Mobile Application Development for HSE

How to evaluate your application?

Key quality dimensions

- **Usability & UX**
  How easy it is for users to learn, navigate, and accomplish tasks (clarity of flows, readability, gestures, help, onboarding).
- **Performance & efficiency**
  App start time, screen load time, responsiveness to taps and gestures, battery usage, and data consumption under real network conditions.
- **Stability & reliability**
  Crash rate, error rate, load failures, and behavior under stress (poor network, background/foreground switches, low memory).
- **Security & privacy**
  Protection of data in transit and at rest, safe authentication, permissions, handling of sensitive data, and absence of obvious vulnerabilities.
- **Functional suitability & coverage**
  How completely and correctly the app implements required features and edge cases for its intended use, following a checklist or model like ISO/IEC 25010.

Practical evaluation steps

1. **Define a quality model and checklist**
   Take a simple model (e.g., functionality, usability, efficiency, reliability, security) and derive concrete questions/checkpoints for your app domain.

   Self-Check: Do you have an architecture diagram for my app? (0-2)

   0 – no, 1 – functionality diagram only, 2 – exactly (ex.)

2. **Run structured testing**
   Combine functional tests, usability tests, performance tests (load time, responsiveness), compatibility tests (devices/OS), and security checks.

   Self-Check: Did you use any testing model for your app? (0-2)

   0 – no, 1 – usability test only, 2 – exactly (ex.)

3. **Measure quantitative metrics**
   Track KPIs such as crash rate, app start time, retention, session length, and error rates via analytics and monitoring tools.

   Self-Check: What is the key controlled metric you use to assess the reliability of the app? Which monitoring tool can be used for this? (0-2)

   0 – not using yet, 1 – crash rate + mon. tool ex., 2 – other (ex.)

4. **Collect user feedback**
   Use surveys, in-app ratings, reviews analysis, and interviews to capture perceived usability, value, and pain points.

   Self-Check: How does the user currently provide feedback about the app's quality service (CSI, NPS)? (0-2)

   0 – missing, 1 – by the button, 2 – a periodic prompt after the function is completed

5. **Score of productivity**
   My application is installed and running on a mobile device (iOS, Android, CE)

   0 – have a code, 1 – running on IDE, 2 – running on mobile HW

Sources

1. https://www.luciq.ai/blog/mobile-app-quality-an-essential-guide
2. https://enterprisemonkey.com.au/mobile-app-testing/
3. https://userx.pro/blog/tpost/0zvluxn461-app-performance-metrics-understanding-th
4. https://www.dynatrace.com/news/blog/best-practices-and-key-metrics-for-improving-mobile-app-performance/
5. https://appsamurai.com/blog/15-mobile-app-kpis-to-measure-the-performance/
6. https://www.testrail.com/blog/mobile-app-testing/
7. https://www.apmdigest.com/security-can-accelerate-race-better-mobile-app-ux
8. https://www.imrpress.com/journal/CEOG/51/4/10.31083/j.ceog5104088
9. https://www.scitepress.org/papers/2015/52166/52166.pdf
10. http://irjaes.com/wp-content/uploads/2021/08/IRJAES-V6N3P148Y21.pdf
11. https://hicronsoftware.com/blog/mobile-app-development-testing/
12. https://www.headspin.io/blog/mobile-app-qa-testing-guide
13. https://uxcam.com/blog/top-50-mobile-app-kpis/
14. https://pmc.ncbi.nlm.nih.gov/articles/PMC7646896/
15. https://perpet.io/blog/mobile-app-qa-guide-tips-checklist-and/
16. https://developer.android.com/docs/quality-guidelines/core-app-quality
17. https://pdfs.semanticscholar.org/faef/96fb310aaa0dba5a93b246b4c3b10ea6019b.pdf
18. https://www.aasmr.org/liss/Vol.11/No.10/Vol.11.No.10.28.pdf
19. https://innovspace.co/wp-content/uploads/2021/06/EPA-Mobile-App-Evaluation-Guidance-1.pdf
20. https://userpilot.com/blog/mobile-app-performance-metrics/