# Innovation Norway's technical platform

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# 1 Physical locations

Innovation Norway has its headquarters in Oslo, regional offices in all counties in Norway, as well as international offices in thirty countries.



Innovation Norway's personnel can work from several places, both from the offices and from remote. Some of our applications need virtual VPN, but for many applications it is not necessary. Innovation Norway's collaborating partners and customers are mostly public sector or business in Norway. Most of them use Innovation Norway self-service from all around the world, but primarily from Norway.

**Public Cloud**

We are cloud native and use Software as a Service (SaaS) for many purposes. We still have some legacy applications, a modern integration layer and other infrastructure elements that are hosted in Microsoft Azure in Europe.

# 2 Technical

## 2.1 Technical infrastructure

**Personal computers**
- Operating system: Microsoft Windows 10 Enterprise
- Authentication: Microsoft Azure Active Directory
- Browser: Edge (default), Chrome
- Office support: 365 E5

We don't want to have installed components (as Java or Adobe Flash) on the clients. We also prefer web instead of installed clients.

**Mobile Devices**
Innovation Norway supports iPhone and Android (Samsung) mobile devices. All devices and corporate mobile apps are managed via Microsoft Endpoint Manager (InTune). If compliant, they can access O365 via mobile apps.

**Meetingroom devices**
Skype Rooms
Hub

### 2.1.1 Machines, storage, network, etc.

Innovation Norway uses resources in Microsoft Azure. We prefer Software as a Service (SaaS) over Platform as a Service (PaaS) and use Infrastructure as a service (IaaS) only as a necessity. We still have some virtual machines in IaaS.
All deployment of infrastructure is in automated pipelines using Terraform and Pulumi for infrastructure as code.

### 2.1.2 Integration layer

Our integration layer is built in the cloud, using Azure iPaaS technology. Resources used are Azure APIs, Azure Functions, Logic apps, Service Bus and more.

## *2.2 Information security*

**Logon and federation of identity**
Innovation Norway is using Azure AD. Direct login via Azure AD is used for employees, B2B (guest user access) is used for partners, and B2C used for guests, and customers.

**User catalog and authenticating**
ID-Porten – is a common log in solution to public services
Signicat – authenticating customers
Azure Active Directory – The customer own user catalog
Active Directory – Legacy, and will be removed over time
Provisioning of employee data from the HR system, through an identity management software and into Azure Active Directory.

**Authorization**
Access control for internal users is using Azure Active Directory, and for some applications the Active Directory.

Access control for self-service is based on roles from Brønnøysundregistret.

**Malware**
Innovation Norway uses Microsoft Defender ATP plus other services from Microsoft to protect from malware.


## 2.3  General systems and services

We use several third-party services for authoritative data and services (for example Brønnøysundregistrene and Bisnode).

**Customer portal**
The customer portal is a custom developed service, which is realized by several services that behave as one common web page. Here you find a My page, applications form, net bank, and so on.
The service is using React as frontend framework, running in Azure web app and connecting to many micro services to offer the functionality.

**Analysis and reporting**
Datawarehouse is running on SQL Server
ADF and SSIS is used for ETL
AI and machine learning using several tools that can be used in Azure.
Microsoft Power BI is our default analysis tools

**Archive and document generation**
Archive: ePhorte (to be replaced)
Document generation: Custom system based on JSReport

**Workplace**
Innovation Norway uses Office 365, which includes:
E-mail, calendar: Microsoft Exchange Online
Intranet, collaboration: Microsoft Teams, SharePoint and OneDrive
Chat, meetings, call: Microsoft Teams
Social network: Yammer

**Development**
These are the normal development tools we use:
IDE: Visual Studio and Visual Studio Code
Code repository: Github and Azure DevOps
CI/CD: Azure Pipeline
Boards, issues, wiki: Azure DevOps
Chat: Microsoft Teams

**Financial and HR**
Unit 4 Business World. Separate installation, but delivered as an SaaS.

**Case and application handling**
Two custom developed applications:
One built on Domino

One built on Azure PaaS

**Customer relationship**

Microsoft Dynamics 365 Customer Engagement and Marketing

**Banking software**

Banqsoft core banking system. Separate installation but delivered as an Application Service Provider.

# 3 Architecture

Innovation Norway follow the primary architecture principles from Norwegian Digitalisation Agency (Norwegian only: https://www.digdir.no/digitalisering-og-samordning/overordnede-arkitekturprinsipper/1065)

**These are our guiding principles**



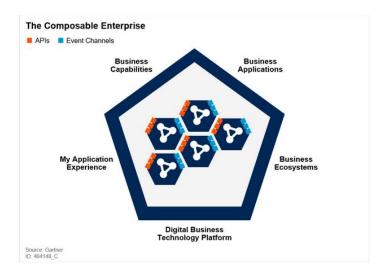| Guiding principles | |
|---|---|
| **Customer driven**     **Easy to use Easy to love**<br>**IN 2025**<br>**Lean and cost efficient**     **Employee engagement** | All investments and initiatives must support the IN 2025 vision<br>• Customer process is leading, IN processes is support processes<br>• Remove, automate or simplify as many administrative tasks as possible.<br>• Be transparent in customer dialogue and in case work to promote equal treatment, sharing of learnings and direct contact opportunities. |

Initiatives must prefer buying services (SaaS) over installing a solution, use commercial of-the-shelf (COTS) solutions before customizations. Microsoft is the preferred vendor of SaaS and PaaS.

Acquisitions of new solutions must be seen in a full lifecycle perspective including future maintenance and operations (TCO, SLA)

The processing of information, both corporate and from persons, is expected to be goal-oriented, effective, transparent, trustworthy and to follow legal laws and regulations.

**Loosely coupled architecture**

Our strategy is to have loosely coupled applications, where components can be replaced. As business needs change, the customer must be able to deliver innovation quickly and adapt applications dynamically – reassembling capabilities from inside and outside the enterprise. Gartner call it the Composable Enterprise:

The Composable Enterprise

Source: Gartner
ID: 464148_C

**The customers integration layer is built using API**

APIs are fundamental in every effort to modernize application and integration. They provide essential access to application and data services that support packaged business capabilities enabling a composable enterprise. The creation of digital business technology platform, multi experience and cloud native applications using API. Our integration layer has been using API for a long time. We can connect to own legacy applications and services, and to third party services. It is important that our systems have a modern and usable API, that reduce development time to integrate.



Mesh App and Service Architecture

Source: Gartner
ID: 441472