concerned by our purpose.

91 % of the companies answering the questionnaire provide services and products related to the ICT sector, an expected outcome to the target group ETSI is looking at and have been invited to participate in the survey.

It is typical for the company size distribution in the ICT sector that only 2 % of the answers came from big companies, 2 % medium sized, 13 % from small sized organizations (21 to 50 employees) and 59 % from micro-organizations with less than 10 employees.
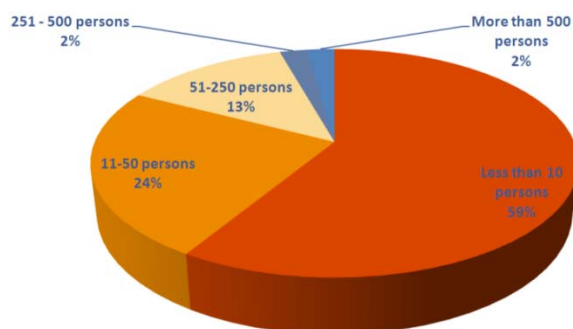
**Figure 3: Approximately how many employees are there overall in your organization?**
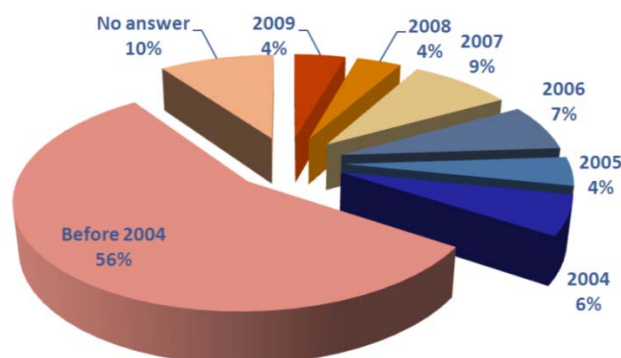
Figure 4: When was your company established?

What had not been expected is the fact that 56 % of the organizations surveyed have been established before 2004 and since this date almost all newly founded companies surveyed have less than 50 employees. These SMEs did not grow, despite the fact that they operate in the high-growth ICT sector. The reason for this is not clear from our study, and is not the subject of our study. But this does merit further reflection on whether this is a problem with the sample of companies targeted, or whether it points to a more serious structural problem in Europe.
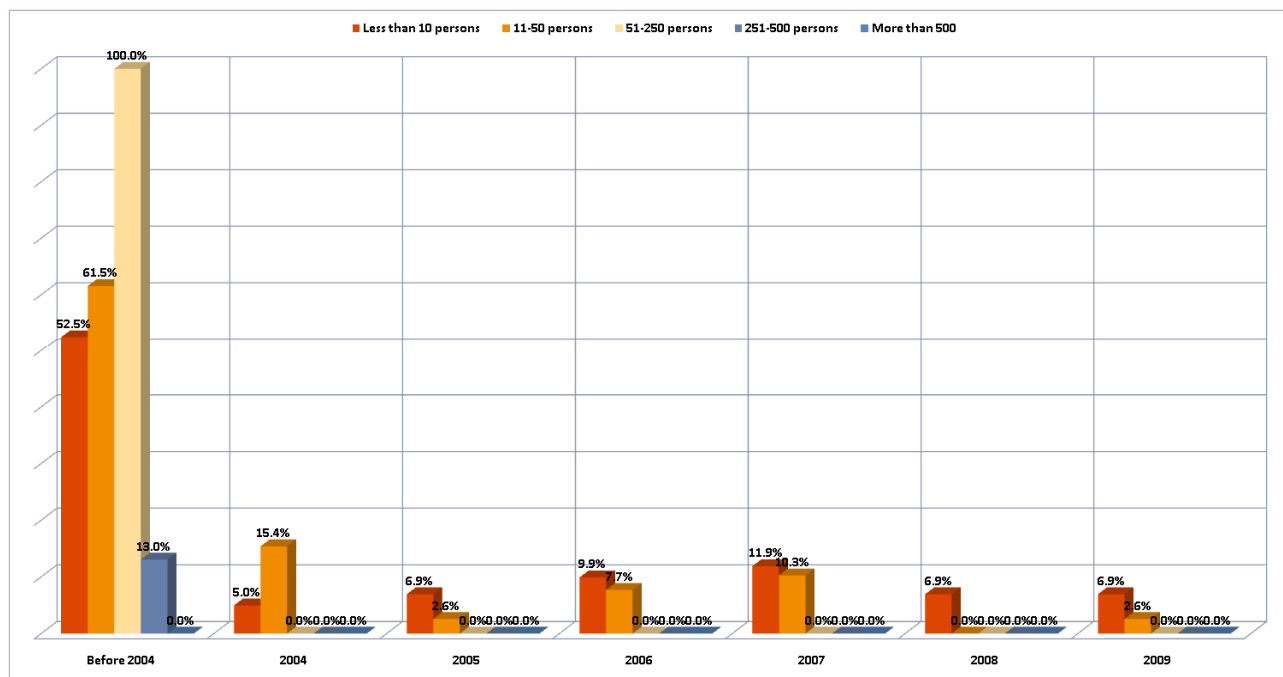
**Figure 5: Numbers of employees according to the year of establishment
(% refers to proportion of total number of firms of that size**
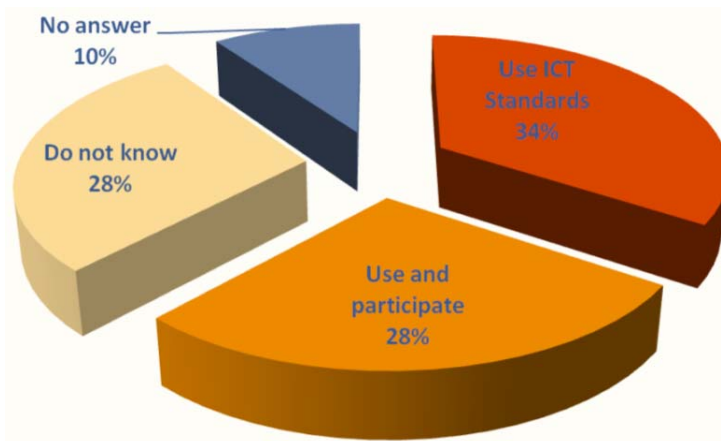
Figure 6: Does your organization use or participate in the development of ICT standards?

In this web survey, we distinguished two main categories of SMEs involved in the ICT standards process:

- Those who are only using the standards.

- Those who are using them and participating in their development.

Each SME had to answer adapted questions according to which of the two categories it believed it belonged to.

The individuals answering the survey were primarily senior managers or R&D management, and were exactly the targeted audience for this survey.

7.1.2   Drivers and benefits of participation in standardization

Most of the SMEs surveyed who participate in standardization choose to participate to drive standards according to their products or services. Indeed, these answers indicate that they contribute directly to the process and want to develop or keep their leading position in their markets. IPR issues and information on competitors which could be harvested from standardization participation are not key drivers.
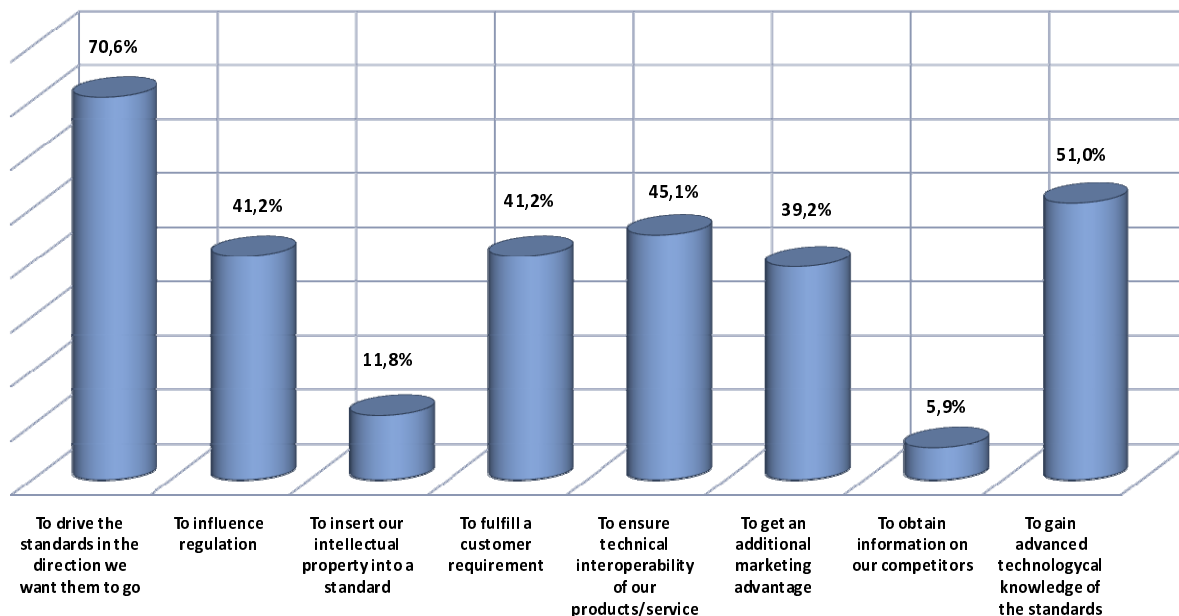
Figure 7: Why does your organization choose to participate in ICT standardization?

The SMEs surveyed were quite emphatic about the benefits of participating in standardization, and clearly the range of benefits experienced is much larger than the drivers or direct reasons for participation.
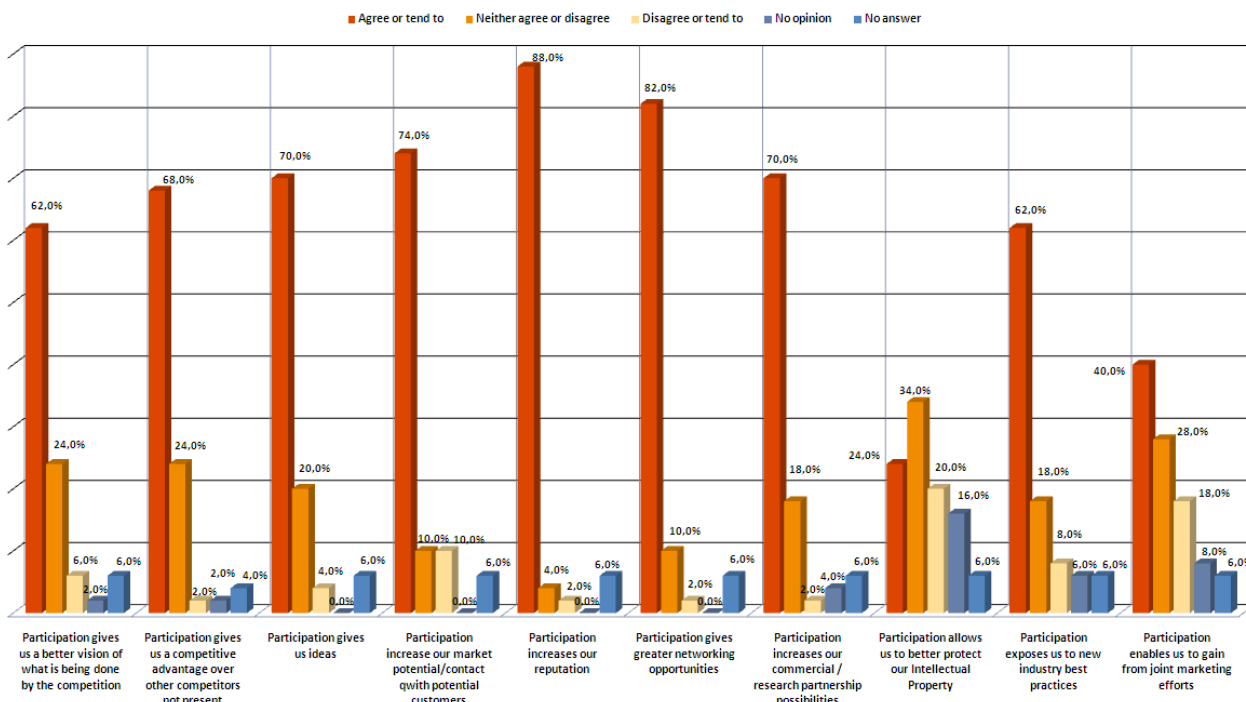
Figure 8: Do you agree with the following statements about the benefits of participating in the standardization process

The key benefits of participation in standardization, as perceived by the SMEs surveyed, are:

- Increased reputation of the company.

- Greater networking opportunities.

- Increased market potential/increased contact with potential customers.

- More commercial or research partnership opportunities.

- Competitive advantage knowing what's in the standard in advance and understanding the background.

- Exposure to industry best practices and new ideas.

- Better competitive intelligence.

7.1.3   Difficulties and barriers faced

The most significant barriers faced by SMEs who participate in standardization are related to competition or domination of larger players and to cost: cost of time, travel and membership fees.
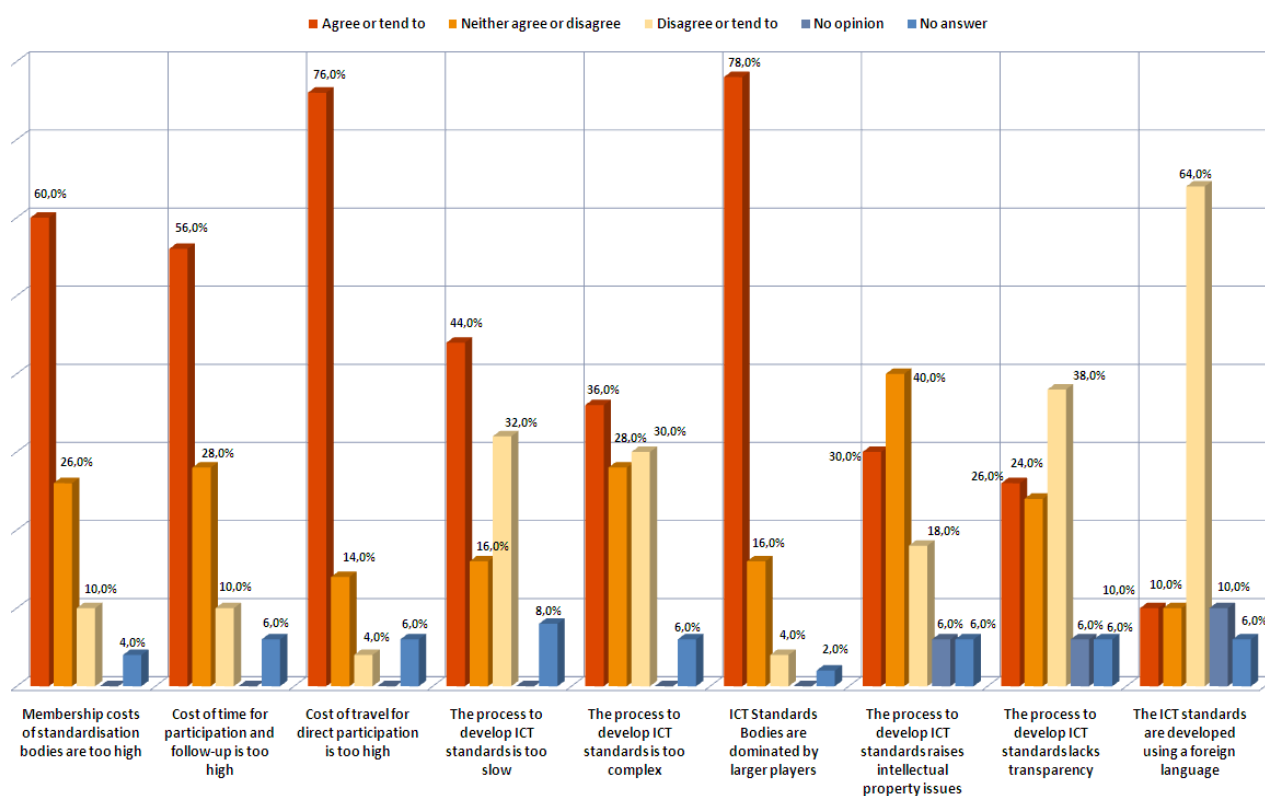
Figure 9: What are the barriers/difficulties you face in order to participate in ICT standardization?

These same issues of cost and dominant players feature high on the list of reasons by SMEs who have chosen not to participate in standardization. However, it is worth noting that participating SMEs consider that the cost of time for participating is less a barrier than those SMEs who do not participate. Perhaps this is related to the list of benefits they experience from their participation.
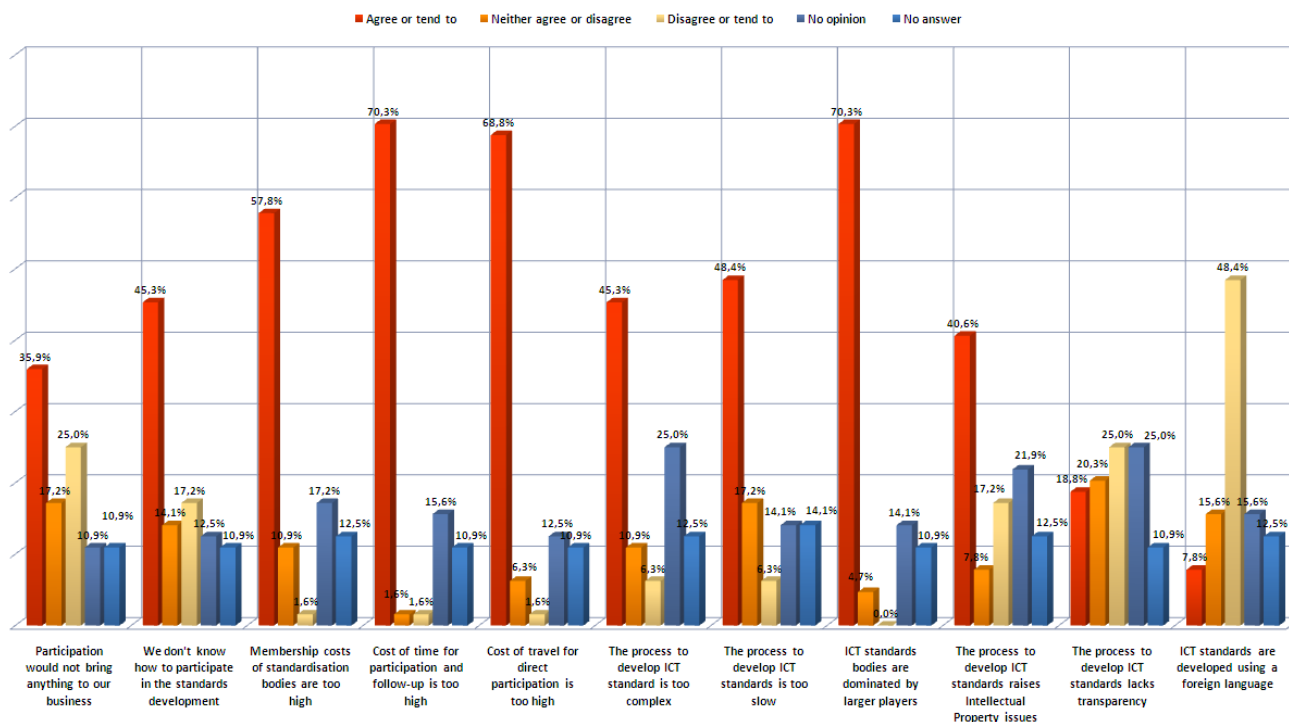
Figure 10: The reasons to use but to not participate in standards development

Yet despite the difficulties related to the cost of participation, especially of time and travel, very few SMEs who do participate make use of external funding to help them.
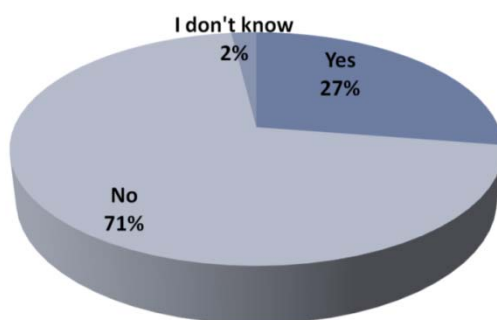
**Figure 11: Does your organization receive external funding
to finance part of your participation in ICT standardization?**

We have noticed that the longer an SME is involved in the standardization process, the more likely it is to receive external funding. This points to awareness of funding opportunities as being an issue for SMEs, or to incorrect targeting, where SMEs have to demonstrate they have sufficient experience in standardization in order to qualify for funding.
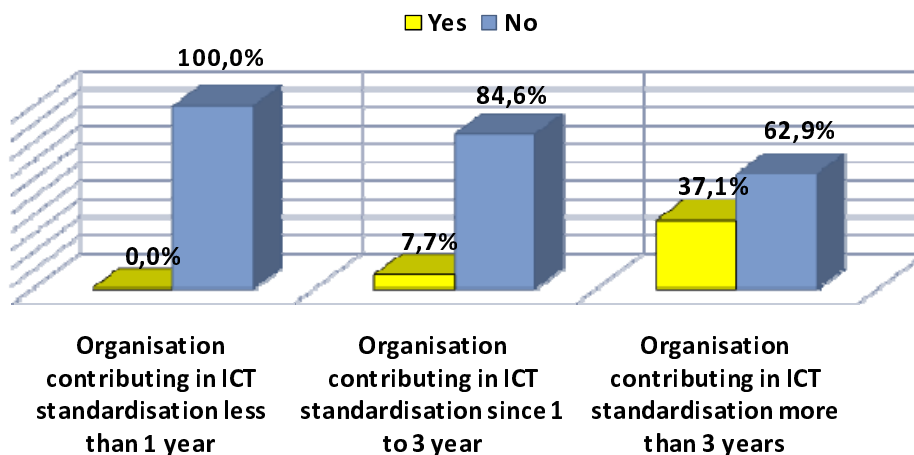
**Figure 12: Does your organization receive external funding
to finance part of your participation in ICT standardization?**

Where such funding schemes exist, if SMEs are sufficiently aware of them and if they are easy to access, then the evidence above would indicate that funding schemes could make a significant impact in reducing barriers to SME participation in standardization.
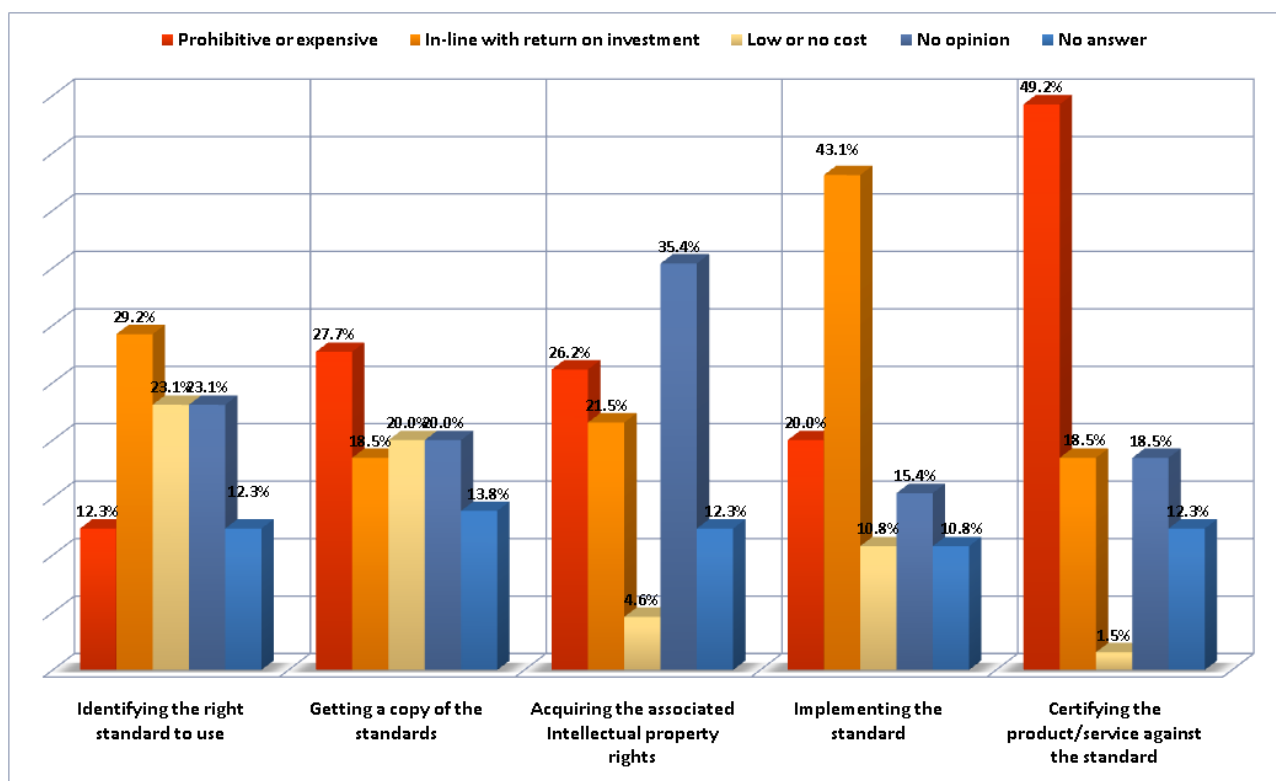
Figure 13: How do you rate the cost of the following aspects of using ICT standards?

In looking at aspects of the cost of using standards, costs associated with certification, and costs associated with acquiring copies of standards are both considered too high - especially certification. ETSI standards are available for free, which is of significant help for SMEs. And ETSI has no involvement in the certification process so is unable to assist here. A concern is the high 'No opinion' answer related to the costs of acquiring intellectual property rights associated with a standard - many SMEs surveyed who use standards have obviously not concerned themselves with this subject.

7.2   Case study analysis

The project carried out 10 case studies, 9 with SMEs in the ICT field and 1 with an initiative (Enterprise Ireland) supporting the involvement of SMEs in ICT standardization. Each case study is based on data collected during a half-day face-to-face visit, and completed with desk research. The list of case studies is given in annex A.

The previous steps of the study and the 10 case studies carried out highlighted the difference of expectations and needs according to the level of awareness and involvement of the SMEs in the standardization. STF376 defined 4 categories of SMEs according to their awareness to standards.

Table 1: Categories of SME standards users and participants

Category	Description and challenges
Do not know/ is not aware of the standardization	The company does not know what a standard is and the advantage of using or contributing the standard to its business. The objective for this target is to increase its awareness of company ICT standards within the organization in charge of support and to facilitate the information access.
Advanced user of standard	The company is a user of standards but does not participate in their elaboration process. The first challenge is to drive the company to the relevant standards and improve the communication about upcoming and existing standards that can be used by the company. The second challenge is to favour the feedback from the company about the standard used, and if relevant, encourage more involvement in the development process of standard.
Passive participant of standard development	The company is already involved in the development of standard, participating in meeting, but is not yet a leading contributor. The objective is to accompany the company, if relevant, to become a real contributor in the creation process.
Active contributor to standards development	The challenge is to drive the company, protect it, and ensure that the company still find an added value in contributing to the development process.

The statements, expectations and needs were identified for advanced users, passive and active participants in standardization.

7.2.1   SMEs who participate actively in standards development

7.2.1.1   Main statements

A number of case studies were on SMEs who took an active engagement in the standards process. An analysis of their statements and cases allows us to highlight some issues common to these companies. These are presented as identified by the companies concerned.

- **The level of English** required to participate actively in standard development is very advanced. To be able to "sell" its technology in a negotiation during the definition of standard, the participant must speak, understand and have negotiation skills in English. The English language is, thus, not only a real advantage, but a mandatory skill. It comes with the need of **high level of technical capability** (able to gain peer recognition).

- **IPR is an issue for these SMEs.** An innovative SME may hold key patents in a new field, and these small number of patents are very valuable and very important for the SME. Larger companies with a more established IPR holding, maybe having hundred of patents, may attempt to overwhelm a SME with patents that are intrinsically less valuable in any IPR negotiations.

- Companies need to develop sales in order to survive and have marketing power. An efficient way to increase their market opportunities is by participating and introducing their technology in standard development. But this is a mid/long term approach which most SMEs have not yet realized. **Thus to play a consequent role, standardization activities have to be included in the project/business plan of SMEs from the beginning.**

- **The question of large players taking a dominant position is also often discussed.** Some SMEs perceive that this may be due to the chairmen of technical committees, often coming from larger players, **having a strong influence on the committee and on decisions**. In addition, the difference in the manpower that may be devoted to standardization is also perceived as a real advantage for big players' participation. **It should be noted here that SMEs who were particularly successful in the standardization process also took chairmanship responsibilities early on and became dominant, despite their small size.**

However, the expectations in this group also depend on the path chosen by SMEs in terms of standardization: In which body? In how many bodies, fora or consortia? In which geographical area?

For example one SME decided to take an "offensive" strategy: involvement in all geographical areas and in both national and international bodies as well as industrial associations. However, they considered this involvement as mandatory for the development of the company as it has to sell worldwide and gain market power to grow and survive. Yet this strategy demands **a lot of effort in terms of time, human resources and finance, and so a critical mass is required to assume the cost of the standardization process.**

Another SME had a different way to participate depending on the standard/technology. Indeed it experimented with two approaches:

- Bluetooth and BWA (Broadband Wireless Access) cases: They participated in standards development at an early stage and contributed actively to the development of the standard. Bluetooth has been very successful, but BWA has not, because the market vanished while the standard was under development. Thus active participation **in the standard at an early stage of development is risky for an SME** because at this stage the market development of the technology is not certain. However, this does allow a company to gain a real advantage in terms of expertise if the market were to develop. This strategy **is very time consuming (requires huge amounts of preparatory work to influence the standard), is costly (travel/accommodation for the numerous meetings) and the return on investment is slow and uncertain, so it is very difficult for a SME.**

- DECT case: The same SME was only a follower of standardization because it came late into the process. **Integrating the process later reduces risk and the time required to see a return on investment, but it also reduces the profit** as it causes a delay for the company in coming to market This involvement is easier for an SME but the corresponding market need to be large enough (which was the case for DECT) to enable the SME to find its niche.

7.2.1.2   Needs and expectations

The analysis of these cases allows us to highlight some needs and expectations common to these companies:

- **Think about the standardization process from the start** i.e. during the formalization of the project business plan. Thus a solution could be to inform the maximum number of bodies that support innovative start-ups of this consideration: technological incubators, but also national and regional innovation agencies.

- **Eliminate the main barriers to active participation in standard development:**

  - **Cost and working time,** by modifying either the process or the financing opportunities.

  - **Accelerate the process and reduce the time required for a return on investment.**

  - **Avoid the English language issue, by** ensuring that the person in charge of the standardization aspects in the SME has an adequate profile with good skills.

  - **Be prepared to take a leading position by making a strong contribution or taking official responsibilities, in order to reduce the domination of others.**

- More education is required on IPR issues related to standards. In particular the sources of assistance should be better known, and SMEs need to avail of the increased transparency that is offered by initiatives such as ETSI's database of IPR claims related to its standards and specifications.

7.2.2   SMEs who participate passively in standard development

7.2.2.1   Main statements

- Deciding to actively participate in the standardization process should be a long term strategy, and is not suitable for all companies. **It only applies to innovative companies with ambitions to be a front runner and market leader.**

- Developing and participating actively in standard development is a mid/long term project, very time consuming and a company has to find a **balance between the need to develop sales today and the need to develop standards** in order to introduce its technology tomorrow. Thus before thinking about standardization, a company has to be sustainable and has to be convinced that the standardization process will be of great advantage to the company.

- Standardization work is lengthy, so the return on investment is lengthy too, and the risk threatens to remain for years due to the fact that the standard may not be adopted by the market and thus goes unused. Thus passive participation is a way for SMEs to participate in the development of standards by limiting the risks. **The risk of having the investment in standards being unrewarded is the main barrier for a more proactive participation of some SMEs in standard development** as it is often not considered as part of the R&D investment. Barriers to the adoption of standards are also increased by the reduced market power/lobbying power of SMEs compared to larger players.

- Finally is often unclear for some SMEs what standardization is and what kind of contribution SMEs could provide to the standardization process. Indeed when SMEs take part in a standards meeting for the first time, it can be very difficult for them to find their feet. There is **a real communication challenge** for standards bodies to attract SMEs to the process, and **an educational challenge for them to explain to the SMEs how and why they should participate**. New SMEs need to be coached to understand what happens within the standards organization, and how they could profit from participating in standardization. Moreover, it is often better **to be introduced into standardization bodies** by another member in order to be trusted and acknowledged by former/current members, and to facilitate the integration. The need for "sponsorship" can be also an issue for some SMEs, especially for emerging ones.

7.2.2.2   Needs and expectations

The analysis of the cases allows us to highlight some needs and expectations common to this category of companies:

- **SMEs need support in these first steps in standard development**, by creating a network of confirmed standardization participants to mentor newcomers, or training to educate an employee about standardization in order to learn about the formalities and processes, to find the right working groups, the right information, meet the right people, etc. A structure such as the ETSI Seminar is very useful, if a bit too long (3 days) for most SMEs).

- Another expectation is **about the accessibility of materials and documents for SMEs**: reduce the cost of information and standards, and explain and simplify the process of finding the correct information. Again, ETSI's policy of standards for free is of huge benefit to an SME.

7.2.3   SMEs who use standards without participating

7.2.3.1   Main statements

Using and implementing standards is very complex and difficult:

- **Identifying the right standard:** Which technology? For which markets? What will be the return of investment for the company? How to obtain the relevant information? These are many of the questions raised by the companies surveyed, especially those from SMEs who have no time or money to answer these questions themselves.

- **Implementing the standard:** the cost of buying the standard, the number of cross references in the standard, the cost of implementing the standard (licences) and finding the best way of implementing it, these are enormous challenges for SMEs.

In addition, according to the survey results, if SME users of the standard would be involved in the standardization process, they face important barriers:

- **Manpower and Time:** to participate in technical committees.

- **Cost:** Travel and subsistence, membership fees of standards body.

- **Complexity of process** and identification of the appropriate committee.

Thus a company needs a critical mass to ensure it will have the necessary resources and time for the use and the implementation of the standards.

7.2.3.2   Needs and expectations

The data collected allows us to highlight some needs and expectations common to this category of companies:

- **Steer the SME to the relevant standard,** especially by improving communication (to develop market orientated communication, to make SME pages on the ETSI website, or to edit a sector based newsletter...).

- **Facilitate the implementation of the standard.** The CEN/CENELEC Guide 17 [i.9] has useful guidance for standards committees and those who write standards.

- **Develop the feedback from users** to national and European standard organizations, by on-line forum for example.

- **Favour more involvement in the process from the users** of standards: provide a short period of free access to standards committees to SMEs as guests (ETSI already offers this for 6 months), provide education about the business implications and return on investment of standards.

7.3   Identified benefits of participation in standardization

This study led by the STF 376 demonstrated a number of benefits enjoyed by SMEs when participating in the standardization process:

- **In depth understanding**

Being involved in standardization allows an SME to access the standard as it is developing and know the origins of the various contributions to the standard, the reasoning behind them, and have a greater technical understanding of the standard and how to apply it.

- **Competitive advantage**

Being present as a standard is being written provides a competitive advantage of knowing what the contents of the standard will be before others do. Companies who are not present can only see and implement the standard after it is published, whereas those in the standards committee may already be using and implementing draft versions for some time.

- **Influencing the contents of the standard**

Standards committees are made up of technical experts who generally make decisions using consensus. All the work is done voluntarily. It is much easier for an SME to influence the work of a committee than one might imagine: time, expertise and willingness to contribute and work with the others present in the committee count for much more than company size.

- **Forming partnerships with other participants**

Attending standards meetings provides opportunities to meet and develop long-term contacts with potential partners and competitors, both in the meeting and in informal discussions during coffee breaks.

- **Opportunities to access potential customers**

Your next customer could well be one of the companies in the standards committee. SMEs can get a better understanding of customer needs by being present, but also customers can see their technical competence and commitment to the standards process.

- **Benefits of common marketing campaigns**

Marketing and branding related to the standard under development is made by the standard development organization and other participants in the standardization committee: SMEs benefit directly from this communication campaign, even if they have contributed relatively little compared to the larger companies present.

- **Innovation**

By tracking a standard in development, a SME can learn industry best practice and can keep its products aligned with emerging developments in the market.

- **Visibility, credibility**

A SME involved in standardization is visible to competitors and customers, and attains a certain credibility in front of them by showing a willingness to be deeply involved in the technology.

All of the above benefits were experienced by the SMEs who responded to the survey, which demonstrates that these benefits are real, not simply a wish-list of potential benefits.

Indeed, Enterprise Ireland identified a similar but more extensive list of benefits from direct participation in standardization for SMEs, which were listed in their case study:

Technical benefits

a)   Early access to the standard.

b)   Define direction for the standard.

c)   Technical insight into the technology.

d)   Protect existing investments by opposing aspects of standard that conflict with own technical goals or approach or would affect competitive position.

e)   Find potential key new personnel or recruits experienced in the technology and in standardization.

f)   Align engineering/product roadmap with potential standards evolution.

g)   Integrate own patents into standard.

h)   Build in-house knowledge on how best to implement standard (know the trade-offs, innards of standards decisions).

Commercial benefits

i)   Time to market for product development in line with standard.

j)   Promote own technology and technical approach to potential early adopters within the standards community.

k)   Find potential alliances/partners for own approach/product within standards community.

l)   Build early intelligence on competitors and products.

m)   Enhance company's credibility and reputation through association with having "written the standard".

n)   Enhance company's profile by chairing WGs, being on Executive council.

8   Operational recommendations

The cross analysis between the needs and expectations (based on survey results, interviews and case studies), and the benchmark study of existing tools led to the identification of 26 solutions to facilitating the participation of SMEs in the standardization process.

Using a Delphi Method [i.10] with the Expert Group to discuss their views about the identified solutions, the initial 26 proposed solutions have been regrouped under 17 recommendations, with:

- **8 obtaining a general agreement** and being considered as a priority by the Expert Group.

- 7 being accepted by the Expert group but considered as secondary priorities.

- 2 not being considered as relevant for the project.

The following tables present the 8 operational recommendations obtaining a general agreement, regrouped according the type of tool.

8.1   Educational tool

TRAINING	

Description of the proposed solution	• Objective:
	  ○ Increase the capability and awareness of evaluating standardization related costs and benefits
	  ○ Learn about the formalities and processes of finding the right working groups, people, useful information…
	• Target Audience: Personnel in SMEs and in SME support agencies
	• Implementation: Summer school, SMEs specific seminars, Simulation exercise, E-learning

Expert discussion and conclusion	• Seminars are still running in ETSI as well as Powerpoint courses, but these focus on ETSI: what it is, how it works… • Training not relevant for advanced users • Electronic form is the more efficient format: general agreement
Recommendation for implementation	• Go to e-learning format, update the existing ETSI training courses to a more advanced media format • Create a special area on the ETSI portal with hints, recommendations, and digital courses. • Local courses could be made in cooperation with CEN/CENELEC, or in different countries • Create a light-weight 1-day ETSI seminar dedicated to SMEs, which could be held outside ETSI
Indicators for monitoring during the implementation	• Input: number of persons trained, total number of days in training, training expenditure • Impact: number of persons trained, number of SME members, number of participants from SMEs

NETWORK OF CONFIRMED STANDARDIZATION PARTICIPANTS	
Description of the proposed solution	• Objective: ○ Mentor newcomers • Target Audience: confirmed standardization participants and newcomers • Implementation: to draw inspiration from social networking, to create a professional network of SMEs within ETSI
Expert discussion and conclusion	• Good idea to help SMEs to lobby and defend their interest. Competition between SMEs could raise some issues • Could be chairman's responsibility (but already loaded) or team leader from secretary • SMEs association could provide some of this. This raises the issue of representation, especially in the case of ETSI (direct participation) • Specific mentors could be hired for some committees (but raises the issue of financing the mentor)
Recommendation for implementation	• Integrate the notion of mentoring in the responsibilities of chairman: either by himself, or by hiring a specific mentor, with the assistance of the ETSI secretariat. • Identify an experienced SME who would be in charge of the mentoring • SME associations could seek EC financing in order to fulfil this role
Indicators for monitoring during the implementation	• Input: number of SMEs mentored, number of mentoring meetings, time spent in mentoring activities • Impact: number of SME members, number of participants from SMEs, time to identify the right committee, number of accepted contributions from SMEs

8.2   Financing Tool

SPECIFIC FUNDING PROGRAM DEVELOPED BY SME SUPPORT AGENCIES	

Description of the proposed solution	• Objective:
	  ○ Finance the cost of participation in the standardization process: travel, membership fees…
	• Target Audience: SMEs involved in standardization development process (passive or active)
	• Implementation:
	  ○ developed by SME support agencies
	  ○ ETSI could help these support agencies to tailor support schemes to the needs of ICT standardization

Expert discussion and conclusion	• General agreement on the development of a specific program by the SME support agencies • Take care not to dictate to SMEs which standardization organization they should join: the selection of relevant standards structure is an SME choice, according to their technology to be standardized
Recommendation for implementation	• Organize an active roadshow at national level, in all the countries in European Union, to visit national SMEs support agencies
Indicators for monitoring during the implementation	• Input: Number of travels financed, number of memberships financed • Output: number of meetings attended, number of accepted contributions, time for documents preparation, positions held in committees, time for internal dissemination of information, number of projects realized in standardization • Impacts: time to develop new prototypes, time to market, patents submission, number of customers, market share growth, % of new products in portfolio

6 MONTHS FREE ACCESS TO TECHNICAL COMMITTEE	
Description of the proposed solution	• Objective: ○ Give 6 months free access to newcomers without membership fees in order to test and understand the process, and check if participation is suitable for the company • Target Audience: SMEs non ETSI member • Implementation: Grant membership free for 6 months to SMEs
Expert discussion and conclusion	• SMEs memberships cost is already very low • Membership agreement in order to participate in free access during 6 months could be signed only upon request and justification
Recommendation for implementation	• Grant membership free for 6 months to SMEs: a guest status already exists but should be more advertised and promoted and systematically used for this purpose • Provide support and close commercial follow-up
Indicators for monitoring during the implementation	• Input: number of SMEs asking for the guest status, number of follow-ups of the SME under guest status by secretariat • Output: number of confirmed memberships after 6 months (conversion rate)

8.3   Process Change Tool

ADVERTISE THE IPR POLICY AND GET SMEs INVOLVED	
Description of the proposed solution	• Objective: ○ Increase the awareness of IPR issues and the value of IPR among SMEs • Public targeted: all ETSI members
Expert discussion and conclusion	• IPR policy proposals are discussed in the IPR Special Committee, but participation of SMEs in that committee is low or non existent • Existing ETSI IPR database: encourage the use by communication, awareness, and education
Recommendation for implementation	• SMEs interest in IPR issues could be collectively supported by representative organization during the IPR SC • Create an information package on IPR for SMEs, copyright, patent, royalties, ETSI IPR policy, database…
Indicators for monitoring during the implementation	• Input: presence (representation) of SMEs in IPR SC, • Output: number of clicks on the ETSI IPR webpage and database, number of patents declaration by SMEs

8.4 Assessment Tool

HR PROFILE	
Description of the proposed solution	• Objective: o Ensure that the person in charge of standardization aspects in the SME has an adequate profile with relevant skills • Target Audience: passive and active contributors • Implementation: Define a generic "recruitment profile" or "evolution profile" that could be used by companies as a basis, including a list of mandatory and necessary skills
Expert discussion and conclusion	• HR profile depends on the function (manager of standardization, engineer directly participating…) and also the level of involvement in the contribution • Reasonably economical and very useful: general agreement
Recommendation for implementation	• To be downloadable from the ETSI website or portal
Indicators for monitoring during the implementation	• Input: appropriation of the ETSI edited profile • Output: number of persons especially recruited or trained in the SME to participate in the standardization

COMPANY ASSESSMENT TOOL	

Description of the proposed solution	• Objective:
	  o To support the company in its decision and later on, in the monitoring of its involvement in the standardization activity
	• Target Audience: users, active and passive contributors
	• Implementation:
	  o Based on a set of criteria
	  o Can take a form of auto-assessment tool or internal audit by an external party
	  o Can be made in collaboration between national/regional agencies support

Expert discussion and conclusion	• Development of a suitable tool would be very useful in demonstrating the benefits of participation • Proposal needs more elaboration: what is to be assessed? Which criteria? • The assessment would depend on the target of the company
Recommendation for implementation	• Use the ETSI website to implement the auto-assessment tool: interactive tool or evaluation grid • Test the set of criteria with SMEs
Indicators for monitoring during the implementation	• Input: number of assessments made, number of assessment grid downloads (if on-line) • Output: % of membership renewals for SMEs recruited 1, 2 and 3 years before

8.5 Communication Tool

SMEs ORIENTED COMMUNICATION	

Description of the proposed solution	• Objective:
	  o Make SMEs aware of standardization benefits: return on investment
	  o Explain and simplify the process of finding the correct information
	• Target Audience: all SMEs
	• Implementation:
	  o Page on ETSI website addressed to SMEs
	  o Flyers distributed to the local contact point of companies: development agency, professional associations etc.
	  o Highlight success stories and interviews of SMEs involved in standard development
	  o Possible translations with on-demand printing for specific national or regional events.

Expert discussion and conclusion	• Require clarification on the content of the communication • This could also be of interest for larger companies
Recommendation for implementation	• SMEs page on ETSI website • ETSI flyer for SMEs: prefer electronic version plus on-demand printing
Indicators for monitoring during the implementation	• Input: Number of direct contacts, number of marketing documents download, frequentation of SMEs webpages • Output: number of SMEs applications for guest status or (new) membership

9 Conclusions

The nature of the ICT market leads actors to choose standards organisations where direct participation is possible; additionally much standardization in ICT is performed in fora and consortia at a global rather than national level. SMEs who wish to involve themselves in ICT standardization must therefore be prepared to participate directly. They should also be made aware of the benefits of a direct participation, such as the possibility to play a leading role and have a stronger influence, due to the open nature of these groups. The latest ICT technologies are also used by standards bodies which enables remote participation, virtual meetings, e-mail and bulletin-board discussions etc. and helps avoid excessive travel costs.

SMEs should realise that there are numerous benefits to be had if they approach standardization with the intention to maximise their gain. This study by ETSI STF 376 has demonstrated that these benefits are real and are really experienced by SMEs. It has given examples of SMEs who have succeeded in direct participation in standardization. It also suggests measures which will help other SMEs achieve the same results - measures which can be taken by SDOs, by support agencies and by the SMEs themselves.

The recommendations in clause 8 should be considered by responsible authorities and within ETSI to increase awareness among SMEs of the benefits of direct participation in ICT standardization.

Annex A:
List of Case study subjects

Company	Sector/Main product	Founded	Location	Involved in ETSI?
DS2	Telecom - Power line networking technology - chipset.	1998	Headquarters in Valencia, (SPA) + San Diego (USA), Taiwan (TWN), Tokyo (JAP) and Korea (KOR))	YES
EFKON	ITS-Intelligent Transportation, e-Payment, Traffic Management, Enforcement and Traffic Telematic Systems Solutions.	1994	Headquarter in Rabaa (AUT) + offices in New-York and Dallas (USA), London (GBR), Berlin (GER), Mubaï (IND), Juala Lumpur (MYS)	YES
Kion	Software product in Student Management Systems for Higher Education.	2001	Headquarters in Bologna, (ITA) + Turkey	NO
Mobileaware	Mobile content adaptation.	1999	Headquarters in Dublin (IRL)	NO
Net Insight	Transport data, and group different traffic: transport of video and distribution of TV production.	1997	Headquarters in Stockholm (SE), + offices in Singapore, UAE and the USA	YES
Newbay	Telecom - Digital lifestyle solutions for operators, deliver integrated set of converged rich-media services.	2002	Headquarters in Dublin (IRL) + offices in Washington and Palo Alto (USA), London (GBR), Dusseldorf (DEU), + representation in Paris (FR) and Mexico City (ME)	NO
Plextek	Consultancy company: electronic design house, specializing in product and systems design for communications, automotive, aerospace, defence and medical application.	1989	Headquarters in Great Chesterford near Cambridge (GBR)	YES
Telit	Machine-to-Machine communications.	1986/2003	Headquarter in Roma (ITA) + offices in Trieste (ITA), Raleigh (USA), Sao Paulo (BRA), and Seoul (KOR)	YES
TTTech	Highly reliable electronic networks for transport and automation industries.	1998	Headquarters in Vienna (AT), offices in Europe, Asia, US	NO
Enterprise Ireland	Irish national support agency for indigenous industry. Operates a Telecoms Standards Initiative providing funding to SMEs who participate in telecoms related standardization.		Dublin, Ireland	NO

History

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