

New Opportunities for Metrology: Strengthening Quality Infrastructure (QI) through German-Colombian Cooperation



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Background

The 150th anniversary of the Meter Convention invites us to reflect on metrology's achievements while envisioning its evolving role in addressing new challenges. Over the past five decades, the cooperation between Germany and Colombia has significantly contributed to strengthen Colombia's QI. At the heart of these efforts is the *Instituto Nacional de Metrología* (INM) of Colombia, created in 2011, which has emerged as a key regional leader in measurement science, policy development, and capacity-building. This partnership has enhanced Colombia's metrological capabilities but also **set the stage for future progress in response to emerging needs**.

A notable outcome of this collaboration is the development of two National Metrology Strategies, both pivotal in aligning Colombia's metrology system in a national and international context. The first strategy (2018) established the foundations for a robust and sustainable metrology framework. The second strategy (2023–2032) outlines a forward-looking vision that integrates research, innovation and digital transformation. The new strategy aims at addressing evolving industrial, academic, and societal needs, fostering collaboration across sectors to ensure the continued relevance of metrology in Colombia's development.



Timeline of the German-Colombian Cooperation



Discussion about the future and conclusions

The scope of the INM's leadership extends beyond core metrology activities. Currently, the INM is spearheading the creation of a comprehensive **national QI roadmap**. This initiative—developed in cooperation with PTB—focuses on integrating metrology with standardization, accreditation, and conformity assessment. It identifies key priorities, such as **positioning** the role of actors, expanding **regional coverage** to ensure equitable access to QI services, promoting **gender equality** and diversity, leveraging **digital technologies**, including big data and artificial intelligence to enhance added value to industry and society.



By addressing regional disparities and facilitating access to QI services, Colombia's industries will gain greater competitiveness, particularly in export-driven sectors. The focus on digital transformation will enable the QI organizations to modernize their processes and adopt machine-readable standards, ensuring that QI services remain relevant in a rapidly evolving digital world. Moreover, fostering inclusion and gender equality will help to build a more **diverse, innovative, and resilient QI ecosystem**. Looking to the future, the QI is poised to address emerging society needs.



The rise of smart manufacturing, renewable energy, and health sciences demands new QI solutions and greater integration with digital systems. To meet these challenges, Colombia's QI roadmap will prioritize partnerships with international institutions, expand research and development capabilities, and explore innovative approaches. By combining technical expertise and strategic planning, this partnership will ensure that Colombia's QI evolves to meet new global challenges while strengthening its role as a regional cutting-edge actor.

References

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4. Images for Discussion about the future and conclusions. Generated by ChatGPT

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