Kompetentnost' / Competency (Russia) 3/2025
ISSN 1993-8780. DOI: 10.24412/1993-8780-2025-3-14-18

Quality Management of Testing Laboratories in the Context of Digitalization

K.D. Skobelev[1], MIREA — Russian Technological University, skobelev@mirea.ru

[1] Researcher, Moscow, Russia

Citation: Skobelev K.D. Quality Management of Testing Laboratories in the Context of Digitalization, *Kompetentnost' / Competency (Russia)*, 2025, no. 3, pp. 14–18.
DOI: 10.24412/1993-8780-2025-3-14-18

key words

Laboratory Information Management System, digital transformation, quality management, testing automation, risk management, standardization

Modern testing laboratories have a key role in the product quality management chain. The article deals with the issues of improving the quality management of testing laboratories in the context of digital transformation. It analyzes existing challenges related to risk management, process automation, and regulatory compliance. The study proposes adaptive Laboratory Information Management Systems (LIMS) that integrate with equipment and databases, ensuring enhanced testing accuracy, resource optimization, and reduced human factor impact. The proposed implementation strategy includes process analysis, system design, validation, and staff training. The findings highlight the benefits of digital tools in improving efficiency, minimizing risks, and ensuring compliance with modern quality standards.

References

1. GOST ISO/IEC 17025–2019 General requirements for the competence of testing and calibration laboratories, Moscow, *Standartinform*, 2019, 52 P.
2. GOST R 53798–2010 Laboratory Information Management Systems, Moscow, *Standartinform*, 2010, 24 P.
3. GOST 33044–2014 Principles of Good Laboratory Practice (GLP), Moscow, *Standartinform*, 2014, 36 P.
4. GOST R 54360–2011 Laboratory Information Management Systems (LIMS). Standard guidelines for LIMS validation, Moscow, *Standartinform*, 2011, 40 P.
5. Smirnov A.V., Kozlov D.Yu., Kuznetsov E.A., *Vestnik standartizatsii*, 2022, no. 5, pp. 43–48.
6. Belyaev O.V., Zaytseva T.P., *Standarty i kachestvo*, 2021, no. 7, pp. 25–30.
7. Ivanov V.V., Frolov E.P., *Upravlenie kachestvom*, 2020, no. 3, pp. 12–18.
8. Orlov M.S., Grigor'ev A.A., *Kompetentnost'*, 2023, no. 1, pp. 50–55.
9. Petrov D.S., Sokolova I.N., *Tsifrovaya ekonomika*, 2023, no. 2, pp. 20–25.
10. Kalashnikov R.K., Sinitsyn Yu.A., *Farmatsevticheskoe proizvodstvo*, 2023, no. 4, pp. 35–42.
11. GOST R ISO 9001–2015 Quality management systems. Requirements, Moscow, *Standartinform*, 2015, 54 P.
12. ISO 31000:2018 Risk management — Guidelines, Geneva, *ISO*, 2018, 30 P.
13. ISO/IEC TR 17032:2019 Guidelines and examples of a process for validation of methods for confirmation of methods, Geneva, *ISO*, 2019, 45 P.
14. ISO 10006:2017 Quality management — Guidelines for quality management in project, Geneva, *ISO,* 2017, 38 P.
15. Makaeva A.R., Denisova Ya.V., *Vestnik Magnitogorskogo gosudarstvennogo universiteta im. G.I. Nosova*, 2024, vol. 22, no. 2, pp. 190–198.
16. Raevskaya M.P., Khodyrevskaya S.V. Quality policy and objectives as a tool for improving the quality of testing laboratory services, 9th Int. sc. and tech. conf.: Quality in production and socio-economic systems, Kursk, 2021, pp. 139–142.

Как подготовить статью для журнала «Компетентность»

Оригинал статьи и аннотацию к ней необходимо передать в редакцию в электронном виде (на магнитном носителе или по электронной почте komp@asms.ru). При передаче информации по электронной почте желательно архивировать файлы. В названиях файлов необходимо использовать латинский алфавит. Допускаемые форматы текстовых файлов — TXT, RTF, DOC.

Допустимые форматы графических файлов:

- графики, диаграммы, схемы — AI 8-й версии (EPS, текст переведен в кривые);
- фотографии — TIFF, JPEG (RGB, CMYK) с разрешением 300 dpi.

К каждой статье необходимо приложить сведения об авторах — фамилия, имя, отчество, ученая степень, ученое звание, место работы и должность, телефон служебный и домашний, адрес электронной почты.