Integrating with the OakNorth Platform

There is no integration required to begin using the OakNorth Platform. Your users can submit and access data directly through a web browser. This makes it quick and easy to get started.

As volumes grow and the workflows within your bank evolve, it makes sense to pursue deeper data integration with the OakNorth Platform. Among the benefits of systems integration, integrating data will:

- Increase the consistency of data presented on OakNorth Platform and your internal systems;
- Reduce the potential for erroneous data on OakNorth Platform;
- Improve the efficiency of your teams, by potentially eliminating double keying of information; and,
- Enable the flow of information from OakNorth Platform back into your internal systems.

This document provides an overview of the approach OakNorth takes to systems integration, the typical workstreams, phases within the workstreams and timeframes for standard integrations, and detailed specifications for mapping your internal data to the OakNorth Platform.

INTEGRATION APPROACHES

The approach to integration is dependent on your needs. We have found that data integration with internal bank systems takes two forms:

1. Up-front integration: where you decide to integrate before beginning to use the OakNorth Platform; or,
2. Follow-up integration: where you've decided to integrate systems after using the OakNorth in your existing workflows.

There are also different technologies for integrations with different trade-offs:

1. API integration where OakNorth platform and your system make "direct" calls to each other. This approach had better performance - data in each system is more likely to be up to date but if requires closer cooperation between both teams and can require more compliance oversight;
2. File based integration this is simpler to implement but introduces time delays and can be more brittle as the underlying data format is exposed;

INTEGRATION WORKSTREAMS

Regardless of approach, every integration shares the same workstreams. The sequencing, tasks and phases within each workstream differs slightly based on your specific requirements and the particulars of the systems being integrated.

Workstreams are generally sequential but may overlap. For example, Some Integration may be required to test parts of the Data Landscape Survey. We do not propose a complete the survey before starting implementation. Similarly, the operational plan might only be possible once any part of the integration is complete we will start to operationalise it.

YOUR TEAM AND OAKNORTH

Our experience tells us that the most effective approach to a successful integration is working intensively as one team. Depending on the scope of the OakNorth implementation within your bank, we may work with individuals from a division, or global representatives. We require representatives from the following areas:

Area	Knowledge	Notes
Information Systems Expert	Full understanding of systems utilized internally. This will include knowledge CRM, lending, risk, monitoring and data warehouses.	This individual is the gate-keeper for specialists who have knowledge of each system.
Systems Specialist	SME for a particular system. This could be the System Integrator, Engineer or IT owner for a given system.	This individual is needed to support detailed analysis of the system, including documentation, identifying data coverage and integration approaches.
System Owner	The "business" owner of a particular system. This could be someone from PMO, Commercial Banking or a Transformation team.	This individual is needed to support detailed understanding and documentation of user workflows in the system.

The OakNorth team will typically consist of the following team members:

Area	Knowledge	Notes
Project Manager	Full understanding of OakNorth systems and broad familiarity with bank systems integration.	This individual manages the phases, including unblocking the team, and provides regular status updates to your stakeholders.
Financial Data Analyst	SME for the OakNorth Chart of Accounts. This analyst identifies the financial account data available in your systems and it's applicable mapping to OakNorth standards.	The key outcome from this individual is a mapping of borrower financial statements from your systems to OakNorth.
Data Analyst	SME for OakNorth MI. This analyst identifies the additional MI data available in your systems and it's applicable mapping to OakNorth standards.	The key outcome from this individual is a mapping of key borrower, transaction and portfolio data from your systems to OakNorth.
Customer Success Engineer	Systems integration, APIs, schedulers, data QC and data pipelines.	This integration engineer implements standard and custom integration technologies.

When the integration is running in production, you may wish to have us integrate directly with your own monitoring and alerting systems in which case we will require access to:

Area	Knowledge	Notes
Network Operations	Full understanding of systems utilized internally for availability and uptime monitoring	This individual will work with OakNorth to integrate with your operations systems to alert us when dependent systems are not operational and alert you when errors occus between our systems.

YOUR SYSTEMS

We integrate data from at least one system during the project. Occasionally, it may be necessary to integrate with several systems, particularly where data is not available from a single system. For reference, we classify commercial bank systems as outlined below. Throughout the integration project, we will refer to systems accordingly.

System		Type of Data	Example systems
Customer Relationship Management (CRM)		Origination information, including borrower and transaction details.	▪ Salesforce ▪ nCino
Core Banking	Lending Platforms	Deal terms and monitoring, including the term, amount and drawdowns.	▪ Mambu ▪ OakNorth Booking Bench ▪ Jack Henry
	Business Banking	Bank account details and statements, where applicable.	
Risk Management		Risk ratings and credit decision workflows.	▪ Optimist
Data Warehouse		Granular and/or aggregated data from all systems	▪ Home-grown ▪ MS SSIS ▪ Databricks
Files		Borrower financial statements, scenarios and forecasts, annual reports, etc.	▪ Excel ▪ PDF ▪ PPT

WORKSTREAMS

Data Landscape Survey
Duration: 2-8 weeks

Research and Documentation

The goal of the first workstream of the engagement is to understand the data sources available in your organisation. The OakNorth team will be onsite at your offices in order to survey the data landscape and map data sources and items to the OakNorth Platform. Depending on which systems are determined early on to have the data required, the OakNorth team will need access to and support from individuals from the Areas noted above.

OakNorth Customer Engineers will gather an understanding and document data models presented by a database or system API.

The Financial Data Analyst will gather an understanding of how your systems complies or deviates from GAAP and how your models are constructed and used to monitor loans. For example, if you have an internal definition of EBITDA, we need to understand how this is calculated and stored in your systems.

Our experience tells us that at the earliest possible moment in the project, they will need to see financial models related to specific loans – these are most often stored in individual Excel files.

Data Mapping

The output of this phase is a list of data items that map to OakNorth data items. The data is identified by source, frequency of update, and volume of data expected. In addition, OakNorth will make initial proposals for integration methods with your systems such as API, file export/import or in cases where it's the only option -- manual ingestion. We do not expect this list to be fully accurate at this stage. Our goal is to gather enough

information to start implementation of the integration and identify any new development needed by the OakNorth Platform to function alongside your existing systems.

Sectors

This stage will also look in more detail at the sectors covered by the loan book you plan to prioritize onto the OakNorth Platform. This step is required because the standard Chart of Accounts changes is based on the sector of your borrowers. For completely new sectors, this stage lets us discover additional support required by the OakNorth Platform as early as possible.

Implementation Planning

Finally, the OakNorth team will agree a broad plan of operation with your team. This will include the draft implementation plan but also the monitoring and support plan for the final set of integrations.

We will discuss the stages for delivery and milestones and corresponding review by stakeholders in your business. We will identify any large dependencies on both OakNorth and your IT team.

Integration

Duration: 8-20 weeks initially, ongoing as required by updates to your systems

When we have enough information from the Data Landscape Survey, frequently before the Data Landscape Survey is completed, we will start to implement the first integration module.

System Setup and Access

Our systems will be deployed to a secure AWS VPC dedicated to you and separate from the main VPC used to deploy your OakNorth Platform instance. We will instantiate a development, staging/UAT and production environment from the outset. For the environment to interoperate, we will need read only access to production systems determined in the survey and write access to equivalent (development/staging) for systems where there is an outbound integration.

Supporting systems

In addition to the specific integration modules, OakNorth will build a suite of test and monitoring tools. We will use our own internal monitoring and test systems and can optionally integrate with your logging, monitoring and alerting.

Operations

Duration: Indefinite/ongoing

As soon as the integration workstream delivers the first module that performs a *minimally useful ingestion* (aka minimum viable product or MVP), OakNorth will start to operationalise the integration. This MVP could be as simple as taking the borrower name from your core banking system and populating an empty borrower record on the OakNorth platform.

The operational workstream runs for the entire lifetime of the engagement between OakNorth and your organisation. We will adopt a continuous integration and deployment system that installs and runs each new version of the integration as the engineering team deliver it. Each change will be automatically tested and delivered to the live production system.

Wherever possible the integration will be fully automated, we will strive to build systems that run unattended and proactively alert when they encounter errors. Even file integrations will be automated where possible – if your systems can automatically export their data, we will build systems to automatically trigger ingestion. There are always edge cases where automation is not possible – in these cases we will put human driven processes in place and manage them throughout operational period.

Monitoring

The workstream for operating the integration will be responsible for the overall health of the system from the point of view of performance, data quality, integrity and meeting SLAs agreed as part of our broader relationship.

We will need close links to your software management and deployment teams within your IT function to receive notice of new versions being deployed and outages in your systems which might impact the integration.

Maintenance and upgrades

Occasionally you will need to update or replace a system that the integration relies on. New systems always break existing dependencies, major upgrades can either break or require new development to achieve better integration. Wherever possible we require notice of these changes in enough time to update and retest the integration modules.

Any such changes will require new workstreams (at a smaller scale) repeating tasks in the Data Landscape Survey and Integration workstreams from a full integration. The scope of this work will be handled on a case by case basis depending on the size and impact of the changes.