

Purpose

At Elanco, deployment of any solution in a stable, scalable, and secure way is the responsibility of the application partners. Elanco has created a set of Enterprise Principles (see Appendix A) to ensure robust cloud-native applications with quality code and sustainable run rates. Suppliers with this skillset may also choose to participate in a Preferred Application Development Program (see Appendix B).

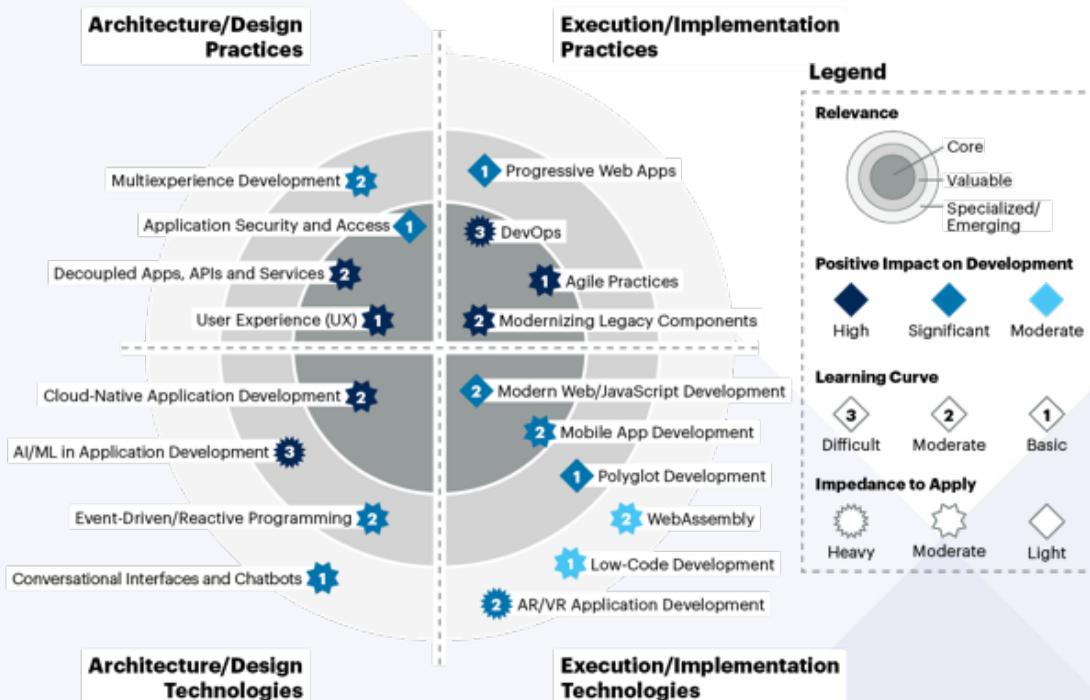
The core skills Elanco expects in its application development partners can be seen in the following list and in the following diagram:

- Agile Practices
- DevOps Practices (e.g., CI/CD, IaC)
- Modernizing Legacy Components
- Cloud-Native application development
- User Experience (UX)
- Decoupled Apps, APIs, and Services
- Application Security and Access
- Event-Driven/Reactive Programming

Scope

The scope of this document only applies to applications which require any custom infrastructure to be built to support the end-to-end solution and does not apply to SaaS offerings, such as Workday or DocuSign.

Application Development Skills Scope



General Obligations

All Supplier's obligations under the Agreement are in addition to the requirements of this document.

1. Suppliers must attest that they are fully able to meet the requirements, standards, and expectation outlined in this document.
2. Where possible, Suppliers must use Elanco's existing design patterns which can be shared with you by an Elanco employee. For development teams this means:
 - a. Supplier must have experience deploying Cloud Infrastructure leveraging appropriate Infrastructure as Code (IaC) frameworks (specifically Terraform) to deploy programmatically.
 - b. Supplier must have experience deploying Cloud Infrastructure as part of the CI/CD process (e.g., Azure DevOps/Github).
 - c. PowerApps should not be a proposed solution until further positioning guidance has been released.
 - d. Where possible, Supplier should have experience with deploying applications within a regulated environment (controlled, tested, and qualified deployments).
 - e. If applicable, Supplier must follow the Elanco Web Standards (Appendix A) for languages/tools and documentation best practices.
3. Application development should occur locally or using cloud-based tools such as Visual Studio Codespaces.
4. All application, infrastructure, and configuration code must be stored, maintained, and deployed from Github.
5. All proposed solution designs must be submitted to Elanco for Architecture Review to ensure that your solution meets both the original requirements and Elanco's Enterprise Principles.
6. All solutions unless deemed an exception by our solutions review team must be deployed in a cloud native architecture (e.g., PaaS-First, FaaS/PaaS).
7. Suppliers must demonstrate an understanding of appropriate security controls when handling Elanco keys/certificate/credentials (Key Vault integration).
8. Suppliers must follow Elanco's computer system validation requirements for third parties/suppliers (each, a "Third Party/Supplier") with respect to the validation and support of computerized systems (as defined in our IT Playbook).
9. Suppliers must propose solutions that are in agreement with Elanco's [Information Security Standard](#) as stated in the Supplier Resources on <https://elanco.com/en-us/suppliers>.
10. Suppliers must propose solutions that are in agreement with [Elanco's Supplier Privacy Standard](#) as stated in the Supplier Resources on <https://elanco.com/en-us/suppliers>.

Appendix A: Enterprise Principles

These are the principles which we expect all our application partners help us strive to achieve whenever possible, the solutions review team will work with you to explore design options to help facilitate these within your solution.

#	Type	Declaration
1	Hybrid-Cloud	By default, Public Cloud must be prioritized over Colocation Data Centers and Local Compute, specifically Microsoft Azure.
2	Open Source	By default, new applications must prioritize open-source technologies , with proprietary technologies looking to maximise our strategic investments (e.g., Microsoft Azure).
3	Custom Developed	By default, new custom developed applications must embrace a Cloud Native architecture (Twelve-Factor App and FAIR), prioritizing FaaS and PaaS.
4	CotS	By default, new Commercial of the Shelf (CotS) applications must embrace a Cloud Native architecture , prioritizing SaaS.
5	Server Deployments	By default, new IaaS server deployments must be ephemeral (short-lived) and stateless (does not persist a session) .
6	IT Automation	By default, new application deployments must be automated , leveraging a build tool (Azure Pipelines) and/or IT Automation (Ansible).
7	Datastores	By default, new Elanco managed datastores must prioritise open-source technologies (e.g., Postgres, Redis), avoiding proprietary/licensed technologies (e.g., Oracle).
8	Integration	By default, new system-to-system integrations must leverage the Enterprise Integration Middleware , specifically Dell Boomi.
9	API-First	By default, new applications must leverage open and documented web service-based APIs (e.g., REST , gRPC , Swagger , etc.) and/or Webhooks.
10	Client Plugins	By default, new client-side applications must be browser-based , avoiding the use of proprietary plugins (e.g., .Net Framework, Java, Flash, etc.)
11	Internet Accessible	By default, new applications must be accessible via the Internet, secured at source (AAA) and in transit (TLS) , removing the need for a VPN.

Web Standards

The full list of Elanco standards can be accessed with an Elanco account, but a summarized version is provided below. All applicable capabilities with a priority of Medium or Higher must be met.

Capability	Priority	Minimum Supported
Customer Identity	Very High	SAP CDC
Secret Storage	High	Azure Key Vault
Security Standards	High	OWASP
Containerization	High	Docker
Code Quality	High	ESLint & AirBNB Style Guide
E-mail Services	Medium	SendGrid
Front-end Framework	Medium	React.js, Redux.js
Server-Side Runtime	Medium	Node.js
Testing	Medium	Lighthouse, Jest, Enzyme
Documentation	Medium	Github Wiki
API Format	Low	REST/GraphQL
API Documentation	Low	Swagger

Appendix B: Preferred Application Development Supplier

Elanco now offers a Preferred Application Development Supplier status to Suppliers who can attest that they are fully able to meet the requirements, standards, and expectations outlined in this document. Prior to signing a Statement of Work or other contract with Elanco, the Supplier agrees to submit at least one example of software requirements, software architecture diagrams, and test plans/reports from a previous build for review by our Solution Architects.

Upon approval of this submission, Elanco can then assist with expedited onboarding, keep the Elanco IDs for the supplier's core team in our system, contribute to the supplier's Supplier ratings within Elanco's systems, and ensure that the supplier's preferred status is visible to all Elanco IT. Failure to adhere to the development and process standards in this document could result in delays, penalty fees, and removal from preferred status.