



## STRATEGIC BUSINESS PLAN – ISO/TC 28

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### Executive summary

Technical Committee 28, "Petroleum and related products, fuels and lubricants from natural or synthetic sources" has the responsibility for establishing standards for many different types of petroleum, synthetic, and renewable products and lubricants. The subjects are diverse, yet interdependent, and encompass all types of standards; from test methods, to specifications, to terminology. The TC was activated in 1947, with the secretariat passing to the American Petroleum Institute through the American National Standards Institute in 1996, and then passing to NEN in 2013. The progress of work has been steady through the TC history in bringing over 285 standards to publication.

ISO/TC 28 standards form the basis of, or are referenced in, national or regional regulations and legislation on, for example, shipping, storage, handling and safety of petroleum products and lubricants. They are also used in custody transfer (the process by which a quantity of petroleum that is transferred between parties actually changes ownership) for determining the quantity and quality of the product being transferred. Through its product classifications and specifications, ISO/TC 28 also defines classes and categories of petroleum products and lubricants. As these products form a diverse and extensive group of substances, these classifications and specifications can assist in ensuring the right product is used for a particular application.

In recent years, ISO/TC 28 has focused on extending the scopes of existing standards to unconventional components and products, such as synthetic and renewable and developing new standards or modifying existing standards to meet lower detection limits (lowering acceptable levels of some components may often be imposed by legislation).

A continued move toward reducing duplication of effort is underway so that the development of standards is minimized where existing, market relevant standards already fulfill the needs of the international community. This effort is characterized by the Memorandum of Understanding (MoU) developed between ISO/TC 28 and CEN/TC 19, with efforts towards harmonization with ASTM International Committee D02.

## 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 164 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 petroleum, synthetics, and renewables products and lubricants industry is a much studied and very visible business sector in the international marketplace. Petroleum, and related companies with their stockholders, government, public interest groups, investing and lending institutions, employees, suppliers and contractors, media, consumers and local communities play interrelated and sometimes conflicting roles in defining the petroleum, and related products business environment. Each group exerts economic, societal, and technical constraints on the ability to produce products. Stockholders, the investment community, governments, public at large and public interest groups scrutinize the activity and intent of companies. A balance among the parties is always sought which will allow the sourcing, production, transport and refining of raw hydrocarbon products, and related synthetic and renewables.

Petroleum products are general commodities, traded in bulk quantities on a worldwide scale. In the trading, handling and application of petroleum and related products, health, safety and environmental aspects, often supported by regulatory measures, play an increasingly important role, thus calling for new standards and amendment of existing ones.

Developments in the field of quality assurance and quality management also call for new standards and the upgrading of existing standards, in particular with respect to traceability of test results.

The petroleum industry is changing rapidly due to the growth of the alternative/non-fossil fuel market and an increasing focus on fuel blending. There will also be increased emphasis on safety and health issues, with a resultant liability, reliance by companies on suppliers for fit-to-use products and services, and more stringent company product specifications due to changes in technology. These pressures are apparent in both the energy industry and to the end-user consumer.

International standards are required to ensure that valid comparisons can be made between data from a variety of locations spread around the world. The changes in base composition of products lead to a need for new physical data to use as a basis for such measurements and new means of product quality assessment or changes to the limiting values of existing quality parameters.

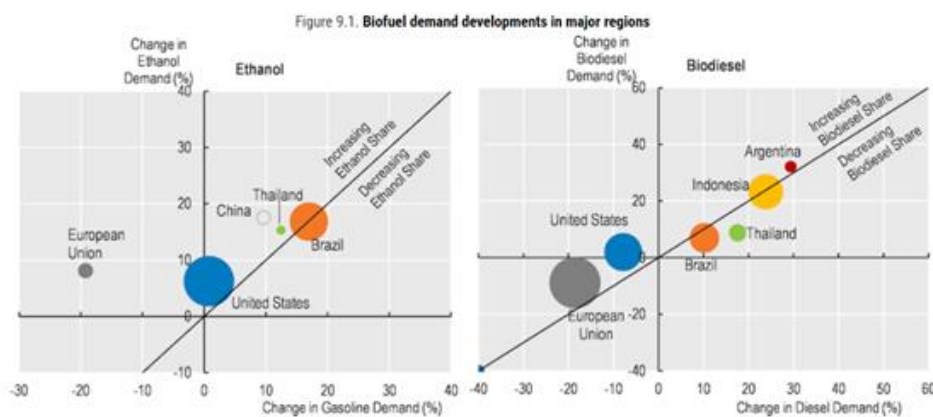
### **2.2 Quantitative Indicators of the Business Environment**

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

The petroleum and related products industry is an extremely complex one, in which countries produce, import, and export petroleum and related materials, and are interdependent for markets of crude product. Most countries of the world are involved in the industry, either as exporters or importers. In some countries, the entire economy is centred on the contributions of this industry. The supply of petroleum and related materials is directly tied to the industrialization of an economy, and this drives the demand and production. It is anticipated that worldwide production

of petroleum will increase as demand in developing nations increases and developed countries expand. At the same time increased focus on environmental concerns brings pressure for increasing demand for sustainable, renewable sources of energy that can reduce the carbon emission footprint.

Some quantitative measurements of energy activity over the last years, include advances in biofuels production.. The growth of the biofuels market has been driven by policies that encourage the use and production of biofuels due to the perception that it could provide energy security and reduce greenhouse gas emissions in relevant sectors.<sup>1</sup> Since 2011, the volume of biofuels consumed in the transport sector had been increasing constantly until 2019. While the growth rates of ethanol and FAME (Fatty Acid Methyl Ester) biodiesel decreased between 2015 and 2016, the consumption subsequently began to rise again with the emergence of the HVO (Hydrotreated Vegetable Oil) market in 2017, and then for all products in 2018 and 2019. In 2021, global biofuel production reached 1,747 thousand barrels of oil equivalent per day, in stark comparison to the 187 thousand barrels of oil equivalent per day that were produced in the year 2000.<sup>2</sup> The figures below show examples of the biofuels market development.

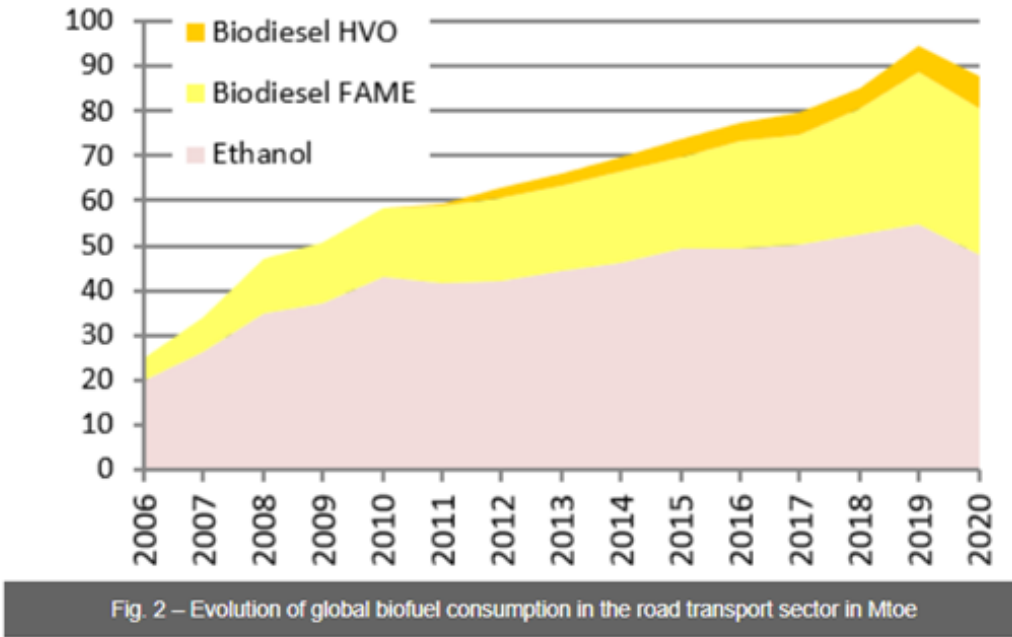


Note: Shares calculated on demand quantities expressed in volume. The size of each bubble relates to the consumption volume of the respective biofuel in 2020.  
 Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agi-outl-data-en>.

Statistik <https://stat.link/w5dcb>

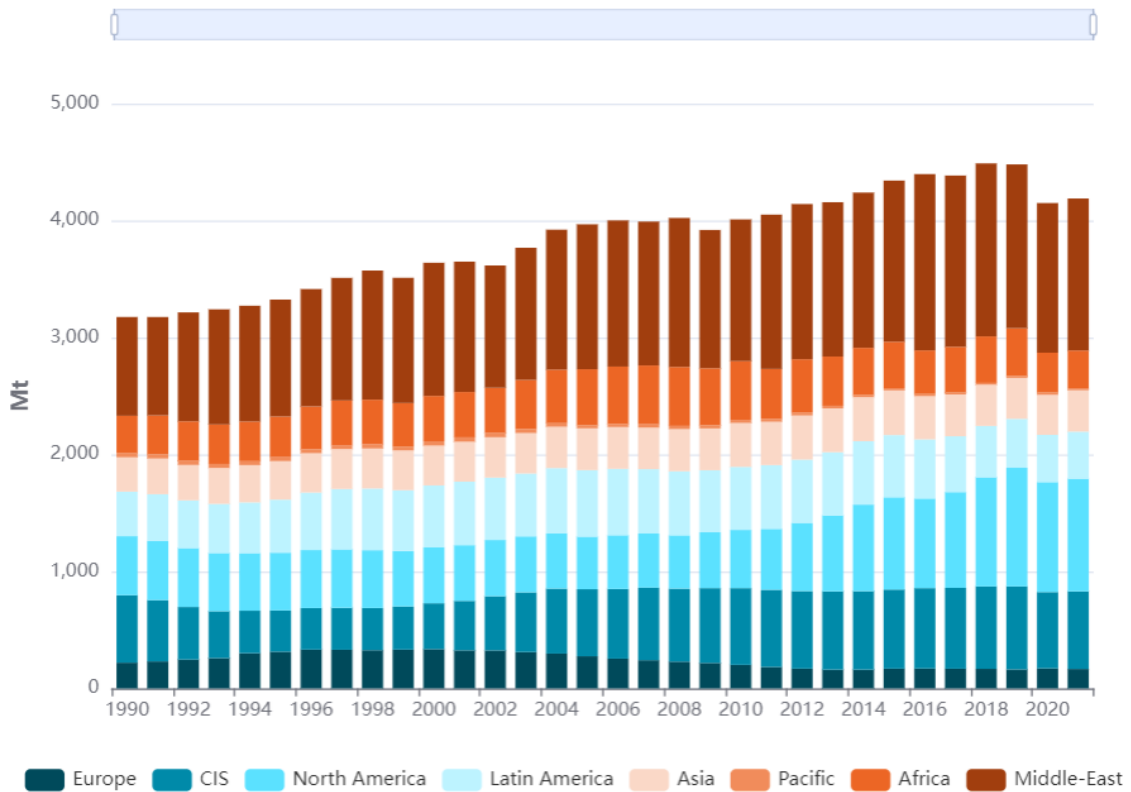
<sup>1</sup> Source: <https://www.statista.com/statistics/274163/global-biofuel-production-in-oil-equivalent/>

<sup>2</sup> <https://www.ifpenergiesnouvelles.com/article/biofuels-dashboard-2021>



The following chart indicates the global crude oil production (in megaton). It shows that the overall global production of crude product has increased since 1990 with a light drop in 2020 due to the COVID-19 pandemic.

### Trend over 1990 - 2021 - Mt



There is no way to estimate the cascading effect of the petroleum industry to the manufacturing, service/supply, and associated industries. Indirectly, as petroleum is the starting component of everything from automobile tires, asphalt roof shingles, and fishing poles to eye shadow, compact disks and audio/video tapes, candles, and bubble gum, the spending for both upstream and downstream activities is only a minimal portion of the trade finally generated. As evidenced by the oil embargo of 1973 and the protests of 2000, disruption of supply has a devastating economic impact on society. Long-term cessation would alter life as we know it.

The number of companies engaged in petroleum production and refining are also impossible to estimate. There are mega-major companies, integrated operators, independents, and state-owned companies. The actual employment numbers for the industry worldwide are estimated to be between 1.5 and 2.0 million. These are conservative, as each mega-major employs over 100,000 people, and many integrated companies employ 50,000 and above. The employment in state-owned companies is not a matter of public record, and due to varying employment practices may differ greatly from what would be consider an industry practice in publicly held companies

### **3 Benefits expected from the work of the ISO/TC**

With the business environment under continuous pressure for change, and the potential for developing countries to dramatically increase the usage of petroleum, synthetic, and renewable feedstocks and products, leading to even more pressures, the need for International Standards is foreseen to become even greater. The two major areas of activity of ISO/TC 28: namely quantity measurement and quality assessment, require the same measures at numerous locations if meaningful and accurate comparisons are to be made.

One of the main benefits expected from the work of ISO/TC 28 is that by publishing International Standards, it enables companies to minimize their own specifications. A good example of an ISO/TC 28 petroleum product specification used worldwide is ISO 8217 Petroleum products — Fuels (class F) — Specifications of marine fuels. This standard addresses environmental concerns through specification categories including renewable biological materials.

Environmental concerns are also being addressed by extending the range of petroleum product specifications available, for example, for hydraulic fluids, to those that are considered environmentally acceptable, e.g. ISO 15380 Lubricants, industrial oils and related products (class L) — Family H (Hydraulic systems) — Specifications for categories HETG, HEPG, HEES and HEPR.

These environmental issues have also led to research and use of alternatives to traditional mineral oil products such as vegetable oils. These alternative products, sometimes known as biofuels, whether used in pure form (100 %) or blended with mineral oil products, also require standards to ensure product quality. ISO/TC 28 is in the process of determining which of its test methods are applicable to these alternative products.

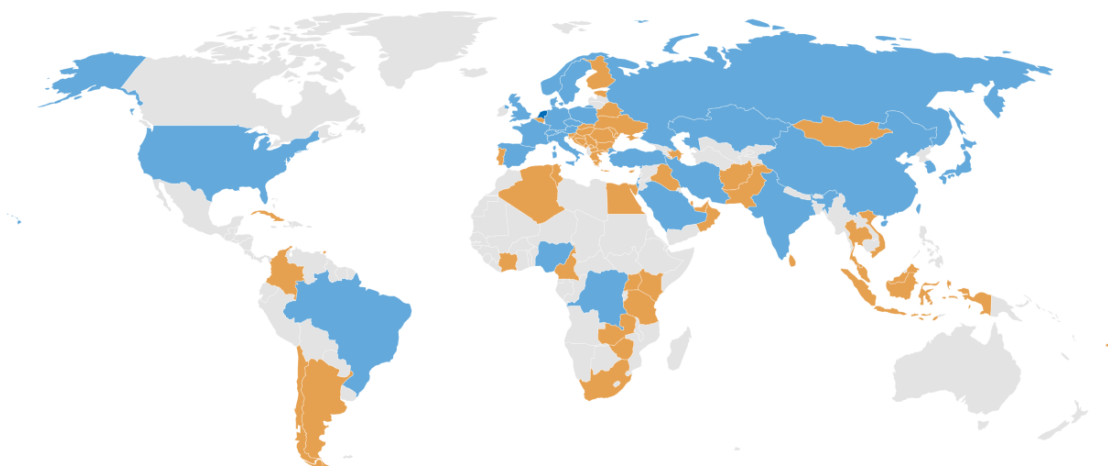
As petroleum products have an extensive range of application, ISO/TC 28 standards can also address safety issues. Flash point is one of the primary factors in determining how petroleum is shipped, stored, and handled, and ISO/TC 28 has developed six standards for determining this property. Furthermore, test methods and specifications have been developed for fire-resistant hydraulic fluids, which are obviously very important for equipment used in, for example, the mining and extractive industries.

## 4 Representation and participation in the ISO/TC

### 4.1 Membership

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

ISO/TC 28 consists of 28 participating members and 54 observing members. The following image shows the P-members (in blue), and O-members (in orange). The TC 28 member countries are located on all six continents.



This map is designed to visually demonstrate the geographic distribution of our Members. The boundaries shown do not imply an official endorsement or acceptance by ISO.

### 4.2 Analysis of the participation

Of the 40 countries listed by International Monetary Fund (IMF) as advanced economies, 26 are P or O members. Of the 156 countries listed as emerging market and developing economies, 56 are P or O-members.

Of the countries that make up the “Group of Seven” (G-7), 6 are represented on TC 28. 20 of the 27 European Union (EU) countries are members, and 28 of the 38 Organization for Economic Cooperation and Development (OECD) countries are represented.

ISO/TC 28 has established liaison with the International Electrotechnical Commission, specifically IEC/TC 10 (Fluids for electrotechnical applications), the European Committee for Standardization, specifically CEN/TC 19 (Petroleum products, lubricants and related products), and the European Oil-Hydraulic & Pneumatic Committee (CETOP).

In the European environment, the view of CEN/TC 19 is that for the petroleum products that are worldwide business, standards should preferably be developed on the international level, i.e. in ISO. For any item emerging in CEN/TC 19 that is not exclusively relevant for the European situation, CEN/TC 19 will submit the item to ISO/(TC 28) for parallel development, or will implement an International Standard. If an item is not accepted in ISO, CEN/TC 19 will reconsider its position on that item.

## **5 Objectives of the ISO/TC and strategies for their achievement**

### **5.1 Defined objectives of the ISO/TC**

The stated mission of ISO/TC 28 is to develop value-added International Standards of high technical integrity for commerce in the petroleum, synthetic, and renewables industry, excluding those covering physical processing, but including transportation from source to process site and to end-users. The TC anticipates these to be adopted by regional standards bodies as regional standards and national standards bodies as national standards.

And more specifically:

- Preparation and publication of standards for the petroleum and related materials industry, upstream of the refinery, covering quantity measurement of crude oil and, to a limited extent, quality measurement.
- Preparation and publication of standards for the petroleum and related materials industry, downstream of the refinery, including those for characterizing products quality, for quantity measurement, and for operational procedures.

The main areas of activity are seen as:

#### **a. Quantity measurement**

- New technology of instrumentation;
- More accurate measurement of losses;
- New operational procedures;
- New tables of basic physical properties of feedstocks and components.

#### **b. Quality assessment**

- New analytical technology;
- Extension of scope of existing standards to synthetic and renewable components and products;
- New elements/compounds/properties requiring measurement and quantification;
- Continuous upgrading of hazard and risk assessment;
- Standards for conformity assessment systems;
- New/modified standards to meet lower detection limits.

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

To achieve its goals, ISO/TC 28 has adopted the following strategies:

1. Implement a project management approach to standards development.
2. Ensure appropriate international participation.
3. Ensure performance from Working Group (WG) participants.
4. Provide a meaningful recognition program for ISO project leaders and working group convenors.
5. Obtain as broad as possible input on working drafts prior to circulating as committee drafts.
6. Meet the needs of National and Regional Standards Bodies to facilitate their adoption of ISO standards without modification.
7. Avoid duplication of effort within ISO and IEC.

8. Recognize and account for behavioural and cultural difference in work force selection and management.
9. Provide training for chairmen, convenors, project leaders, working group experts and other interested parties.
10. Clearly communicate the business benefits of ISO/TC 28.
11. Ensure that translation does not delay progress of documents.
12. Do everything we can to allow ISO Central Secretariat to publish our documents quickly.

### **5.3 Standards development of the ISO/TC**

To meet the defined objectives of the TC, a suite of 270 standards, 6 Technical Reports and 8 Technical Specifications have already been published by ISO/TC 28 and its subcommittees. Currently, 42 standards are under development related to the TC and its SCs. The industry elected to operate the standardization effort under a single technical committee umbrella as many of the subjects are inte

rdependent, especially the test methods developed by ISO/TC 28 and the classifications and specifications developed by ISO/TC 28/SC 4.

Several items common to different industries are being handled in joint working groups with other technical committees. In 2022, there is one active joint working group:

ISO/TC 28-TC 35 JWG Flash point methods

(ISO/TC 35 Paints and varnishes)

Most project leaders expedite the work effort by vigorous use of electronic document transmission for both technical and editorial issues.

Wherever possible, International Standards developed by TC 28 are based on existing National Standards or other widely accepted standards such as those published by the American Petroleum Institute (API). It should be noted that approximately two thirds of the standards of CEN/TC 19 are adoptions of ISO/TC 28 standards.

An Advisory Group to ISO/TC 28 was established to give guidance to the Chairman and Secretary on matters relating to the management of the work programme of the TC and its subcommittees, and on the interpretation of generic ISO/TMB and ISO/CS rules and policies into an ISO/TC 28 context.

In practice, this breaks down into a number of areas of activity, which include the following:

- a) advice on the strategic planning for ISO/TC 28;
- b) advice on the structure of ISO/TC 28;
- c) advice on the acceptance and allocation of work items;
- d) advice on the priority of work items;
- e) advice on the progress of work items;
- f) advice on any problem areas on work items or policy matters not directly related to the above, e.g. liaisons;
- g) advice on the style and format of ISO/TC 28 standards;
- h) advice on the agendas of plenary meetings;
- i) advice on how proposed changes to ISO/TC 28 standards should be handled.

All P-members of ISO/TC 28 are entitled to nominate one member to the Advisory Group, although it is not expected that all will do so. All ISO/TC 28 subcommittees are also entitled to nominate one member. The Advisory Group is chaired by a nominated and elected Chairman, who is normally nominated from that P-member currently holding the Secretariat of ISO/TC 28. The Chairman of ISO/TC 28 is an ex-officio member of the Advisory Group. The Secretary of the Advisory Group is normally the Secretary of ISO/TC 28.

ISO/TC 28 usually meets every two years. In order to carry out the activities listed above, the Advisory Group meets annually. In even-numbered years, meetings take place in conjunction with the plenary meeting of ISO/TC 28, and in odd-numbered years, meetings take place in conjunction with the June meeting of ASTM D02. Additional meetings may be called by the Chairman if required.

In order to give advice on the acceptance and allocation of work items, the Advisory Group recognizes two types, viz:

- a) an entirely new topic being introduced into ISO/TC 28 for the first time;
- b) a topic already under the jurisdiction of ISO/TC 28 or one of its subcommittees, which because of timing, is not on the current 'active' list of work items.

In order to commence work on either type of topic, a ballot on a new work item proposal is required. Formerly all new work items proposals, whether they related to the revision of an existing standard or to the development of a totally new standard, were balloted within ISO/TC 28. If approved, the work item was then assigned to ISO/TC 28 or the relevant subcommittee for progress.

It has now been agreed that due to the specific nature of some proposals, new work item proposals shall be balloted within ISO/TC 28 or its relevant subcommittee, dependent upon the subject matter being proposed. However, the results will be reviewed by the Advisory Group, who then advises the Chairman and Secretary on the acceptance or rejection of the new work item on the basis of the ballot response.

The Advisory Group gives advice on the progress of work items, and to ensure there is consensus (absence of sustained opposition) on technical issues, it has been agreed that the AG will review the results of committee drafts balloted within the TC if (a) negative vote(s) are (is) received. The Advisory Group makes recommendations to the Chairman as to whether the negative is substantive and therefore necessitates a further CD ballot, or whether the negative is not substantive and the item can progress to draft International Standard (DIS).

Another strategy of ISO/TC 28 (as a horizontal committee) is to establish liaison with other ISO technical committees. These liaisons were established because:

- the standards produced by these committees are referenced in ISO/TC 28 standards;
- ISO/TC 28 standards are referenced in the standards produced by other ISO TCs;
- the application of petroleum products and lubricants in the subject under standardization within another ISO TC;
- the ISO TC is responsible for standards on associated petroleum products and lubricants (e.g. natural gas)

Specifically, TC 28 has established liaisons with:

IEC/TC 10 Fluids for electrotechnical applications

ISO/TC 4 Rollings bearings

ISO/TC 8 Ships and marine technology

ISO/TC 22/SC 34 Propulsion, powertrain and powertrain fluids

ISO/TC 22/SC 41 Specific aspects for gaseous fuels

ISO/TC 35 Paints and varnishes

ISO/TC 67 / SC9 Liquefied natural gas installations and equipment

ISO/TC 192 Gas turbines

ISO/TC 193 Natural gas

ISO/TC 193/SC 3 Upstream area

## **6 Factors affecting completion and implementation of the ISO/TC work programme**

The MAJOR factor which directly affects the completion of TC 28 documents is the time resource for people to dedicate to ISO business. With the merger of many of the large oil companies and the subsequent downsizing of personnel, the number of volunteers available to carry out the work of ISO/TC 28 is dwindling. For the remaining volunteers, these experts' time is limited and extremely valuable. Unfortunately, standards preparation sometimes gets diverted in the course of normal business.

There are a number of vacancies for project leaders for some of the "older" standards, which makes it difficult to maintain them. It is also becoming more difficult to identify working group convenors and committee chairmen.

Furthermore, test methods require an associated precision statement which involves the analysis of samples in a minimum number of different laboratories and the statistical evaluation of the data produced. Not only are there costs involved in the preparation and distribution of samples to laboratories, but the time involved by personnel in analysing the samples must be balanced against that required for normal company business. This can often lead to a significant delay in the development or revision of an ISO standard.

Whilst many of the ISO/TC 28 project leaders are consultants, formerly employed by oil companies, these individuals often do not have the resources to enable them to prepare electronic copies of the figures required for ISO standards.

In addition, with the requirement that drafts of standards must conform to the ISO/IEC Directives Part 2 prior to being submitted to ISO Central Secretariat for balloting (a role that often falls to the TC or SC secretariat), and with the decentralising of some of the former functions of the Central Secretariat (e.g. initiating and collating responses on systematic review items, translation and distribution of agendas for ISO/TC plenary meetings), this will increase the administrative burden of the secretariats of the Technical Committee and its subcommittees.

It is also becoming more difficult to identify hosts for meetings, as there is an associated cost with doing so, especially if translation into a second language is required.

The number of participating (P) members of ISO/TC 28 has reduced in recent years, with the number of observer (O) members increasing. This means there are still many members who are interested in the work of ISO/TC 28, but obviously a smaller number of members who are willing to actively participate.

Because of all these factors, ISO/TC 28, CEN/TC 19 on Petroleum Products, Lubricants and Related Products (on behalf of its national standardization bodies) and ASTM International Committee D02 on Petroleum Products and Lubricants, have all recognized a need to reduce the duplication of standards development activities. This duplication can create marketplace confusion and dilute the efforts of the volunteer and staff resources of the committees involved.

Therefore ISO/TC 28, and CEN/TC 19 have developed a Memorandum of Understanding (MoU) to:

Cooperate to minimize the development of standards where existing, market relevant standards fulfill the needs of the international community.

Cooperate in the development of new standards where existing, market relevant standards are not available to fulfill the needs of the international community.

Identify duplicate standards and take proactive steps to create one standard."

Cooperation and harmonization with ASTM D02 is encouraged with continuing interactions established amongst the relevant working groups.

## **7 Structure, current projects and publications of the ISO/TC**

### **Information on ISO online**

The link below is to the TC's page on ISO's website:

<https://www.iso.org/committee/47356.html>

Click on the tabs and links on this page to find the following information:

- About (Secretariat, Committee Manager, Chair, Date of creation, Scope, etc.)
- Contact details
- Structure (Subcommittees and working groups)
- Liaisons
- Meetings
- Tools
- Work programme (published standards and standards under development)

### **Reference information**

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

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