



## BUSINESS PLAN

### ISO/TC 22 Road vehicles

#### EXECUTIVE SUMMARY

The technical committee on ISO on road vehicles (TC22) was created in 1947 and gathers the main trading and producing countries of the automotive sector.

Rapidly-evolving technology as well as an increasing public interest for the safety and environmental performance of road transport provides a continuous momentum for the hundreds of standards elaborated by the TC. Although the TC has until now managed to attract the standardisation need of the sector, it is also confronted, since the beginning, with international regulatory decisions that influence part of its strategy. This regulatory co-operation takes place mainly with the United Nations Organisation, but also at a regional level in the European Community, and, recently, in the Asia-Pacific region. Minimum levels of performance or standardised designs are thus fixed by international law, representing a moving framework to which the drafting of standards has to adapt.

Ten countries in Western Europe, North America and East Asia represent the major producing and trading countries for many years. Mexico is a more recent stakeholder in the field, with a fast growth rate. International production and especially rate follows a growing trend from 525 billion US\$ in 1998 to 571 in 2000.

The standards elaborated by the TC support this evolution, by reducing the complexity of the relations between vehicle manufacturers and their suppliers, and the complexity of diverging requirements between geographical regions. 23 countries participate fully to the work at TC level, and 44 more are regularly informed. Through this national representation, all major automotive companies and other stakeholders take a direct part in the TC's activities.

The work programme of the TC aims at the general objectives of the TC:

- answer any need on road vehicle standard elaboration;
- adapt the efficiency and speed of the TC to the needs of the industry;
- ensure that the 573 standards already published are regularly reviewed and updated according to the technical progress;
- increase the recognition of the TC's work, especially by regulatory authorities.

**Its structure (23 subcommittees and several dozens working groups) keeps being adapted to the work load, and the technical evolutions.**

## 1 INTRODUCTION

### 1.1 ISO technical committees and business planning

The extension of formal business planning to ISO Technical Committees (ISO/TCs) is an important measure which forms part of a major review of business. The aim is to align the ISO work programme with expressed business environment needs and trends and to allow ISO/TCs to prioritize among different projects, to identify the benefits expected from the availability of International Standards, and to ensure adequate resources for projects throughout their development.

### 1.2 International standardization and the role of ISO

The foremost aim of international standardization is to facilitate the exchange of goods and services through the elimination of technical barriers to trade.

Three bodies are responsible for the planning, development and adoption of International Standards: [ISO](#) (International Organization for Standardization) is responsible for all sectors excluding Electrotechnical, which is the responsibility of [IEC](#) (International Electrotechnical Committee), and most of the Telecommunications Technologies, which are largely the responsibility of [ITU](#) (International Telecommunication Union).

ISO is a legal association, the members of which are the National Standards Bodies (NSBs) of some 140 countries (organizations representing social and economic interests at the international level), supported by a Central Secretariat based in Geneva, Switzerland.

The principal deliverable of ISO is the [International Standard](#).

An International Standard embodies the essential principles of global openness and transparency, consensus and technical coherence. These are safeguarded through its development in an ISO Technical Committee (ISO/TC), representative of all interested parties, supported by a public comment phase (the ISO Technical Enquiry). ISO and its [Technical Committees](#) are also able to offer the ISO Technical Specification (ISO/TS), the ISO Public Available Specification (ISO/PAS) and the ISO Technical Report (ISO/TR) as solutions to market needs. These ISO products represent lower levels of consensus and have therefore not the same status as an International Standard.

ISO offers also the International Workshop Agreement (IWA) as a deliverable which aims to bridge the gap between the activities of consortia and the formal process of standardization represented by ISO and its national members. An important distinction is that the IWA is developed by ISO workshops and fora, comprising only participants with direct interest, and so it is not accorded the status of an International Standard.

## 2 BUSINESS ENVIRONMENT OF THE ISO/TC

### 2.1 Description of the Business Environment

The following political, economic, technical, regulatory, legal and social dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of this ISO/TC, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards:

The road vehicle has known since it was born an interrupted advance in technology to improve the performances of the product and offer to its various clients a mobility package as efficient as possible at the lowest cost possible. Since the 80's, though, political demand for a greater safety in transportation and a reduced environmental impact of the use of road vehicles has deeply influenced the orientation of this technological evolution. Some major technological leaps forward have been accomplished in this period of twenty years, both in safety and environment. But political requirements are not foreseen to calm down, so that new outstanding developments are already planned and will happen in the very next years.

The major trends of today are:

- the gradual integration of telecommunications and information technologies on board the road vehicle, which begun some years ago and has not reached its full extension yet. This integration in the vehicle is complemented by wider scale networks and systems dealt with by other standardisation bodies.

- the coming to the market of alternative fuels or new modes of propulsion such as the electric motor, using a battery or a fuel cell, or thermal engines using gaseous fuels such as methane, LPG or hydrogen.

- the development of new tools to evaluate and plan the crashworthiness of road vehicles, which in turn lead to finding new passive safety devices to improve the performance.

- the growing need to care for indirect environment impacts of road vehicles during their life cycle, that is their energy consumption and their ability to be recycled.

Not only vehicle producers are interested in this process. Its is obviously also true for an industry as close as the suppliers of parts and subsystems for the vehicle producers, the body builders for those vehicles that are built in several stages from a base vehicle, the maintenance and repair services enterprises, and indirectly the producers of testing, control, repair and dismantling equipment or tools.

Commercial vehicles' buyers, i.e. the road transport service providers, for goods or passengers, have also an interest on some subjects.

Governmental central authorities are looking after the consequences of the use of road vehicles ever since the latter appeared: this may encompass various departments in charge , in any case, of transportation, but also in some instances of police forces, industry, environment or else.

Public interest is also important in the field, mainly from three different kinds of representation: automobile clubs, which express shared interests and concerns within the community of motorists; customers associations, whose goal is to establish a dialogue with the producer and communicate a deeper knowledge of the product; environmentalist associations, concerned with the environmental negative impact of human activity, including the use of road vehicles.

Being an industry that takes advantage of many technologies, road vehicles standards are also indirectly addressed or influenced by many other standards groups in ISO, in IEC for the electrotechnical aspects, in CEN, in SAE, to quote the most relevant works. The definition on the boundaries of each work and the competence of the various groups has to be resolved each time a problem appears. It must be underlined that the number and frequency of such boundary problems increases.

Standardisation in the field can also appear through a joint work by the vehicle producers of one region or the whole world, outside a formal organization. This is especially true for latest technologies or recent concerns. Eventually, the result of such an effort can turn into an ISO deliverable.

Of a very different nature, but not less relevant, test procedures can be standardised between several countries for the use of media/consumers comparison tests; this standard procedure does not usually constitute an international standard.

Regulatory and legal issues represent a major challenge for road vehicle standards. Design regulations have been implemented since the very beginning of the 20<sup>th</sup> century to care for the crucial safety aspects of the use of vehicles, in every industrialised country. In the 1950s international discussions to harmonise these national regulations began.

In 1953 a subgroup of the Economy and Social Council of the United Nations Organization was created, named Working Party (WP) 29, to deal with road motor vehicles and their trailers. WP29 drafted an international harmonisation agreement, later referred to as the 1958 Agreement. Regulations on several aspects of the design of road vehicles have been internationally adopted and annexed to the 1958 Agreement, implemented in various countries of the world, and updated according to technical progress and political demand. The number of regulations exceeds now a hundred and fifteen, in three fields: safety, environment, and security.

In the field of periodical testing of vehicles in use, WP29 decided upon an international agreement to harmonise testing procedures and requirements, referred as the 1997 Agreement. This agreement entered into force in 2000 and will result in harmonised regulations, of which two drafts already exist.

A new harmonisation agreement, named in short the 1998 Agreement, entered into force in 2000 and will also result in international regulations on the design of vehicles. It must be noted that Canada, China, the Republic of Korea and the United States of America have signed this 1998 Agreement only.

At a regional level, the European Community decided by the Treaty of Rome in 1957 to ensure the free circulation of goods, and especially to harmonise design requirements of goods, including road vehicles. A European framework directive on harmonised approval of road vehicles was published in 1970. This framework directive governs today more than fifty separate directives for design requirements of road vehicles, some of them close to corresponding regulations of the 1958 Agreement. Conformity to these requirements allows a vehicle to be sold in the 15 States of the Community. In 1998, these design requirements became mandatory for passenger cars in the Community. Other categories of road vehicles will be obliged to comply in the near future. It must be noted that EC also signed the UN agreements of 1958 and 1998.

In the forum of the Asia-Pacific Economic Co-operation (APEC) as well, discussions on liberalisation of trade concern road vehicles. The governmental officials of the "Automotive dialogue" meet once a year since 1999. In 2002, they are contemplating a possible mutual recognition agreement among the ASEAN countries. They also take steps to favour the participation of developing countries to UN's WP29. Another activity conducted is the "Road transport harmonisation project".

In conclusion there is a long-standing effort to regulate road vehicles at an international level. The first consequence is that the presence of technical barriers to trade on the most important markets has been extremely reduced and between some countries totally eliminated. It must be noted though those for now, most of the international regulations of the 1958 Agreement are not recognised in North America. The second consequence for the TC 22 is that an important number of essential characteristics of the vehicles are already cared for by the international regulating authorities: to alter these essential requirements in an international standard is not desirable, or would be pointless if decided. This being said, many standards of the TC 22 have been implemented by the international regulation authorities, which in some cases had specifically asked for ISO's help.

## 2.2 Quantitative Indicators of the Business Environment

The following list of quantitative indicators describes the business environment in order to provide adequate information to support actions of the ISO/TC:

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- Total international trade in the road vehicles sector (in billions US\$) over 1996-2000:

1998	1999	2000	2002	2003
525	549	571	621	621

(source WTO)

- Exports of road vehicles products (in billions US\$) by major countries over 1998-2000:

	EXP. 2000	EXP. 2001	EXP. 2002
<b>Germany</b>	92.2	96.3	
<b>Japan</b>	88.1	80.3	92.5
<b>USA</b>	67.9	63.4	67.1
<b>Canada</b>	60.7	55.0	56.3
<b>France</b>	39.9	41.1	
<b>Mexico</b>	30.7	30.7	30.9
<b>Spain</b>	28.1	28.6	
<b>UK</b>	25.6	22.1	
<b>Italy</b>	18.4	17.8	
<b>S. Korea</b>	15.4	15.4	17.3

(source WTO)

Over 1998-2000, Germany is the biggest world-wide exporter of automotive products, Japan the second biggest but narrowing the gap.

- Imports of road vehicles products (in billions US\$) by major countries over 1998-2000

	IMP. 2000	IMP.2001	IMP.2002
<b>USA</b>	172.7	165.2	176.6
<b>Canada</b>	46.3	42.0	46.6
<b>Germany</b>	42.2	42.5	
<b>UK</b>	36.1	38.5	
<b>France</b>	30.5	31.5	
<b>Spain</b>	26.3	24.6	
<b>Italy</b>	25.3	25.9	
<b>Mexico</b>	22.2	21.0	20.5
<b>Japan</b>	10.0	9.2	9.9
<b>Sweden</b>	7.6		

(source WTO)

USA is by far the biggest importer.

- 58.84 million road vehicles were produced in 2002. 20 groups or companies produced 94,4 % of the world-wide production in 2002. Of these, 10 groups/companies produced each more than 4% of the total world-wide production.
- International Labour Organization estimates that in 1997, the transport equipment manufacturing industry (all vehicles) has directly employed between 7 and 7.5 million workers world-wide. For the motor vehicle sector, no such global figure exists. It has to be underlined that direct manufacturing employment is very much outnumbered by indirect employment: in France in 2001, 318 000 are employed in direct motor vehicle manufacturing; taking into account all employment induced by road vehicle manufacturing and usage, this figure goes up to 2 359 000, 7 times more.
- In most of the United Nations Working Party 29's Regulations, some references are made to ISO standards. In such a way, 122 different ISO Standards are used and some of them are referenced in several Regulations. Consequently as a lot of countries around the world transpose the UN Regulations, those countries are effectively using the ISO Standards. The same situation exists with the directives of the European Union.

### **3 BENEFITS EXPECTED FROM THE WORK OF THE ISO/TC**

The vehicle industry is a world-wide industry and the implementation of international standards should limit the cost of producing vehicles and their parts. In every country the construction of the vehicles is widely regulated but the harmonisation of the regulations is under way at the UN WP29 <http://www.unece.org/trans/main/welcwp29.htm> whose 1958 agreement is open to every country and paved the way for the 1998 agreement. Some major countries have already signed this agreement and WP29 is preparing world-wide Regulations. Those international Regulations often need the support of international standards that are prepared and issued by ISO.

In accordance with this statement the automotive industry contributed through the ISO Standards to the development of new fuel systems as Compressed Natural Gas (CNG), Liquefied petroleum Gas (LPG) and in the future Hydrogen without forgetting the electrically propelled vehicles.

The ISO/TC 22 standards have also contributed to attaining /maintaining a high level of safety and protection of the environment according to the scope of its subcommittees. Some examples can be given with the crash testing methods, road handling ability testing methods, emissions testing methods and so on.

In all participating countries there is a general tendency to transfer the ISO/TC 22 Standards as national Standards following the harmonisation of the Regulations. Cost saving is at stake, as well as the removal of unjustified barriers to trade.

### **4 REPRESENTATION AND PARTICIPATION IN THE ISO/TC**

#### **4.1 *Countries/ISO member bodies that are P and O members of the ISO committee***

## 4.2 Analysis of the participation

Among these 23 P members the balance of developing and developed countries is as follows: 9 developing countries or transition countries for 14 developed countries (World Bank's definitions). The relative importance of developed countries is explained by the fact ISO/TC 22 is a TC specific to an industrial sector, for which technical design decisions are mostly centralised in developed countries.

Almost all Participating countries have a strong automotive industry that is either vehicle manufacturing or part manufacturing or both. As a result, all the main vehicle manufacturers of the world, and most part manufacturers, are present in the subcommittees and in the working groups depending of the availability of their experts.

The discrepancy between the various world regions is explained by the same factors as above.

On the whole, no major country or region known to have significant business, trade or experience in road vehicles is absent from participation to the ISO/TC 22, with the exception of Mexico, a newcomer in the international production. Canada, once absent at TC level, has now joined the activity as well as Malaysia.

At TC 22 or TC22/SC level the international organizations of vehicle manufacturers, and of parts manufacturers, or Regulatory bodies or users' organizations are consulted through an external liaison. (See in annex the participation to the TC 22 and the Sub committees as a liaison).

## 5 OBJECTIVES OF THE ISO/TC AND STRATEGIES FOR THEIR ACHIEVEMENT

### 5.1 Defined objectives of the ISO/TC

The main TC 22 objectives are as follows:

#### **Generic objectives:**

Take full responsibility and ensure a world-wide involvement for handling work items relating to road vehicles and their equipment.

Produce cost-effective standards, which correspond to user and market needs, in due time

Support the technical progress of the sector.

Maintain the collection of 573 published standards and adapt them to technical progress through the 5-year review.

Increase the recognition of the work of ISO and of the ISO/TC 22 within the automobile sector.

#### **Specific objectives:**

On piston rings, the TC has almost achieved the revision of standards on piston rings 6621, 1 and 2 of standard 6622 parts on rectangular rings in 2003. 6623 on scraper rings in 2003, revision of part 2 of standard 6624 on half-keystone rings in 2003, and the new part 4. The standard 6626 on coil-spring-loaded oil control rings.

On piston pins, the TC has adopted two DIS on general specifications, and inspection measuring principles, in 2003.

On tyre pressure monitoring, the DIS 20750 is at the voting stage,

On failure mode and effect analysis (FMEA), a DIS will be published soon

On ignition equipment (SC1), the activity is reactivated with the adaptation to the new engine technologies (i.e. new types of spark plugs).

On braking (SC2), the aim is to clarify the test procedures applied in the Regulation 13 of the 1958 Geneva Agreement and provide some specifications on the brake linings in order to propose test methods to be used by the vehicle and/or brake manufacturers and the brake linings suppliers. The activities on brake fluids was also re-activated with the revision of the existing standards as well as the revision of the standards on elastomeric boots cups and seals

On electrical and electronic equipment (SC3), there are 4 main tasks:

- the standardisation of components of the electric equipment ;
- the standardisation of electromagnetic compatibility test methods ;
- the standardisation of data transmission;
- the security of electrics and electronics.

On engine tests (SC5), test methods on cleanliness are to be validated.

Some new standards, dealing with the performance evaluation in crankcase gas pressure of road vehicles running resistance and its reproduction on chassis dynamometers will be published soon. New subjects on additive for reducing Nox are under process. SC5 continues to work on the revision of the existing standards.

On dimensions and masses (SC6), the standard 3833, dealing with terminology of the vehicle, is under revision, and a new work item proposal on the terms, definitions, abbreviations, dimensions and data exchange between body builders and chassis manufacturers for commercial trucks are under study.

On injection equipment and filters, SC7 continues to work on the revision of the existing standards dealing with the injection for road vehicles (recent new activities on common rail systems) and filters (recent new activities on passenger compartment air filters).

On lighting and signalling:, SC8 has activities on lighting and signalling devices and activities on environmental endurance and holding test of coloured coatings on coloured light sources are under development.

On vehicle dynamics and road handling, SC9 is very active with the revision of some existing standards, like steady state circular driving behaviour or open loop test method for braking in turn and with work items like measuring the stopping distance at straight line.

On passive safety, SC10 and SC12 are very active on developing new impact test methods and a dummy for lateral impact in a world harmonisation context and the collision between vehicles and pedestrians. Moreover one of the main goals is to achieve the publication of a complete set of standards in 3 parts on specific attachments of child restraint seats to remedy misuse from the end users.

A new activity dealing with the virtual testing has been recently approved.

The ergonomics (SC13) are focused on the human machine interface and on the symbols for which the ISO 2575 7<sup>th</sup> revision was published in 2004 and some amendments are still to be published in a near future.

The SC13 works in active cooperation with the ISO/TC204 on the TICS.

On exterior fittings (SC14) the main subjects deal with the roof and the rear load carrier devices.

Special magnetic devices are included as well as bicycle carriers.

SC15 has new work items dealing with the adaptation of existing standards to the new configurations of vehicle combinations requested by the transport services through the motor vehicles and trailers manufacturers.

SC21, dealing with the electric vehicles, having achieved the standards for purely electric vehicles and envisaging hybrid vehicles, is now involved in the integration of fuel cells on electric vehicles in collaboration with ISO/TC197 and IEC/TC105 (see the agreement SC21 – IEC/TC105 in annex).

SC22 & SC23 dealing with the two wheelers (motorcycles and mopeds) continues to consider items such as fuel consumption, lighting, location of the centre of gravity for mopeds and test and analysis in collisions between motorcycles and four wheels vehicles.

On gaseous fuels (SC25), the series of the 19 parts of ISO15500 were published and its scope has been enlarged with the issues of any gaseous fuels.

On accessibility of vehicles to the physically-handicapped (SC26), the sub-committee has been created and a new work item dealing with Vehicles for the transport of people with reduced mobility with a maximum capacity of 8 seated passengers, driver not included has been adopted.

On Diesel fuel lubricity (joint working group with TC28).

JWG TC43/SC1 – TC22 (JWG28 and 42)

Main activities deal with the development of running vehicles noise measurement method: noise measurement method of stationary vehicle, noise measurement test track and noise measurement in the passenger compartment.

## **5.2 Identified strategies to achieve the ISO/TC's defined objectives**

Adapt ISO/TC 22's structure by creating, maintaining or disbanding working groups and subcommittees that bring together experts competent in the various technical fields. If several work items of TC 22 duplicate and lead to diverging solutions to one problem, designate a lead sub-committee and organise co-operation between the sub-committees involved, for example with the creation of a joint group.

When different standardisation bodies cover the same subject, clarify the division (sharing) of responsibilities while observing the prevalence of the vehicle aspect. Share the information and ensure that the works shared with other TC(s) are complementary, not redundant and do not lead to divergent solutions:

- arrive to a balanced agreement on hydrogen issues with ISO/TC197, like the one obtained with IEC/TC105 on fuel cells.
- maintain the Cupertino with TC204 on intelligent transport;
- maintain the Cupertino with IEC ( see the general agreement, Doc. N 1646, the addendum 1, doc. N 1921 and the agreement with IEC/TC105, doc. N 2239)

Speed up the rate at which international standards are prepared in order to meet the requirements of the international regulatory authorities, as well as the main economic players:

- Pay particular attention to the selection of new subjects and to commitments to participate in new work.
- Resort to a preliminary stage (coded « 00 »), which provides for a preliminary study before including a new study in the program of work. The role of a WG includes carrying out this

preliminary study, which once ratified by the sub-committee can be the subject of an introductory enquiry in the program of work.

- Examine at each subcommittee meeting the status of the SC's work program in order to cancel (or re-launch, if necessary), all "no progress items" and provide the TC 22 Secretariat and the Central Secretariat with an updated work program.
- At the time of the creation of a new working group, break its scope down into specific subjects with realistic target dates that take into account the constraints of standardisation processes.
- Make use of telecommunication technologies as much as desirable, for the circulation of information between meetings or to replace them.

Improve the recognition of ISO/TC 22 within the major manufacturers, as well as their ability to give directly an opinion on the work program and the TC's results.

Decide upon an ISO/TC 22 policy with regard to new ISO deliverables, with the understanding that they might not be granted the same level of recognition as an international standard.

Maintain a good co-operation with the external stakeholders not involved in standards elaboration. Special attention has to be paid to the requests of regulatory bodies as ECE/WP 29 by undertaking new tasks from them and providing them with new deliverables so as to be able to contribute to the establishment of globally harmonised regulations. Respect the set of guidelines decided by the TC 22 on external representation of ISO/TC 22, especially with WP29 world forum for harmonisation of Regulations.

Set requirements for results based on test procedures rather than impose specific means. Nonetheless the standardisation of components plays a role in controlling the costs by promoting interchangeability.

## **6 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE ISO/TC WORK PROGRAMME**

The ISO Directives provide the rules that have to be followed for the development of an ISO Standard, particularly describing the different stages. Some delay slowing down the process is due to the heavy administrative and rigid procedures applied by the ISO Central Secretariat, especially with regard to the editorial work.

It is also true that the most important participation to the Working Groups comes from the industry and the time devoted to the standardisation work by the experts is obviously limited. This affects the development of the work program in a very arbitrary way: decisions to stop or to delay contribution to the TC's work are usually not taken in relation to the interest of the ISO work item. Rather, this happens on totally autonomous grounds.

Although care is taken by TC 22 to co-operate with every body involved in an item, lack of willingness can be encountered within the other bodies. In this case efforts can be vain. The number where this occurs is not getting smaller, rather the opposite. Consequences are essentially a delay in the implementation of the program and more costs involved, due for example to the necessity for the experts to follow several activities instead of one.

One of the main causes is the lack of control of the ISO Central Secretariat and Management Board at several stages: when a TC is created, the possible overlapping of its scope with the scope of existing TCs is not looked after; when several work items are similar or identical, there is no general rule or discipline to give the lead of the work to the body which is the closest to the end user, which is the most important.

## **7 STRUCTURE, CURRENT PROJECTS AND PUBLICATIONS OF THE ISO/TC**

This section gives an overview of the ISO/TC's structure, scopes of the ISO/TCs and any existing subcommittees and information on existing and planned standardization projects, publication of the ISO/TC and its subcommittees.

### **7.1 [Structure of the ISO committee](#)**

### **7.2 [Current projects of the ISO technical committee and its subcommittees](#)**

### **7.3 [Publications of the ISO technical committee and its subcommittees](#)**

#### **Reference information**

**[Glossary of terms and abbreviations used in ISO/TC Business Plans](#)**

**[General information on the principles of ISO's technical work](#)**