National Interoperable Notifiable Diseases Surveillance System (NINDSS)

CASE STUDY - Akkodis Australia

Executive Summary

The National Interoperable Notifiable Diseases Surveillance System (NINDSS) is a transformative digital health initiative led by the Australian Department of Health, Disability and Ageing and was delivered in partnership with Akkodis.

In partnership with Health, Akkodis designed, built and implemented a new cloud based NINDSS platform to replace the ageing NINDSS. NINDSS provides a modern, scalable solution for disease surveillance nationally. This case study outlines the project's objectives, architecture, implementation journey, and strategic value to public health in Australia.

Background and Objectives

Established in 1991, the original NINDSS platform had become outdated, lacking the flexibility and performance needed to support modern public health surveillance. In response, the Department of Health, Disability and Ageing initiated the NINDSS project with the following goals:

- Enable better surveillance of communicable diseases.
- Support national epidemiological data collection and analysis to help inform creation of health policy and reporting.
- Provide a scalable, cloud-hosted SaaS platform aligned with Whole-of-Government (WoG) standards.
- Upgrade technology to enable more secure transmission of data.
- Creation of maps and graphs to aid epidemiological reports and analysis.
- Replace manual, fragmented processes with automated data flows.
- Creation of a SharePoint solution to secure API gateway.

Project Phases and Timeline

The NINDSS project was delivered in multiple phases:

Date	Milestone
Jan 2021	Partnership with Akkodis initiated
Jun 2021	MVP delivered on Azure cloud
Dec 2022	Transition to 24/7 application support and continuous improvement
Jun 2023	A new disease was added to the NINDSS database – Mpox
Dec 2023	Incremental functional improvements were made to the NINDSS platform to improve its functionality, as prioritised by the business
Apr 2024	Rare Disease Alerts feature launched
Oct 2024	Akkodis performed key upgrades to the back-end technologies of NINDSS, including .NET and node.js libraries, to reduce code vulnerabilities and future-proof NINDSS

| Jan 2025 | Microsoft Synapse upgraded to v3.4 |
| Apr 2025 | Akkodis commenced design work for the potential inclusion of a new dataset into NINDSS, involving extensions to the current solution. |

Architecture and Technology

NINDSS is built on Microsoft Azure using a hybrid of SaaS and PaaS components. Key architectural features include:

- Secure API Gateway with OAuth authentication
- Batch and data ingestion pipelines from jurisdictions
- Integration with Microsoft Power BI for analytics.

The system supports asynchronous and synchronous data flows, with isolated environments for testing and production.

Implementation Highlights

- Delivered under a hybrid Agile/Waterfall model
- Extensive stakeholder engagement across the Department
- Multiple change requests managed to adapt to evolving requirements and business needs
- Real-time enhancements introduced in response to COVID-19 and emerging diseases like Mpox
- Improved national level reporting on communicable diseases
- Increased responsiveness to nationally agreed data specifications
- Enhancements to the system to support upcoming business needs.

Lessons Learned

- Early stakeholder alignment was critical to managing scope and expectations
- Flexibility in architecture enabled rapid adaptation during the pandemic
- Continuous engagement with key delivery personnel developers and testers ensured quality delivery.

Conclusion

The NINDSS project exemplifies how strategic investment in interoperable digital infrastructure can modernise public health surveillance. With its extensible architecture and proven reliability, NINDSS is well-positioned to support Australia's evolving public health needs and serve as a model for similar initiatives globally.

About Akkodis

Akkodis is a global digital engineering company and Smart Industry leader. We enable clients to advance in their digital transformation with Consulting, Solutions, Talent, and Academy services. Headquartered in Switzerland and part of the Adecco Group, Akkodis is a trusted tech partner to the world's industries.

We co-create and pioneer solutions that help to solve major challenges, from accelerating the clean energy transition and green mobility, to improving user and patient centricity. Empowered by a culture of inclusion and diversity, our 50,000+ tech experts across 30 countries combine best-in-class technologies and cross-industry knowledge to drive purposeful innovation for a more sustainable tomorrow. We are passionate about Engineering a Smarter Future Together.

Find out more

If you are interested in learning more about Akkodis and how we can help, please reach out today:

Amanda Fisher
Account Director
ACT Consulting, Akkodis Australia
E: amanda.duffell@akkodisgroup.com

Carol Gobby
VP Sales and Growth
Akkodis Australia
E: carol.gobby@akkodis.com