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Participation of SMEs in Standardization

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He is a member of several standardization projects including e-health for NORMAPME and the Austrian Standard Institute, corporate security and risk management, and the CEN workgroup WG208 (Guide to write standards taking into account micro, small and medium enterprises (SMEs) needs and specificities in standardization).

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The European Telecommunications Standards Institute (ETSI) has conducted a study, co-financed by the European Union (EU) and the European Free Trade Association (EFTA), to evaluate how to improve the participation of Small and Medium-sized Enterprises (SMEs) in ETSI standardization. This is known internally at ETSI as Specialist Task Force (STF) 376.

In an initial phase of this study, an online survey was distributed to almost 9000 European SMEs in the ICT industry to evaluate their perception of standardization, the barriers they face in participating in standards committees, and the drivers which encourage them to use standards. Follow-up telephone interviews were conducted with a number of these SMEs who requested to be contacted by ETSI in their survey responses.

This White Paper presents a synthesis of the replies received, together with a number of high-level recommendations, some of which are relevant to ETSI and will be further developed as part of the study. The survey results were presented and discussed at a dedicated workshop organized by ETSI, and this White Paper takes account of the conclusions of that workshop.

Foreword

Micro, small and medium-sized enterprises represent 99% of all enterprises in the EU and provide around 65 million jobs. Micro enterprises represent more than 93% of all existing EU companies.

The following table contains the definition of SMEs, according to the European Commission's DG Enterprise and Industry[1]:

Enterprise category	Headcount	Turnover	or	Balance sheet total
medium-sized	< 250	≤ € 50 million		≤ € 43 million
small	< 50	≤ € 10 million		≤ € 10 million
micro	< 10	≤ € 2 million		≤ € 2 million

In its Communication COM(2008) 133 of March 2008 ("Towards an increased contribution from standardisation to innovation in Europe")[2], the European Commission has identified nine key elements for focussing EU standardization policy on innovation.

Amongst these nine points, several concern access to standardization being made available to all stakeholders, including SMEs – a current priority of the European Commission. In particular, the Commission identified the following: "[…] how the standardization process could be revised in order to improve the standardization activities and the cost-benefit balance of participation for SMEs […]".

This White Paper is part of ETSI's consideration of this important issue.

[1] Recommendation 2003/361/EC "SME definition"
[2] EC Communication COM(2008) 133 of March 2008 ("Towards an increased contribution from standardisation to innovation in Europe")

Introduction

There is growing evidence that an integrated approach to standardization of Information and Communication Technologies (ICT) by SMEs who develop high technology 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 in the ICT industry 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 Standards Development Organization (SDO). This may be based on the belief that standardization activities are a straightforward additional cost for SMEs and possibly also on an incorrect belief in the value of standardization.

Since most ICT standardization fora and consortia, and in particular ETSI as a European Standards Organization (ESO), are organized on a direct participation per member company basis, and not national delegation basis, such advice is inappropriate in the context of ICT standardization and ETSI. Most NSOs are not members of industry fora and consortia and have no involvement with such groups.

The types of additional benefits available to SMEs who are actively involved in the standardization process may include:

- Forming partnerships with other participants;
- Opportunities to access potential customers;
- Cheap competitive intelligence from advanced notice of standardization topics, and from analyzing other companies' contributions;
- Earning a return on R&D investment by having their Intellectual Property Rights (IPR) included in standards;
- Benefits of common marketing of standardized technology, paid for by larger companies.

SMEs 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 65% of these SME members are active participants in the standardization process, having recently registered for and attended a standards meeting. And approximately 10% of elected positions (chair, vice-chair, rapporteur etc.) in ETSI Technical Committees and Working Groups are filled by representatives from SMEs.

ETSI's experience therefore indicates that SMEs appear to be both willing and able to engage in the standardization process. Indeed, ETSI's SME members appear to recognize that standardization can be a real opportunity for them to disseminate and exploit their results, whilst also increasing their competitive advantage, gaining international recognition and identifying new possibilities for collaboration.

Survey of the current situation for SMEs in standardization

ETSI carried out an online survey of SMEs involved in ICT standardization between June and August 2009. The results obtained formed the core of objective information leading to conclusions on the status of SMEs in the ICT sector in Europe and the identification of possible solutions for overcoming weaknesses and maintaining existing strengths.

The survey was distributed to almost 9000 ICT companies, mainly in the EU and more than 200 responses were received. Summarized results from this online survey are presented below.

General information and size of companies

91% of the companies answering the questionnaire provided services and products related to the ICT sector, an expected outcome for the target group and the distribution of the survey. We distinguish between users of standards and participants in the standardization process – but of course participants are also users.

We expected answers about company size in the ICT sector to show a majority of micro-organizations and this was indeed the case: 2% were from large companies, 13% medium sized, 24% small sized organizations (21-50 employees) and 59% from micro-organizations with less than 10 employees. This seems to correspond to the size distribution in the ICT sector generally.

Responses to the question "Is your company a user or do you also participate in the standardization process?" showed that 34% use ICT standards and 28% use and participate in the development of ICT standards. However, a third of respondents were unable to define themselves. Reasons for this high proportion are not obvious without further investigation. The individuals answering the survey were mainly senior managers and these were indeed the people targeted for providing responses to the survey.

Size of companies was diverse. More users (not participants) were micro-organizations (under 10 employees) and medium sized (51-250 employees), whilst more participants were within small (11-50) and larger organizations (251-500).

  Interviews and discussions with SMEs often reveal that medium size companies, according to the EU definition, are subjectively seen as large.

Establishment and age of companies

An unexpected discovery was that 56% of the organizations surveyed were established before 2004 and since this date almost all newly-founded companies had less than 50 employees. These SMEs did not grow substantially between 2005 and 2009. Reasons for this lack of growth are not clear at present and need to be studied in greater detail. It is not evident whether this is an intended lack of growth, shows a structural issue or is typical for the EU market and company size distribution.

Of the SMEs sampled, 70% have participated in the standardization process for 3 years or more. The longer a company is involved in the standardization

process, the more external funding it receives for this activity, starting with zero in the first year and rising to 37% after more than 3 years involvement. A reason for this could be that knowledge of how to access external funding grows through involvement in the standardization process.

Using and implementing standards

More than two third of the companies saw technical compatibility as a reason for using and implementing standards, and more than 40% for each of the following: to conform to regulation; fulfil a customer requirement; and to achieve marketing advantage by compliance to standards.
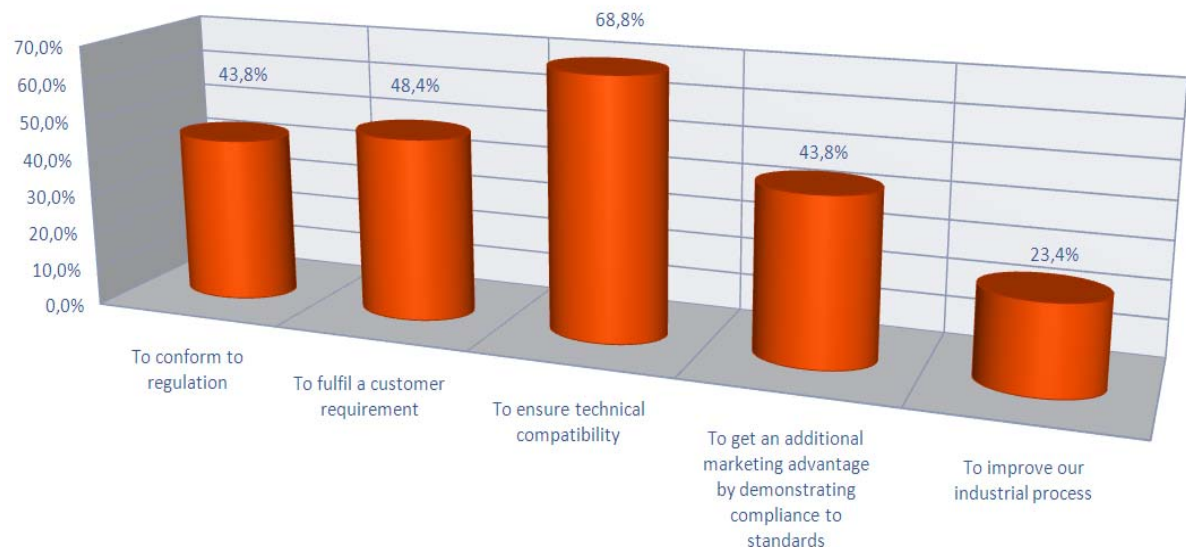

Figure 1 : Why do you use or implement ICT standards? (multiple answers possible)

Nearly 70% of respondents who were ICT standards users claimed that technical compatibility was a reason for using or implementing standards, whereas only 45% of respondents who were ICT standards participants made a similar claim.

43% of respondents use standards from formal Standards Development Organizations such as ISO, IEC, ITU, ETSI, CEN, CENELEC, etc. while 33% use specifications from industry fora or consortia or informal standards bodies.

The SMEs surveyed believe their use of standards has had a positive impact on their companies' performance. Increased profitability, increased market share, and ease of entering new markets have emerged as clear benefits from the use of standards.
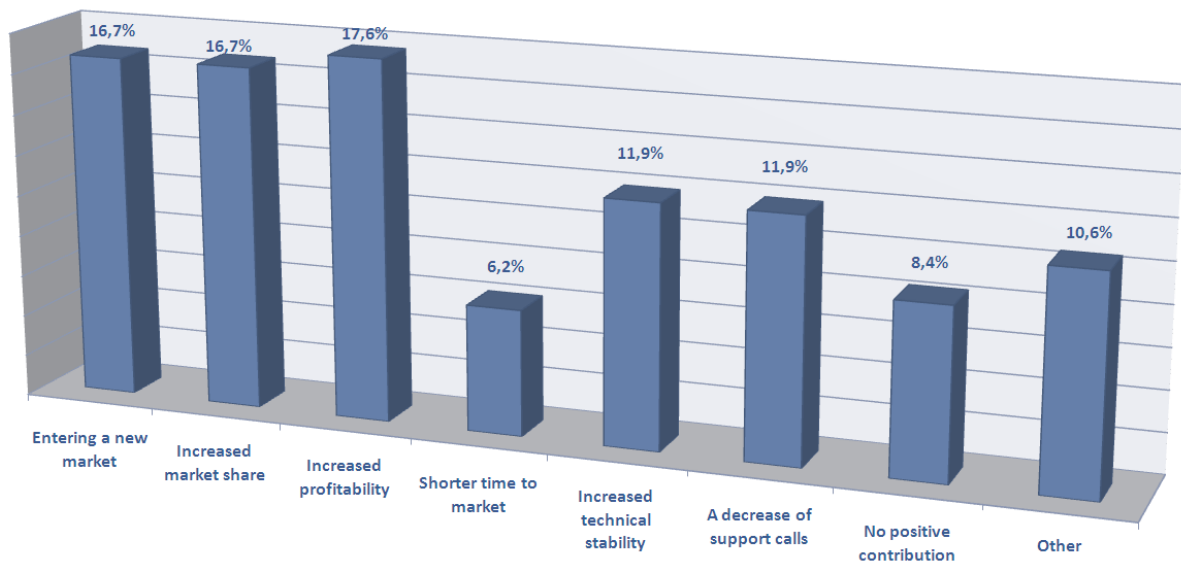
Figure 2 : Do you believe that your use of ICT standards contributed to the following in your company (multiple answers possible)

When users of standards were questioned on the reasons for not participating in standards development, a number of factors emerged as being highly significant:

- cost of membership of the standards organization (58% agreed);

- cost of travel (69% agreed);

- cost of participation time (70% agreed);

- domination of the process by large companies (70% agreed).

These factors outweighed others such as complexity and slowness of the process, IPR issues, or lack of knowledge of how to participate. Feedback to the standards committee is an important element of the standardization process. Users that give feedback to standards organizations showed a much greater willingness to participate in the standards process in the future, compared with users who did not provide feedback. So improving the knowledge of how to provide feedback and improving the feedback process appear to be valuable for transforming standards users into standards participants.

Participation in the standards development process

Responses to the survey showed a high level of involvement from those SMEs who do participate in standards development. Over 40% of SMEs participating in the standards process indicated that they have taken a leadership position or formal role (chairman, rapporteur etc.). 30% of SME participants are members of 3 or more standards bodies. Over 50% follow 3 or more such bodies, and 30% have three or more people involved in standards work. 60% of these SMEs participate in over 6 standards meetings per year. These results are very surprising, and clearly point to these SMEs

deriving significant benefits from participating in the standards development process.

50% of the SMEs surveyed believed that participation in standardization made a positive contribution to the success of their company, and 20% believed it contributed highly.

The principal benefits of participation reported by SMEs are related to the visibility, reputation and networking opportunities offered to their company, rather than protection of their IPR. The following were the list of benefits reported in the survey:

- increased reputation of the company (88% agreed);
- greater networking opportunities (82% agreed);
- increased contact with potential customers (74% agreed);
- increased partnership possibilities (70% agreed);
- exposure to new ideas (70% agreed);
- competitive advantage over companies not present (68% agreed);
- exposure to industry best practice (62% agreed);
- better competitive intelligence (62% agreed);
- protection of intellectual property (24% agreed, 20% disagreed).

The reasons given for participation in the standards process differ from the reasons given for users of standards. 70% of SME participants in standardization indicated that they wished to drive the standardization process in a particular direction, 51% indicated a need to get advanced access to the standards. The need to ensure technical compatibility, or meet customer requirements, which were the main reasons for using standards, ranked lower with participants in the standards process. This stated desire to drive the standardization process corresponds to the high level of resources that participating SMEs are dedicating to standardization, and to their take-up of leadership positions in standards committees.

Cost and Barriers

The biggest cost-related issue to half of the users of standards who responded to the survey was certification cost, deemed as being prohibitive or expensive. This is in contrast to the cost of implementing standards, where 43% considered the costs to be in line with the return on investment, and only 20% considered the costs to be prohibitive or expensive. Interestingly, only 26% of users of standards considered the cost of acquiring intellectual property rights (IPR) as prohibitive or expensive. Of equal interest is the fact that over 35% of respondents had no opinion as to the cost of acquiring the intellectual property rights for the standards they were using. These results could be interpreted to indicate that SMEs do not have difficulties with IPR, or they could be interpreted to show that SMEs lack awareness of general IPR issues. The interview results presented later in this White Paper appear to indicate the latter.

A variety of different barriers and difficulties were identified by SMEs who participate in standardization. The major difficulties given were the domination of ICT standards bodies by large players (78% of respondents) and cost of travel in order to participate (76%). Other reasons, at or below 60%, were high membership cost, cost of time for participation and, to a lesser extent, slowness of development.
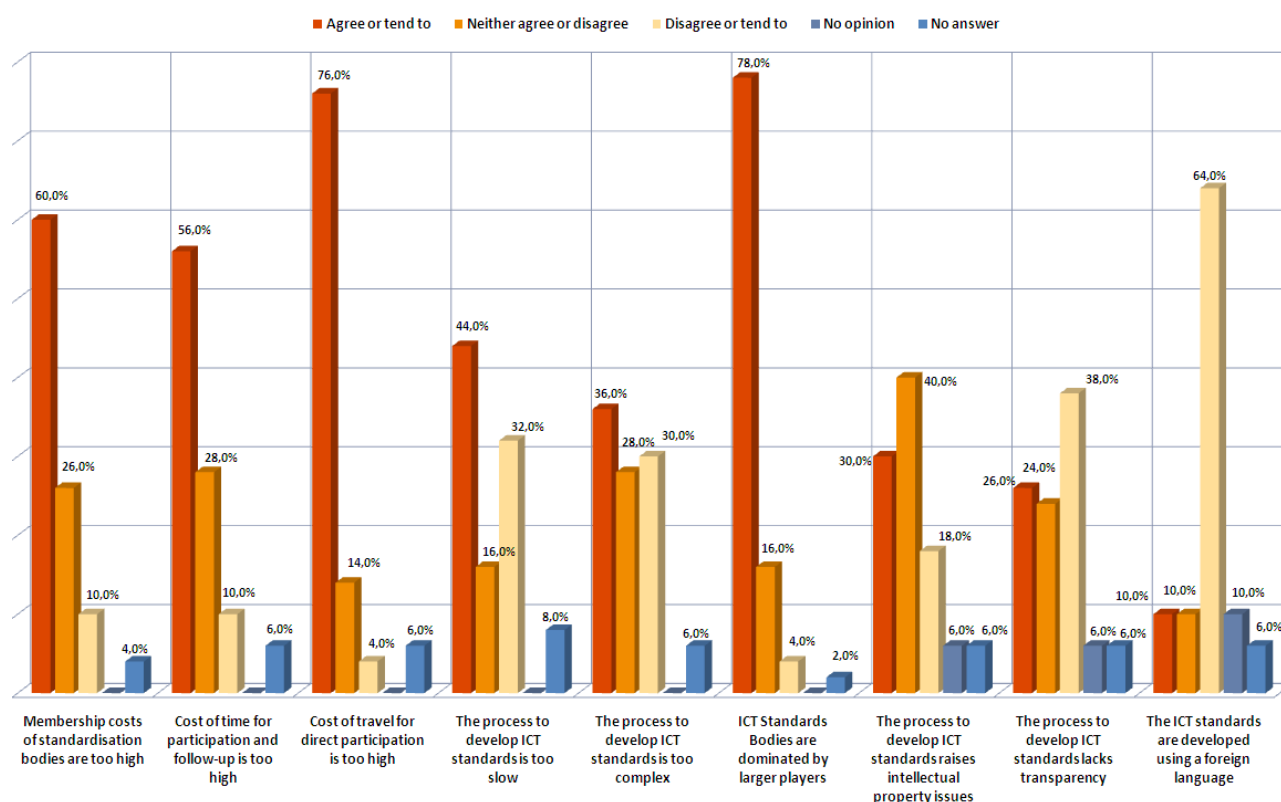

Figure 3 : What are the barriers / difficulties you face in order to participate in ICT standardization?

The survey revealed that language issues were not considered a barrier to participation in ICT standardization. This conclusion appeared to be supported by the responses received from a wide range of countries with different national languages. However, this conclusion was heavily disputed during the October 2009 workshop where it was argued that only those who felt proficient in English would participate in the survey, which was in English.

According to the workshop participants, it was not sufficient to be able to read standards or to write technical contributions in English – participants in standardization must have sufficient English proficiency to be able to argue and negotiate their points of view face to face in a meeting. As the negotiation process plays a big role during standardization, a support system might increase participation by those with lesser abilities in English.

External Expertise

Advice from external experts and consultants did not constitute a significant source of support for the users of standards that responded. Some of the personal interviews revealed that consultants providing the standardization support service also answered the survey and this aspect should perhaps be analysed separately.

Comparison between the two groups, users and participants, on making use of external expertise in implementing standards shows users with higher numbers here, suggesting that participating in the process increases internal expertise.

Responses related to the use of expertise from the standardization body were considerably more positive for those actively participating in standards-making, strongly suggesting that those only using standards do not have enough information about how to benefit from services offered by standardization bodies.

Interviews following the survey

18 direct interviews with SME representatives were conducted following the survey. These were selected from the SMEs that had expressed an interest within the web survey to be interviewed further, and ones known by the ETSI project team members. 15 interviews were conducted by phone and 3 face to face. They typically lasted about one hour.

This section presents the common trends observed within these interviews.

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

A first outcome then is the realization that ICT SMEs exist which have an interest in the standardization sphere but which have a confused vision of the differences between standardization, regulation and certification. These companies feel they could gain some advantages from participation in the standardization process without clearly (or correctly) knowing those advantages, nor knowing how to enter the process in order to gain them. Such SMEs have no links to, or knowledge of, relevant standards organizations. On the other hand these SMEs may well have links with their local development agencies or national or European funding agencies – these could serve as information relays.

Barriers to participation

SMEs that have started contributing to the standardization process mentioned a number of difficulties they face in participating.

- The first barrier is "getting-in". Learning the procedures and identifying the right committee to go to are time consuming tasks. This does not come from a lack of documentation as various guidelines exist but rather it is observed that the overall process strongly relies on the building of personal relations and of peer recognition. The assistance of a "personal trainer" or a "mentor" who would drive and accompany the newcomers in their first time was proposed several times.

- The entry cost is also mentioned as a barrier. Membership fees are said to be quite expensive, in the absence of specific knowledge or any estimate of the possible value of participation. It is often necessary to be a member of an SDO in order to access its committees and evaluate the possible benefits of participation. The two proposed options to overcome this have been:

  o to create a "trial" period (6 months?) during which the SME can participate in the SDO activities as any other member;

  o better marketing of on-going standardization activities highlighting the application or context in which the standards being developed might be used.

Advantages

Companies having participated in standards-making for a number of years identify several positive outcomes from their participation. The first is a meaningful understanding of the standard and its history, which allows the company to develop its products as the standard develops and be ready for the market when the standard is published. Passive attendance to the standardization committees is enough for that purpose.

Then, contributing to committees requires firstly gaining peer recognition from the other members, thus building the reputation of the company. Several examples were mentioned of commercial opportunities detected in this way.

Technological and competitive intelligence is not said to be an outcome of the process but interviewees nevertheless recognized within the conversation that discussions with competitors give them a better vision of the competition landscape and of emerging technological trends.

IPR

Also, while few successes of IPR inserted within standards by SMEs have been mentioned, it is also largely underlined that fighting with larger player, having the capability to produce larger sets of patents, is unequal.

Limiting factors

Finally for participants, the 3 main factors limiting their involvement in the standardization process are:

- The cost: firstly of travels, with meetings places not always optimized to reduce the costs, but also the cost of manpower to prepare and attend those meetings;
- The difficulties and uncertainties related to IPR. Even with Fair, Reasonable and Non Discriminatory conditions (FRAND) defined, agreeing on detailed terms & conditions can be time consuming. Indeed, while few cases have been mentioned where SMEs successfully inserted their IPR into standards, it is also largely underlined that IPR discussions with larger players, having the capability to produce larger sets of patents, are on unequal terms;
- The time required to go through the whole standardization process is often said to be very long compared to the usual time-to-market of SMEs.

Conclusions and recommendations for a proactive approach for SME participation in standardization

Some preliminary recommendations resulting from the survey and the interviews are given below. These recommendations are not necessarily targeted at ETSI or at standards bodies; some are better targeted at the European Commission, at SME development and support agencies, or at SMEs themselves.

- **Improve the knowledge of users on the feedback process**
  The feedback process is an excellent way for SMEs to get closer to the process of standardization and this could be a way to encourage more active participation.

- **Support the cost issue on manpower, travel and membership fees**
  With cost being such an important issue for SMEs there will need to be a systematic approach on lowering this barrier. Once cost issues are reduced SMEs can focus on the visible advantages of participation with less concern about costs.

- **Consider the certification process and make it generally easier and cheaper to access certification**
  The certification process is driven by local certification bodies, governments, laws and regulations. ETSI has no control of these but supporting self-evaluation and careful consideration of the real need for certification will strengthen SMEs' efforts for compliance to standards.

- **Raise awareness of IPR issues for SMEs**
  SMEs take little account of IPR considerations. With better knowledge of IPR issues, SMEs can make informed decisions and possible future problems can be avoided.

- **Find alternative ways for participation by using new technologies**
  With internet based services such as video conferencing, shared workspaces and similar technology some of the travelling costs and time-related costs can be reduced.

- **Language support by raising knowledge of English for negotiation processes**
  Overcoming difficulties in negotiating in English is vital to the success of participants in standards committees. It will also enhance the professionalism of SMEs in their approach to the market.

- **Highlight the advantages gained by SMEs in participating in standardization**
  A greater awareness of the range of benefits enjoyed by SMEs who participate in standardization will encourage other SMEs to join them. Awareness should be built up among the network of SME advisors and support agencies which exist, and not just among SMEs themselves.

Abbreviations

CEN   European Committee for Standardization
CENELEC   European Committee for Electrotechnical Standardization
COM   Communication
DG   Directorate General (of the European Commission)
EFTA   European Free Trade Association
ESO   European Standards Organization
ETSI   European Telecommunications Standards Institute
EU   European Union
ICT   Information & Communication Technologies
IEC   International Electrotechnical Commission
IPR   Intellectual Property Rights
ISO   International Organization for Standardization
ITU   International Telecommunications Union
IT   Information Technology
NORMAPME   European Office of Crafts, Trades and Small and Medium sized
             Enterprises for Standardization
NSO   National Standards Organization
R&D   Research and Development
SDO   Standards Development Organization
SME   Small and Medium-sized Enterprises
STF   Special Task Force
WG   Working Group