

Tools and Technologies Baseline

As CDO and Business Analyst in a sector, various tools and technologies are used by the Office team to conduct the projects. These tools and technologies are standardised, and a common base of the tools and technologies is realised under the collective work of the CDOs and the support of RISA.

The tools and technologies are categorised as follows:

1. Front-end tools
2. Front-end framework tools
3. Back-end tools
4. Back-end framework tools
5. Source code management and version control
6. Mobile apps development
7. Security check tools
8. Data analytics and Data Visualization
9. Infrastructure and deployment
10. Application server
11. Operating system
12. Authentication
13. Process communication Protocol
14. Unit testing and API testing
15. Machine learning and computer vision
16. Collaboration and communication
17. Project management
18. Monitoring and evaluation
19. Finance and management system
20. Procurement

In each category, some tools are already deployed by RISA for all sectors (example regarding data analytics, process communication protocol, collaboration and communication, project management etc...). In addition to them, some tools commonly used and recognized by the community of CDOs and their teams are presented.

Regarding the tools available at RISA, requests should be made to have License to use them. Regarding the other tools mentioned in the tools' set, a public procurement process should be followed to acquire them.

However, when a Chief Data Officer selects a tool, several critical criteria must be considered to ensure alignment with governmental policies and objectives:

Data Sovereignty Compliance:

It is imperative to ensure that any tool selected guarantees the data sovereignty of the Government of Rwanda. Tools that might expose sensitive public information or create breaches in data sovereignty must be avoided. The selected tool should ensure that all data is stored, processed, and managed within the jurisdiction of Rwanda, complying with local laws and regulations.

Data Protection and Data Privacy Assurance:

The tool must ensure robust data protection and privacy measures. Given the sensitivity and confidentiality of government data, the tool should include advanced encryption, access controls, and compliance with data protection regulations such as GDPR or local equivalents. The confidentiality of data must be a top priority to prevent unauthorised access and breaches.

Robust Security Features:

Security is a critical factor when selecting any tool. The tool must have strong security measures to protect against cyber threats and vulnerabilities. This includes regular security updates, threat detection mechanisms, and compliance with cybersecurity standards. The tool should not introduce any security risks that could compromise Government Data.

Cost Considerations and Budget Compliance:

The cost of the tool is a crucial criterion, especially considering the budgetary constraints of public administrations. The tool should offer good value for money, fitting within the budget ceilings of the Rwandan public sector. It is essential to evaluate the total cost of ownership, including initial purchase, maintenance, and potential future upgrades.

User Capacity and Accessibility:

The size and needs of the user base must be considered. The tool should be able to accommodate the current number of users and have the capability to scale as the number of users grows. It should provide a seamless experience for all users, ensuring accessibility and ease of use for Government employees.

Scalability and Adaptability:

The tool must be scalable and adaptable to handle varying workloads without compromising performance. This includes managing latency effectively and ensuring that the tool can grow with the organisation's needs. The ability to adapt to increased data volumes and user demands is essential for long-term viability.

Finally, validation of RISA can be needed for some tools. Please refer to the guidelines on the tools procurement at RISA. The reader can refer to RISA to get the tools set.