

Bureau
♦ **I**nternational des
♦ **P**oids et
♦ **M**esures

**Strategic Plan (2022)
for the BIPM**



<u>Revision history</u>		
	“Kick off” brainstorming meeting amongst BIPM Department Directors with introduction from the CIPM President.	11 Jan 2021
V1	Draft to CIPM President and Secretary for comment.	14 April 2021
V2	Draft to CIPM	End of May 2021
	Review by CIPM.	June 2021
	Revised version agreed by CIPM President	July 2021
V3	Open for comment on BIPM website	Sept 2021
	Revisions approved by CIPM President and Secretary	Oct 2021
V4	Final version approved by CIPM	19 Oct 2021

TABLE OF CONTENTS

Executive Summary	4
Priorities for the development of this strategic plan	5
Detailed strategic plans	
Physical metrology	7
Time metrology	8
Chemical metrology	10
Ionizing radiation metrology	12
Digital transformation and new digital services	14
Capacity building and knowledge transfer	16
Communication and promotion	17
Coordination and institutional liaison	18
People and infrastructure	19
Planned timings in preparation for the 27th meeting of the CGPM	21
List of acronyms	22

EXECUTIVE SUMMARY

This strategy sets the high-level objectives and strategic perspective for the BIPM and was agreed by the CIPM on 19th October 2021.

It presents a strategy for the long term (as far as 2029) and also agreed plans for the short term (2022-2023) that are extracted from the current Work Programme.

It is inspired by the CIPM report on the emerging needs for metrology and is based on the strategies published by the Consultative Committees of the CIPM.

The agreement of this strategy by the CIPM provides the starting point for the development of proposals for the BIPM Work Programme for the years 2024 to 2027. These will be considered alongside the proposals for the dotation for the BIPM for 2024 to 2027 at the 27th meeting of the CGPM (2022).

Some key priorities were identified for the development of this strategy that respond to current pressures facing the organization. These are detailed on page 5 and include: identifying the highest-impact activities for the BIPM, consolidating the resilience of the new SI, reinforcing metrological traceability to the SI, implementing a digital transformation, linking knowledge-transfer actions to all programmed activities, and deploying staff flexibly to address new challenges.

This strategy was developed in consultation with the CIPM to be consistent with the Vision, Mission and Objectives for the BIPM that were approved by the CGPM at its 26th meeting in 2018.

Priorities for the development of this strategic plan

This strategic plan for the work of the BIPM has been prepared for the 27th meeting of the CGPM (2022). The development of this plan follows the practice developed for the 25th and 26th meetings of the CGPM.

This strategy addresses the highest-priority activities of the BIPM needed to support the objectives agreed in 2018 by the CGPM, which are that the BIPM should¹:

- “represent the world-wide measurement community, aiming to maximize its uptake and impact,
- be a centre for scientific and technical collaboration between Member States, providing capabilities for international measurement comparisons on a shared-cost basis,
- be the coordinator of the world-wide measurement system, ensuring it gives comparable and internationally accepted measurement results,

and that fulfilling the BIPM mission and objectives is complemented by its work in:

- capacity building, which aims to achieve a global balance between the metrology capabilities in Member States,
- knowledge transfer, which ensures that the work of the BIPM has the greatest impact”.

This strategy takes full consideration of the outcomes of the CIPM strategy initiative conducted in 2020 and 2021, and in particular their report on Evolving Needs for Metrology. It addresses:

- challenges and opportunities afforded across all areas of the BIPM triggered by digital transformation, ranging from the provision of data that meets the FAIR principles through to the enhanced needs for data quality and curation,
- the increased focus on sectorial challenges and the need to support new mechanisms that facilitate cross-sector working in order to communicate effectively with sector actors,
- impending technological advances that will have an important step-change impact on the way metrological traceability can be realized in the future,
- opportunities identified in the consultative committee strategies including the provision of knowledge transfer from the BIPM laboratories.
- the emphasis on measurement science as an essential tool for economic growth after the impact of the global pandemic, as well as the continued need to operate in a way that is both “COVID safe” and takes note of the likely emergence of a “new normal”

¹ Resolution 3 of the 26th meeting of the CGPM

by using new ways for BIPM staff to interact with NMIs, RMOs and other key stakeholders.

This strategy considers activities at a level that will not conflict with the outcomes of discussions of governance and organizational topics underway at the supervisory body (CIPM) and by stakeholders (Member States) including:

- Resolution F submitted by the CIPM to the 27th meeting of the CGPM that addresses participation in the organization; it raised the need for possible changes to the structure of the Work Programme presented to the 28th meeting of the CGPM (2026),
- the need for increased transparency and clarity in governance,
- the incorporation of capacity building and knowledge transfer activities in every part of the work programme designed to support a re-balancing of the world metrology system particularly by supporting NMIs in countries and economies with emerging metrology systems (CEEMS).

This strategy will be one of the principal inputs to the process of developing the BIPM Work Programme (2024–2027). This process will be based on proposals for a sustainable long-term financial plan for the operation of the BIPM that will enable it to fulfil its mission and will include plausible scenarios for decision at the 27th meeting of the CGPM (2022) that reflect the very challenging world economic situation which has reduced expected growth in global GDP.

Physical metrology		
Detailed strategy	Current plans (2022-2023)	Long term strategy (2024-2029)
Support the comparison programme of the CCEM to demonstrate the capabilities of the NMIs and for knowledge transfer by scientists conducting on-site comparisons using dedicated travelling quantum standards.	<ul style="list-style-type: none"> – Operate a programme of on-site comparisons of electrical quantum standards: <ul style="list-style-type: none"> – Josephson voltage standard – Quantum Hall resistance standard – Develop more efficient and versatile quantum standards to be used for on-site comparisons. 	<ul style="list-style-type: none"> – To support the CCEM strategy delivering a programme of on-site comparisons using a new generation of more efficient and versatile quantum standards to increase the impact of the service with NMIs. – Provide knowledge transfer services to NMIs that are developing new quantum standards capabilities.
Support NMIs that have no access to quantum standards by providing calibrations for electrical quantities and by knowledge transfer.	<ul style="list-style-type: none"> – Maintain the portfolio of highest-accuracy calibration services for the most fundamental electrical quantities that exploits past investments. 	<ul style="list-style-type: none"> – Adapt the portfolio of calibration services to the NMIs needs. <ul style="list-style-type: none"> – Pioneer the implementation of digital calibration certificates for BIPM services. – Provide knowledge transfer on electrical quantum standards for emerging NMIs.
Support the <i>mise en pratique</i> of the kilogram by coordinating CCM key comparisons of primary realizations held by NMIs.	<ul style="list-style-type: none"> – Organize 2-yearly key comparisons of realizations of the kilogram to support the internationally coordinated dissemination of the kilogram. – Determine the CCM consensus values for the dissemination of the kilogram. – Contribute to the CCM consensus value with the BIPM Kibble balance. 	<ul style="list-style-type: none"> – To support the CCM strategy by coordinating key comparisons of primary realizations of the kilogram and of secondary mass standards according to the <i>mise en pratique</i>. – Maintain the BIPM Kibble balance for realizing the kilogram.
Support the dissemination of the kilogram by providing calibrations of mass standards to NMIs that have no access to a primary realization.	<ul style="list-style-type: none"> – provide mass calibrations for NMIs that do not have access to their own primary realization. 	<ul style="list-style-type: none"> – Implement digital calibration certificates and provide knowledge transfer in the fields of the realization (Kibble balance) and dissemination of the kilogram.

Time metrology		
Detailed strategy	Current plans (2022-2023)	Long term strategy (2024-2029)
<p>To calculate, disseminate and improve the world reference time scale through integrating data from atomic clocks at the NMIs, continuing the process of automatization and availability of digital data.</p> <p>To promote the importance and benefits to all user communities of a unique international reference time scale UTC, meeting the needs of the current and future user communities.</p>	<p><i>To further improve the world reference time scale (UTC) through:</i></p> <ul style="list-style-type: none"> – <i>the integration of additional clock comparisons techniques, by evaluating the possible improvements of Global Navigation Satellite Systems (GNSS), TWSTFT, optical techniques.</i> – <i>studies on refined algorithms to enhance the stability and accuracy of UTC.</i> – <i>adapting the UTC computation routines to new developments.</i> <p><i>Extend Circular T section on GNSS broadcast information to include additional GNSS.</i></p> <p><i>To support the interoperability of GNSSs by cooperation with ICG and IGS.</i></p> <p><i>To work together with ITU and relevant organizations to develop a common understanding on reference time scales</i></p>	<p><i>To support the CCTF strategy by improving the accuracy, resolution, reliability, accessibility, and latency of UTC to support the needs of the global time community.</i></p> <p><i>To support new applications for UTC (and other time products) based on more reliable and accurate data transfer using new digital methods.</i></p>
	<p><i>To pursue and enhance interaction with international organizations and user communities to ensure that UTC is recognized as the consistent and useful international time reference.</i></p>	
<p>To support the work of NMIs in the development of optical frequency standards, their comparison, and use in time scales and UTC, towards a future redefinition of the second and of</p>	<p><i>To study and implement novel time and frequency transfer techniques for the inclusion of highly accurate optical standards into UTC.</i></p>	<p><i>To coordinate and support the CCTF on the development of a new definition of the second.</i></p> <p><i>To support NMIs in advancing the generation, maintenance, and dissemination</i></p>

time-keeping based on optical clocks, following the roadmap of the CCTF.	<i>To evaluate the necessary update in the UTC algorithm and data analysis to introduce the new available data from optical frequency standards.</i>	<i>of time scales to the new definition of the second.</i>
To enhance the capacity of UTC labs to realize, monitor, and automate the generation and dissemination of UTC(k) time scales to serve their national and international users.	<i>To develop an interactive training course on the efficient realization of UTC(k) and participation in UTC in the frame of the BIPM e-learning platform. To provide a repository of open-source software routines freely available and collaboratively developed by the NMIs to support their UTC(k) generation, validation, and dissemination</i>	<i>To support the NMIs in the evaluation of future needs of time metrology and time and frequency services, promoting exchange among the laboratories via the CBKT programme and the CCTF Working groups</i>

Chemical metrology		
Detailed strategy	Current plans (2022-2023)	Long term strategy (2024-2029)
<p>To support the CIPM strategy to demonstrate and improve equivalence and support the establishment of national measurement standards and services for:</p> <ul style="list-style-type: none"> – greenhouse gases, at performance levels required to support national energy and environmental priorities; – major air quality gases, at performance levels required to support national health and environmental priorities. 	<p><i>To coordinate CCQM and BIPM on-going comparisons of standards for:</i></p> <ul style="list-style-type: none"> – methane and carbon dioxide in air, with uncertainties congruent with global and urban monitoring requirements; – isotope ratios of carbon dioxide with uncertainties congruent scale definitions and emission source apportionment – surface ozone for accurate air quality monitoring. <p><i>To provide on-line knowledge transfer courses for NMIs establishing:</i></p> <ul style="list-style-type: none"> – NO₂ air quality dynamic standards – Reactive gas standards and FTIR facilities 	<ul style="list-style-type: none"> – <i>To support the CCQM (2021-2030) strategy by providing the suite of highest-priority comparisons of standard gas mixtures addressing global energy and environmental priorities.</i> – <i>To provide knowledge transfer activities within regions and to NMIs establishing clean air metrology programmes for greenhouse gas, isotope ratio and air quality standards, and with emerging metrology systems.</i> – <i>To support programmes to mentor NMI scientists coordinating gas standard comparisons for the first time</i>
<p>To support the CIPM strategy to demonstrate and improve equivalence and support the establishment of national reference measurement capabilities and services in organic and biochemical measurement for:</p> <ul style="list-style-type: none"> – small organic molecules, at performance levels required to support reference measurement systems for laboratory medicine, food safety and trade in primary produce, forensics, environmental analysis and pharma. 	<p><i>To coordinate CCQM comparisons on calibration standards for:</i></p> <ul style="list-style-type: none"> – viral antibodies (monoclonal SARS-CoV-2 antibody). – small molecule organics (Pesticides and Veterinary drugs) – diagnostic peptide biomarkers (PTH(1-84)) – mycotoxin food contaminants (PAT and DON) <p><i>To provide reference data on ¹⁹F internal standards for qNMR, supporting NMI measurement services.</i></p>	<ul style="list-style-type: none"> – <i>To support the CCQM (2021-2030) strategy by providing the suite of comparisons for large and small molecule calibrators of the highest global importance.</i> – <i>To provide knowledge transfer activities within regions and to NMIs establishing food safety and laboratory medicine reference measurement capabilities, and with emerging metrology systems.</i> – <i>To support programmes to mentor NMI scientists coordinating organic and</i>

<p>– peptides and proteins, at performance levels required to support reference measurement systems for laboratory medicine and health care sectors.</p>	<p><i>To provide on-line knowledge transfer courses and studies for NMIs establishing:</i></p> <ul style="list-style-type: none"> – <i>Mycotoxin in food reference systems</i> – <i>Pesticide and Veterinary Drug Residue in Food Reference Systems</i> 	<p><i>peptide calibrant standard comparisons for the first time</i></p>
<p>To promote and develop the use of SI traceable standards and measurements available from the NMIs with inter-governmental and other stakeholders for use in chemical and biochemical analysis.</p>	<p><i>To support CCQM task groups in:</i></p> <ul style="list-style-type: none"> – <i>Coordinating a global change in ozone reference measurements;</i> – <i>Developing an extended global greenhouse gas measurement system</i> <p><i>To develop the JCTLM Database with machine readability for greater uptake of reference measurement systems in clinical diagnosis</i></p> <p><i>To develop a Greenhouse Gas measurement and meta data database following FAIR principles enabling greater uptake of NMI standards</i></p> <p><i>To work with stakeholder communities in running the Metrology for Climate Action Conference and Reliable measurements in response to the Covid-19 Pandemic Webinar Series</i></p>	<ul style="list-style-type: none"> – <i>To increase participation in the CIPM MRA and uptake of NMI measurement services by International Organizations with laboratory networks active in chemical and biochemical measurement.</i> – <i>To support CCQM task groups in interfacing with and providing technical solutions to global stakeholder communities</i> – <i>To support the availability of FAIR data for chemical and biochemical reference measurement systems, with the development of appropriate databases</i> – <i>To support sectoral and cross committee efforts in promoting and developing the use of the SI, notably in the health, environmental, food safety and advanced manufacturing sectors.</i>

Ionizing radiation metrology		
Detailed strategy	Current plans (2022-2023)	Long term strategy (2024-2029)
Provide the high-precision / high-accuracy services that enable metrology institutes to compare or calibrate national standards that underpin global metrology for healthcare and radiation protection dosimetry, with an increased emphasis on supporting emerging metrology institutes and dosimetry for new treatment modalities such as radionuclide therapy	<ul style="list-style-type: none"> – <i>On-going delivery of comparison and calibration services for standards for low, medium and high-energy photons and for brachytherapy.</i> – <i>Relaunch the ¹³⁷Cs service for radiation protection level comparisons and calibrations using an external facility.</i> – <i>Construct and validate a new free-air ionization chamber with improved performance for medium-energy x-ray comparisons and calibrations (designed during 2021).</i> – <i>Automate measurement procedures for medium-energy x-ray comparisons and calibrations to improve the efficiency of the service.</i> 	<ul style="list-style-type: none"> – <i>To expand the use of the comparison and calibration dosimetry services for low, medium- and high-energy photons and for brachytherapy., particularly for emerging metrology institutes.</i> – <i>To coordinate comparison services for NMIs in the emerging field of dosimetry for radionuclide therapy.</i>
Work with the CCRI and the RMOs to develop new services to demonstrate the equivalence of standards of new radionuclides for nuclear medicine and difficult-to-measure radionuclides. For existing services, the focus is on improving operational efficiency.	<ul style="list-style-type: none"> – <i>Launch a new service to compare standards of short-lived radionuclides for medical applications on NMI sites under remote supervision (based on the SIRTI instrument).</i> – <i>Operate the international reference system for gamma-emitting radionuclides (SIR) for 70 radionuclides.</i> – <i>Operate the ESIR for pure beta-emitting radionuclides and develop the</i> 	<ul style="list-style-type: none"> – <i>To develop new high-precision comparison services to cover difficult-to-measure radionuclides such as electron-capture radionuclides and radionuclides in complex decay chains, designing new instrumentation where existing instruments are not suitable.</i> – <i>To work with Regional Metrology Organizations to introduce regional implementations of the SIRTI and exploit recent developments in portable TDCR, to provide a regional network of instruments</i>

	<p><i>techniques needed to expand the scope to alpha emitters.</i></p> <ul style="list-style-type: none"> – <i>Commission a back-up ionization chamber for the SIR, using new technology for low current measurement (working under the auspices of the CCRI/CCEM Task Group), replacing the radium check sources.</i> – <i>Publish reviews of results from comparison exercises, exploiting the machine-readable SIR database, to guide the strategy for future CCRI comparisons.</i> 	<p><i>to ensure comparability of radioactivity standards.</i></p>
<p>Work with stakeholders including other international organizations and RMOs to provide capacity building / knowledge transfer opportunities, particularly for countries and economies with emerging metrology systems.</p>	<ul style="list-style-type: none"> – <i>Co-pilot the ¹⁰⁹Cd CCRI Section II and CCRI(III)-K8-2024 comparison exercises.</i> – <i>Work with the IAEA and RMOs to develop e-Learning resources for use by existing and developing metrology institutes.</i> – <i>Expand the programme of secondments including the use of part-time virtual secondments.</i> 	<ul style="list-style-type: none"> – <i>To expand the service for coordinating / co-piloting comparison exercises, particularly for developing institutes and where access to major external facilities is needed (eg proton therapy, mass spectrometry, quantitative imaging).</i> – <i>To work with stakeholders (such as the IAEA and the RMOs) to develop a comprehensive capacity building / knowledge transfer programme for ionizing radiation metrologists.</i> – <i>To continue the programme of secondments including the use of part-time virtual secondments.</i>

Digital transformation and new digital services

- Our aim is to develop expertise to become an anchor of trust for the digital transformation in metrology both in our own services and through support for the work of the CIPM

Detailed strategy	Current plans (2022-2023)	Long term strategy (2024-2029)
To develop a set of new high-quality web services that provide access to the data and on-line tools provided by the BIPM.	<p><i>To develop machine-readable services that provide Findable and Accessible data including from the:</i></p> <ul style="list-style-type: none"> – 9th edition of the SI Brochure – The key-comparison database (KCDB) – The publications of the JCGM (eg VIM and GUM) 	<p><i>To support the needs for interoperable and re-usable data services that are machine actionable.</i></p> <p><i>To develop and publish an Appendix to the SI Brochure addressing Core SI Data topics.</i></p>
	<p><i>To establish a working group to progress the digital transformation of BIPM services amongst the BIPM staff and including seconded experts from NMIs and liaison organizations when possible.</i></p>	
To support the continuous development of the FAIR Digital SI Framework and other CIPM initiatives addressing the digital transformation of global measurements.	<p><i>Work with CCL/CCTF and the JCRB to provide machine-readable access to the KCDB and key data underpinning the definition of the second and the metre. Other CC initiatives will follow.</i></p> <p><i>Work with the CIPM to identify the best approach within the CIPM MRA to fully embrace FAIR data, addressing specifically the context of Digital Calibration Certificates (DCC).</i></p>	<p><i>To develop a web portal based on the International Metrology Resource Registry (IMRR) to be able to meet needs for access to FAIR metrological data, Digital Calibration Certificates (DCCs) and other digital information key to the world metrology community.</i></p> <p><i>To support the CIPM with the development of consensus on guidelines for FAIR implementation of data and metadata in metrology.</i></p> <p><i>To develop appropriate services of benefit for a wide range of the metrology community and their stakeholders – to become an ‘anchor of trust’.</i></p>

To support the development of the NMI community by building the global capacity for digital transformation.

- *Organize and deliver capacity building events focusing on digital transformation.*
- *Promote the CIPM's work on the use of the FAIR principles at NMIs.*
- *Hold regular webinars on topics of digital transformation.*
- *Work with the RMOs to facilitate the sharing of best practice (including case studies) amongst NMIs.*

Capacity building and knowledge transfer		
Detailed strategy	Current plans (2022-2023)	Long term strategy (2024-2029)
<p>To reinforce the international metrology system and to “balance the load” amongst the NMIs and support effective engagement with the international metrology community in developing countries.</p> <p>To support the efficient operation of the global measurement system.</p>	<p><i>To provide an integrated “training platform” hosting:</i></p> <p><i>Real time activities (eg online short courses for CIPM MRA and online technical exchanges (based on Q&A) related to the CIPM MRA).</i></p> <p><i>On demand activities through an E-learning platform (eg on-line training modules for the CIPM MRA and on-line training modules developed by the BIPM laboratories).</i></p>	<p><i>To agree and implement a sustainable and balanced funding model that facilitates effective load sharing, based on programme funding and sponsorship for CBKT activities that can:</i></p> <ul style="list-style-type: none"> <i>– Address different levels of need related to both the metrology system (CIPM MRA, JCTLM, UTC etc) and also specific laboratory expertise from the BIPM laboratories.</i> <i>– Adapt the funding model in response to the CIPM's proposed initiative to encourage engagement by the remaining 80 or so nations that do not currently participate. This will be done in close collaboration with the RMOs.</i>
<p>To support NMIs from Countries and Economies with Emerging Metrology Systems (CEEMS) to engage appropriately and effectively with the international measurement system.</p>	<ul style="list-style-type: none"> <i>– To develop and coordinate capacity building comparisons and knowledge-transfer activities in all areas of the BIPM laboratories and other high-priority areas defined in partnership with the RMOs.</i> 	<ul style="list-style-type: none"> <i>– To respond to the expected CGPM initiative to increase worldwide participation in the activity of the BIPM.</i> <i>– To explore, with the RMOs, the concept of an integrated mentoring tool.</i>
<p>To sustain a programme for visiting/seconded scientists to (and from) the BIPM.</p>	<p><i>To promote a timetable of opportunities for visiting scientists to take part in the work of all of the BIPM laboratories. To develop laboratory-based knowledge transfer activities in the BIPM laboratories.</i></p>	

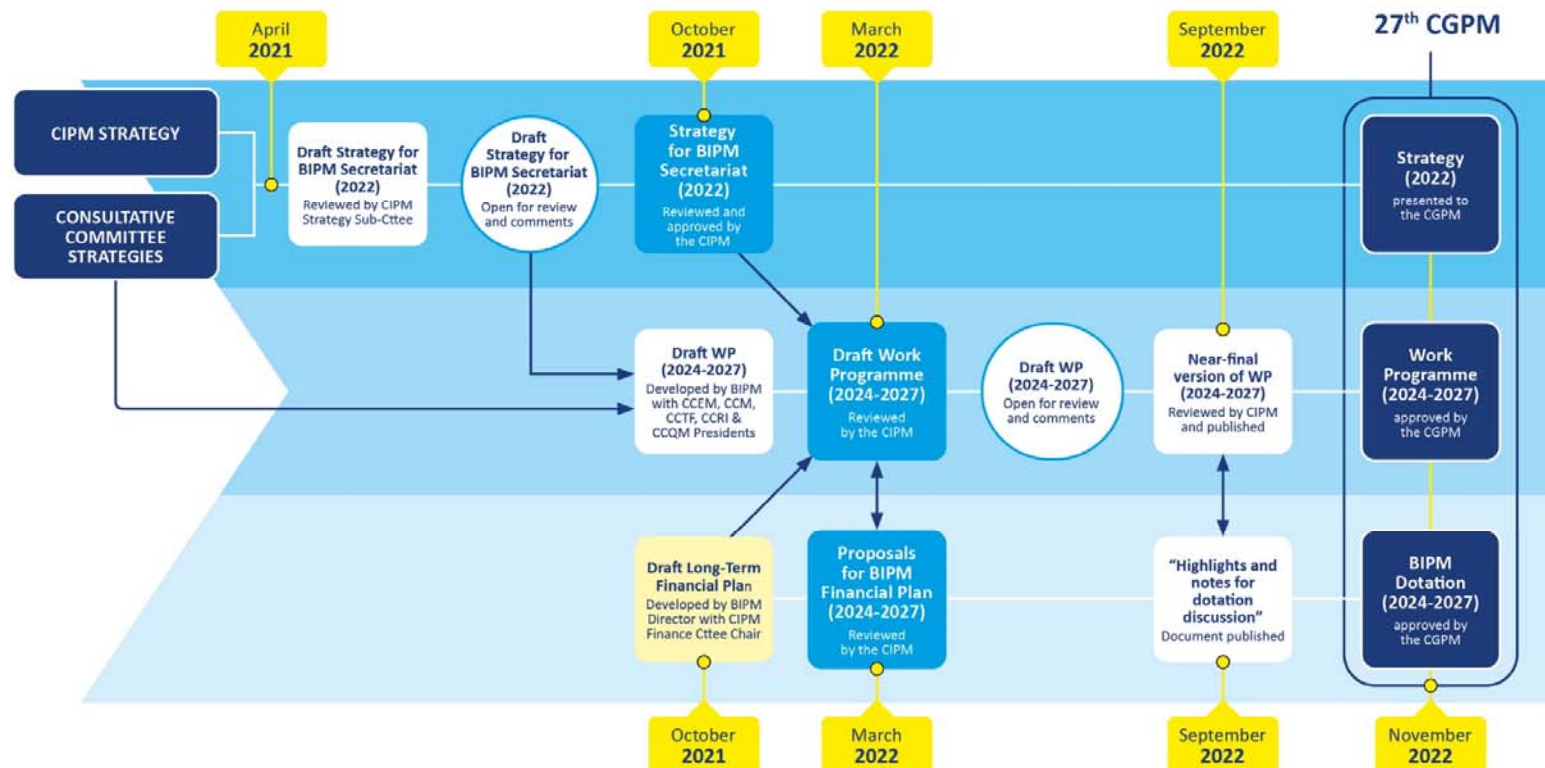
Communication and promotion		
Detailed strategy	Current plans (2022-2023)	Long term strategy (2024-2029)
To communicate effectively (with Member States, potential new Member States and other key stakeholders) about the Metre Convention, the SI and the expected revisions to the SI.	<i>To follow CIPM's policy on "open access" BIPM and CC documents.</i>	
	<i>To continue to support the unique opportunity to promote metrology provided by the 2018 changes to the SI.</i>	<i>To build on the success of World Metrology Day, doubling participation through all media by 2024.</i> <i>To promote the achievements of the BIPM over 150 years and to launch the CIPM strategy for 2030+ at a major event on the 150th anniversary of the signing of the Metre Convention (20th May 2025).</i>
To inform the science community, the wider scientific public and decision makers on matters related to metrology and its benefits through publications, meetings and the BIPM website.	<i>To increase the scope and depth of communication from BIPM by recruiting a communications specialist.</i>	<i>To identify (with the CIPM) topics of importance to the metrology community to be addressed at BIPM Workshops.</i> <i>To adapt effectively to the rapidly changing world of electronic media to ensure that the website continues to deliver services effectively and portrays an up-to-date image of the BIPM.</i>
	<i>To ensure the success of Metrologia as the key scientific publication for high level metrology and to broaden its reach by attracting metrological papers from disciplines that have not historically looked to publish in Metrologia; to monitor and adapt to the move towards "open access" for journals.</i>	

Coordination and institutional liaison		
Detailed strategy	Current plans (2022-2023)	Long term strategy (2024-2029)
To work with the CIPM to improve and promote the mutual recognition of national measurement standards and of calibration and measurement certificates (CMCs) issued by NMIs (the CIPM MRA), particularly by operation of the KCDB and supporting the JCRB.	<i>To “fine tune” the operational procedures and add further value to the KCDB 2.0 database operation with specific focus on the interface with the digital transformation and API services initiative.</i>	<i>To provide the underpinning for the FAIR data and metadata, specifically focusing on the support necessary from the KCDB for digital calibration certificates, including evolution of the database and its machine-readable interfaces.</i>
To liaise with the NMIs of Member States, Associates and the Regional Metrology Organizations (RMOs).	<i>To work with the “Panel of NMI Directors” to organize an annual meeting at the BIPM. To continue open and transparent communication with stakeholder communities including NMI Directors and Representatives of the Member States.</i>	<i>To work with the CIPM and the Member States Representatives with particular focus on liaising with existing Member States and the RMOs as models to facilitate participation of those states not yet participating in the activities of the BIPM are explored and, potentially, implemented.</i>
To work with the CIPM to promote the importance of the global comparability of measurements with international organizations of strategic importance to the mission (including the OIML, ILAC, ISO, WTO-TBT) and to work with them and others through Joint Committees.	<ul style="list-style-type: none"> – <i>To work towards better coordination and recognition of “Quality Infrastructure” (QI) and the central role of metrology within it amongst International Organisations and their stakeholders.</i> – <i>To implement a strategy of shared representation with partner organizations.</i> 	

People - to support the ethos and working practices of an international organization that can respond flexibly to a developing mission.		
Detailed strategy	Current plans (2022-2023)	Long term strategy (2024-2029)
To broaden the skill mix and experience available amongst the BIPM staff whilst achieving long-term improvements in efficiency.	<i>To increase the number of staff experienced in the planning, organization and coordination of workshops, webinars and other activities that can support the CIPM strategy.</i>	<i>To implement a policy on diversity and inclusion developed by the CIPM to ensure that staff recruitments represent a balance of gender and nationality.</i>
	<p><i>To establish a working group amongst the BIPM staff including seconded experts in digital transformation topics from NMIs and stakeholder organizations when possible.</i></p> <p><i>To increase opportunities for BIPM staff to build relevant expertise by secondment to NMIs and other international organisations</i></p> <p><i>To explore new mobility arrangements to encourage exchange of staff between the NMIs and BIPM..</i></p>	
To develop the organisational structure for BIPM staff to enhance agility and improve efficiency.	<p><i>To review the structure of the BIPM departments and support services so that they can respond effectively to the changing balance of activities in the work programme and the flexibility achievable by outsourcing selected services.</i></p> <p><i>To develop the annual performance review system (based on identified accountabilities and competencies) as a basis for career and salary progression that values the need for flexibility.</i></p>	
To develop and implement best practice in the support of the Consultative Committees, Joint Committees and Working Groups through the provision of Executive Secretaries.	<i>To improve the effectiveness of the CCs by strengthening common practice across them and to support the CIPM as they establish cross disciplinary/sector forums.</i>	<i>To continue to adapt to the evolving landscape by implementing a new structure for staff supporting the growing needs of the CCs, JCs, etc.</i>

Infrastructure - to provide necessary support functions in the most efficient way, whilst respecting the unique challenges of the BIPM as an international organization.		
Detailed strategy	Current plans (2022-2023)	Long term strategy (2024-2029)
To develop the IT infrastructure to support its mission.	<i>Complete the first phase of the IT transformation moving to cloud technology.</i>	<i>To review developing IT needs beyond the move to cloud technology, implementing appropriate IT infrastructure and security measures through to 2030.</i> <i>To implement new secure and efficient software platforms to enable scientific departments to implement the digital transformation of their work.</i>
	<i>To continue to adopt best practice in cyber-security to counter risks due to increased off-site working, and the use of collaborative tools and Cloud services.</i>	
To develop the built environment to sustain the BIPM Work Programme as it evolves.	<i>To review the use of, and renovate where necessary, the laboratory buildings.</i> <i>To develop and implement a plan for maintenance and use of heritage buildings and grounds that is consistent with the mission of the BIPM.</i>	
To ensure that the BIPM meeting facilities which support the CCs and WGs continue to follow “best practice” amongst international organisations.	<i>To implement a plan to meet a target date defined by the CIPM for all activities to be “net zero carbon”.</i> <i>To provide remote (video) access to all key meetings to respond to pressures to reduce global travel.</i> <i>To work with the CIPM to implement a policy for “hybrid” meetings.</i>	

Planned timings in preparation for the 27th meeting of the CGPM



List of acronyms	
API	Application Programming Interface
BIPM	Bureau international des poids et mesures/International Bureau of Weights and Measures
CBKT	Capacity Building and Knowledge Transfer
CC	Consultative Committee of the CIPM
CCEM	Comité consultatif d'électricité et magnétisme/Consultative Committee for Electricity and Magnetism
CCL	Comité consultatif des longueurs/Consultative Committee for Length
CCM	Comité consultatif pour la masse et les grandeurs apparentées/Consultative Committee for Mass and Related Quantities
CCQM	Comité consultatif pour la quantité de matière : métrologie en chimie et biologie/Consultative Committee for Amount of Substance: Metrology in Chemistry and Biology
CCRI	Comité consultatif des rayonnements ionisants/Consultative Committee for Ionizing Radiation
CCTF	Comité consultatif du temps et des fréquences/Consultative Committee for Time and Frequency
CEEMS	Countries and Economies with Emerging Metrology Systems
CGPM	Conférence générale des poids et mesures/General Conference on Weights and Measures
CIPM	Comité international des poids et mesures/International Committee for Weights and Measures
CIPM MRA	CIPM Mutual Recognition Arrangement
CMC	Calibration and Measurement Capability
DCC	Digital Calibration Certificates
DON	Deoxynivalenol
ESIR	Extended SIR
FAIR	Findability, Accessibility, Interoperability and Reuse
FTIR	Fourier Transform Infrared
GDP	Gross Domestic Product
GNSS	Global Navigation Satellite Systems
GUM	Guide to the Expression of Uncertainty in Measurement
IAEA	International Atomic Energy Agency
ICG	International Committee on Global Navigation Satellite Systems
IGS	International GNSS Service
ILAC	International Laboratory Accreditation Cooperation
IMRR	International Metrology Resource Registry
IO	International Organization
ISO	International Organization for Standardization
IT	Information Technology
ITU	International Telecommunication Union
JC	Joint Committee
JCGM	Joint Committee for Guides in Metrology
JCRB	Joint Committee of the Regional Metrology Organizations and the BIPM
JCTLM	Joint Committee for Traceability in Laboratory Medicine
KCDB	BIPM Key comparison database
NMI	National Metrology Institute

OIML	Organisation internationale de métrologie légale/International Organization of Legal Metrology
PAT	Patulin
PTH	Parathyroid hormone
QI	Quality infrastructure
qNMR	Quantitative nuclear magnetic resonance
RMO	Regional Metrology Organization
SI	Système international d'unités/International System of Units
SIR	Système international de référence/International Reference System
SIRTI	SIR transportable instrument
TDCR	Triple-to-Double Coincidence Ratio
TWSTFT	Two-Way Satellite Time and Frequency Transfer
UTC	Coordinated Universal Time
VIM	Vocabulaire international de métrologie/International Vocabulary of Metrology
WG	Working Group
WP	Work Programme
WTO-TBT	World Trade Organization Committee on Technical Barriers to Trade