Data Strategy Program

Current State Report

November 2021

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Summary

- Dime Bank has engaged Vertical Relevance (VR) to conduct an initial analysis for a Data Strategy program.
- The scope of this engagement is to –
  - Analyze the current state of data;
  - Identify and prioritize data quality issues;
  - Define a Data Governance program at a high level;
  - Develop a 1-page Summary Roadmap and Vision for the next steps.

- VR has conducted a **Current State Analysis** over a 5-week period. Areas of focus included –
  - Stakeholder interviews focusing on data usage, issues and gaps;
  - Reviews of data flows, processes and controls for data quality;
  - Critical data elements that require governance;
  - Prioritized requirements.

- This **Current State Report** summarizes the analysis. It also provides the foundation for outlining a Data Governance program and a Summary Roadmap and Vision for the next steps.
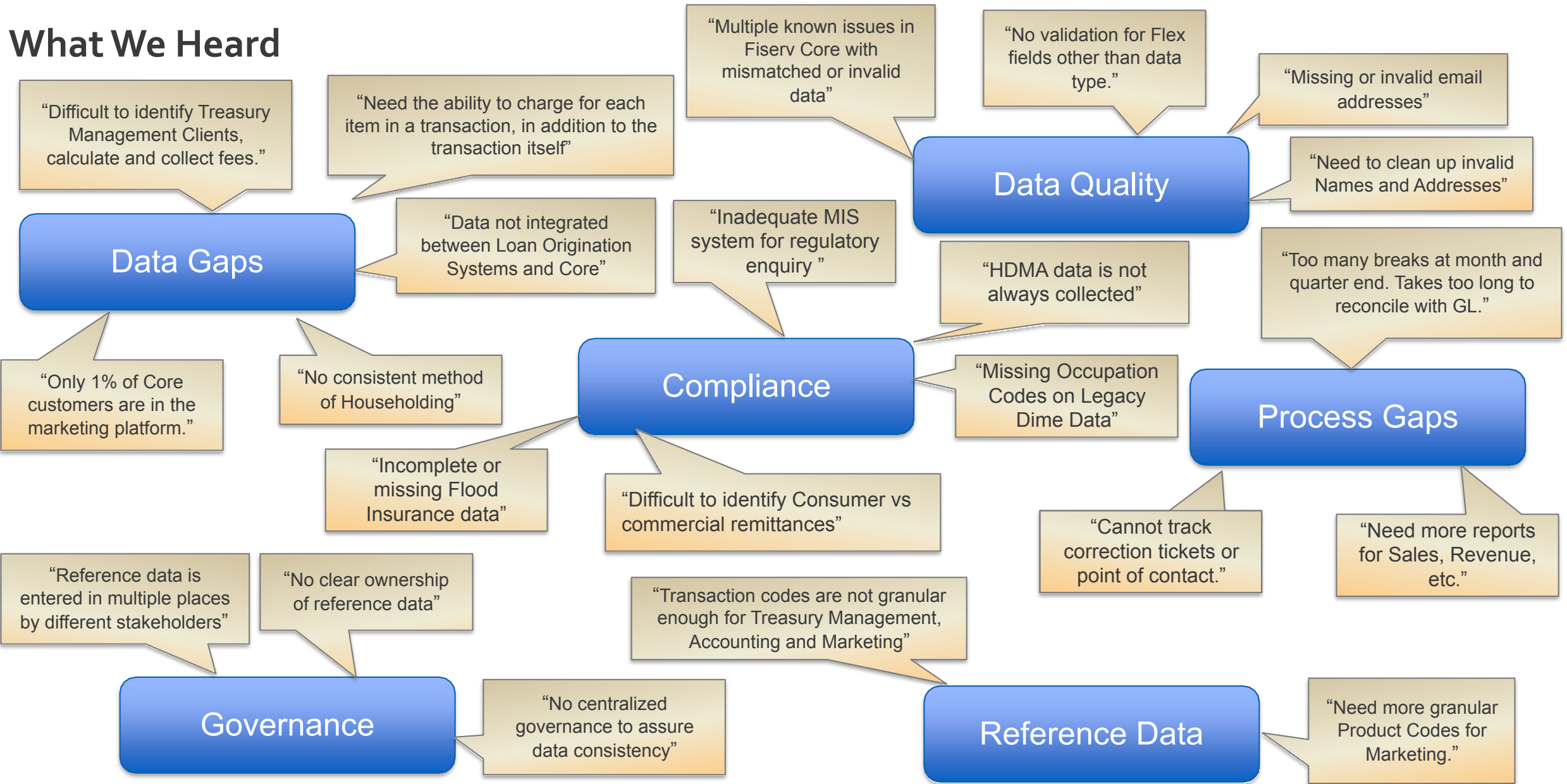
Stakeholder Meetings & Interviews

We had multiple meetings with key stakeholders for information gathering and reviewing the documented findings. The Core Team (IT and the Data Teams) moderated and provided guidance during these meetings, helped review the findings, and provided context and clarifications.

Meetings	Team	Information Gathering	Review Meeting
Kickoff Meeting	Core Team (IT and Data Team) and representatives from each of the below mentioned teams.	X	X
Session 1	Deposit Ops	X	X
Session 2	Loans Booking	X	X
Session 3	Accounting Team	X	X
Session 4	Credit Analytics	X	X
Session 5	Marketing	X	X
Session 6	Treasury Management	X	X
Session 7	Compliance	X	X

Key Activities
• Conduct stakeholder interviews
• Review current processes and controls for entering data
• Confirm existing data governance processes
• Identify and prioritize critical Data Quality issues
• Define Data Quality rules for critical data elements

VR VERTICAL RELEVANCE

What We Heard

"Difficult to identify Treasury Management Clients, calculate and collect fees."

"Need the ability to charge for each item in a transaction, in addition to the transaction itself"

"Multiple known issues in Fiserv Core with mismatched or invalid data"

"No validation for Flex fields other than data type."

"Missing or invalid email addresses"

Data Quality

"Need to clean up invalid Names and Addresses"

"Data not integrated between Loan Origination Systems and Core"

"Inadequate MIS system for regulatory enquiry "

Data Gaps

"HDMA data is not always collected"

"Too many breaks at month and quarter end. Takes too long to reconcile with GL."

"Only 1% of Core customers are in the marketing platform."

"No consistent method of Householding"

Compliance

"Missing Occupation Codes on Legacy Dime Data"

Process Gaps

"Incomplete or missing Flood Insurance data"

"Difficult to identify Consumer vs commercial remittances"

"Cannot track correction tickets or point of contact."

"Need more reports for Sales, Revenue, etc."

"Reference data is entered in multiple places by different stakeholders"

"No clear ownership of reference data"

"Transaction codes are not granular enough for Treasury Management, Accounting and Marketing"

Governance

"No centralized governance to assure data consistency"

Reference Data

"Need more granular Product Codes for Marketing."
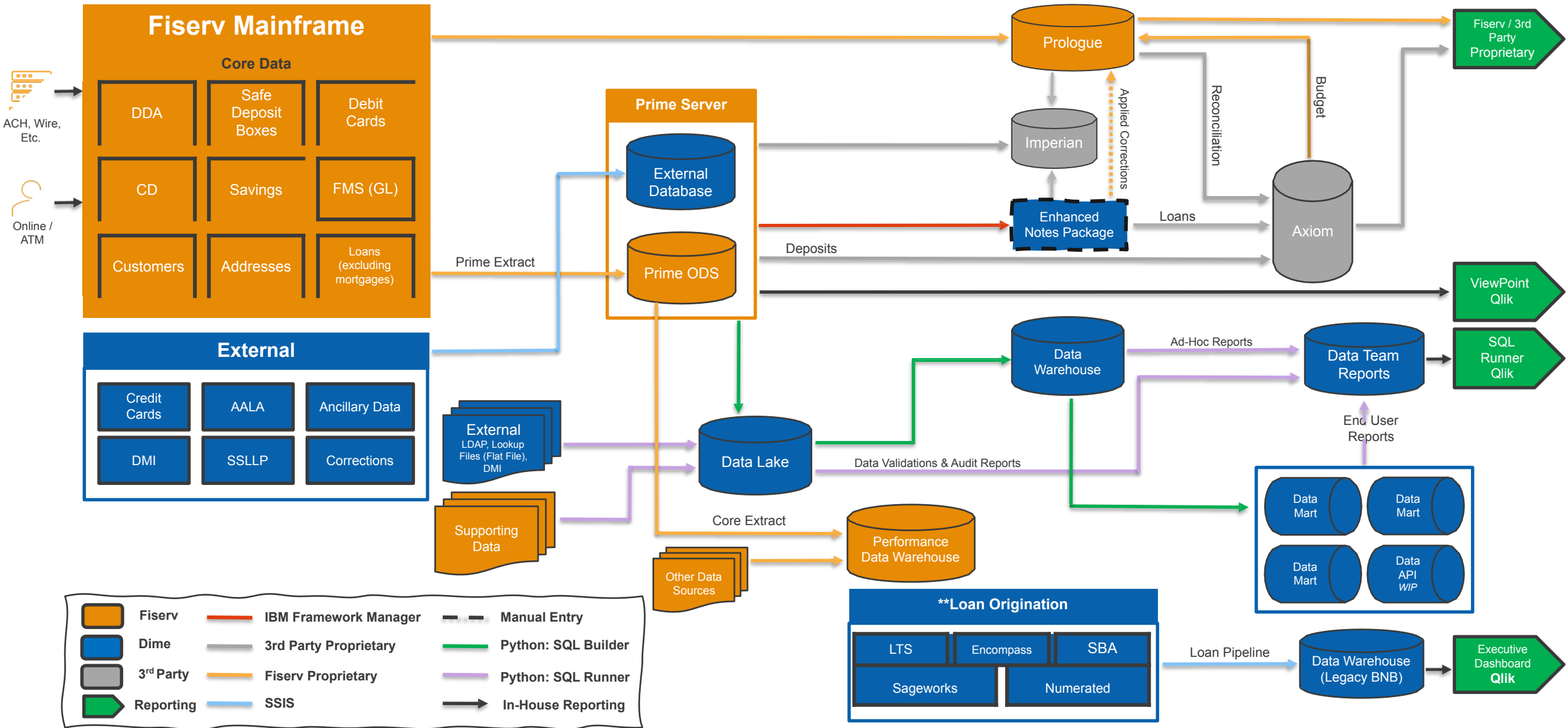
Current State Recap

Gaps & Areas of Improvement

The key areas of improvement highlighted to address, fall under two general categories – **Business Risks** (financial, regulatory, and reputational) and **Operational Effectiveness** (optimizing processes and converging with more mature practices at the firm).

Business Risks

⚠ **Revenue Impact**	⚠ **Compliance Risks**	⚠ **Scalability Risks**
~Difficulty charging for Treasury Management services ~Impact on Marketing due to lack of 360° view of Clients and Householding ~ Difficult to evolve to a Data driven bank due to data quality issues and platform fragmentation	~ Inadequate MIS systems for regulatory enquiries ~ No established governance process to escalate data quality anomalies that need remediation ~ Known issues with foreign remittances, flood insurance, duplicate account numbers, etc.	~ Platform proliferation after the merger ~ Extensive reliance on manual processes for key business functions ~ Higher volume of exceptions and corrections

Operational Effectiveness

🕐 **Month and Quarter End Processes**	🕐 **Data Quality Issues & Data Gaps**	🕐 **Reporting Gaps**
~ Delayed closing due to high number of exceptions to be resolved ~ Manual interactions using Excel between Accounting and Credit Analytics teams ~ Multiple platforms need to be updated	~ Known issues with names, addresses, emails, and other key fields ~ Data inconsistencies and gaps between systems ~ Reference data entered in multiple places	~ Proliferation of reporting platforms ~ No single source of truth ~ Lack of monthly reports for Sales, Revenue by Product, Actuals v Budget, Gross v Net Revenue

Data Flow Diagram & System Overview
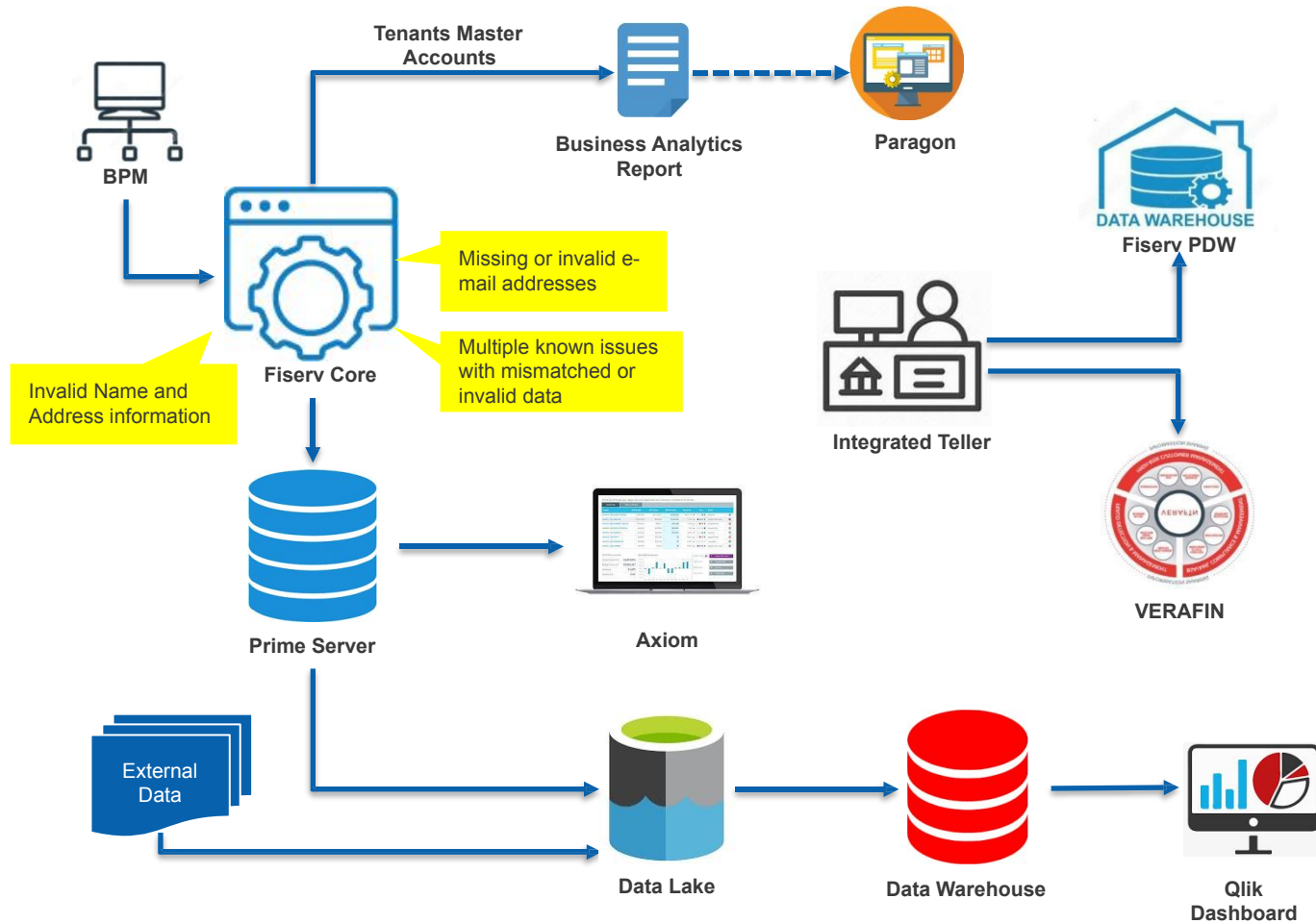
Current State Data Flow

Data Systems Overview

	System	Usage
Fiserv	Prime ODS	Hosts snapshot records pulled from the Fiserv Mainframe. Truncated and loaded daily by a nightly batch job (Prime Extract).
	Prime Data Warehouse	Data Warehouse solution offered by Fiserv. Hosts historical records of the data provided in the Prime ODS and other Fiserv sources (I.e., Commercial Center).
	Navigator / BPM	Front end system for Branches to create and maintain accounts data, Loans, etc.
	Prologue	An accounting management solution from Fiserv that includes general ledger, fixed assets, accounts payable, and investment portfolio accounting, etc.
3rd Party	Imperian	Asset liability management tool
	Axiom	Axiom is a 3rd Party tool for financial planning, budgeting, and forecasting. It is also used for incentives tracking and compensation management.
Dime	Enhanced Notes Package	A notes model generated in IBM Framework Manager using the External DB and data from Prime ODS. Corrections entered by the Credit Analytics Group. Data from the Enhanced Notes Package is eventually reconciled with the GL (Prologue). This is also referred to as "Enhanced Notes Model" and as "Loans Data Warehouse".
	Data Warehouse (Legacy BNB)	Houses a single table for the Loan Pipeline. Used to generate the Executive Dashboard report.
	Data Lake	Stores raw data from the Prime ODS and external files. Hosted on SQL Server. Acts as a staging area for the Data Team Data Warehouse.
	Data Team Data Warehouse	Used by the Data Team as a centralized and curated location for historical data. Loaded exclusively by the Data Lake using the Data Team's Python-based Templating Pipeline.
	Data Marts	A collection of databases that each house a subset of the Data Warehouse as needed for that Data Mart's intended consumer(s). Allows consumers to access data without having to navigate the entire Data Warehouse.
	Data Team Reports Database	Reports generated from the Data Lake (validations & audit), Data Warehouse (Ad-hoc) and Data Marts are stored/backed-up in this DB. User can pull current and historical reports from this database.

Current State Details

VERTICAL
RELEVANCE

Deposits

The Deposits team uses Fiserv for processing. Deposit data is made available via the Prime Server to Axiom for analytics, and via multiple databases to SQL Runner for reporting.

BPM

Tenants Master Accounts

Business Analytics Report

Paragon

Missing or invalid e-mail addresses

Fiserv Core

Multiple known issues with mismatched or invalid data

Invalid Name and Address information

Prime Server

Axiom

External Data

Data Lake

Integrated Teller

Fiserv PDW

VERAFIN

Data Warehouse

**Qlik Dashboard**

Issues and Gaps:
1. There have been Data Quality issues with the data entered by Branch staff - mostly in the non-validated fields like Name, Address, etc.
2. Fiserv does not validate addresses to ensure that they exist.
3. There are about 10 known Data Quality issues with mismatched or invalid data in key fields.

Key Requirements:
1. Need prevention, detection and resolution mechanisms for Data Quality issues.

Loan Operations

The Loan Operations team uses a boarding sheet to enter loans in different Fiserv loan origination systems. The Enhanced Notes Package is used to reconcile data with Accounting.
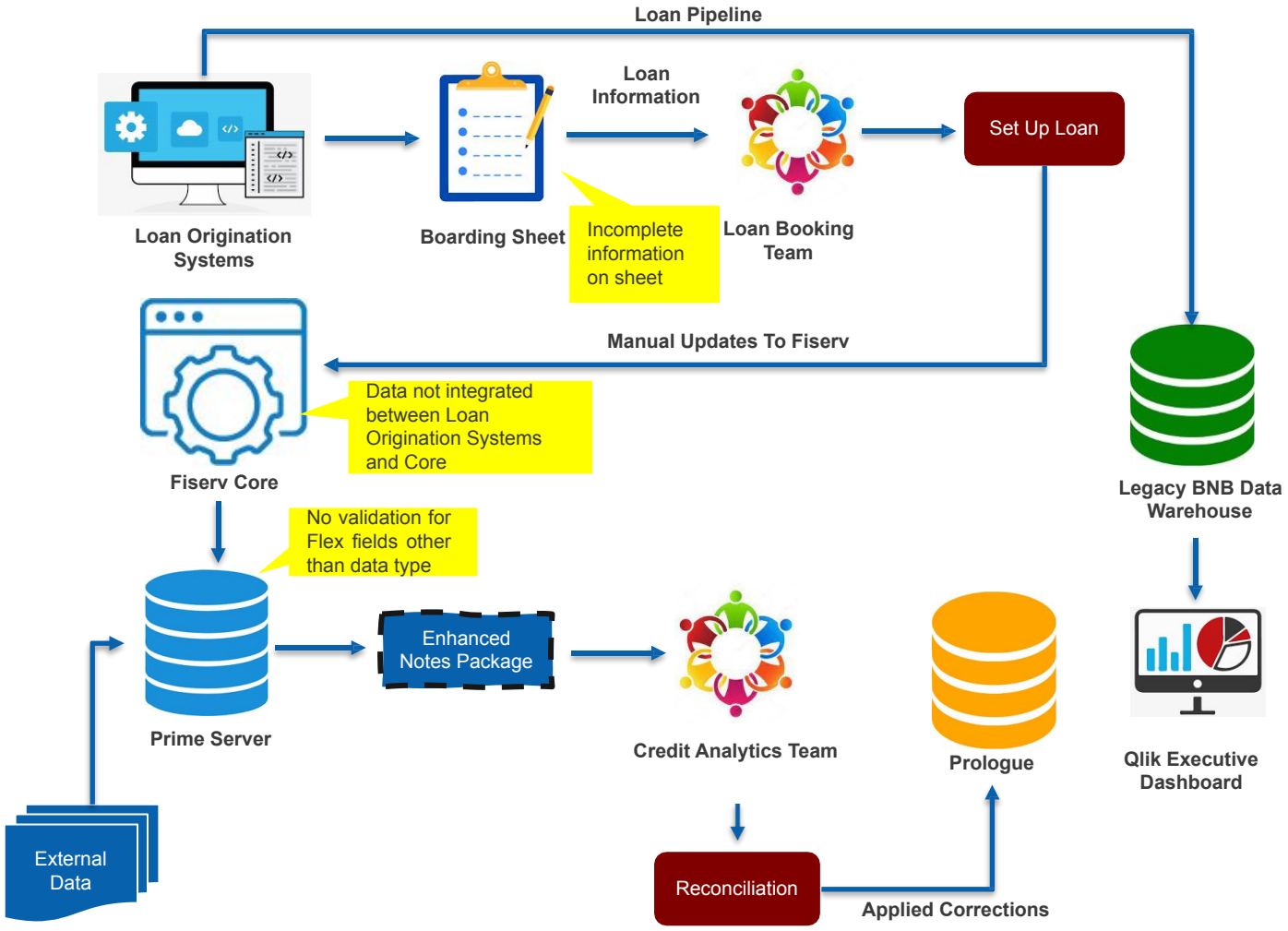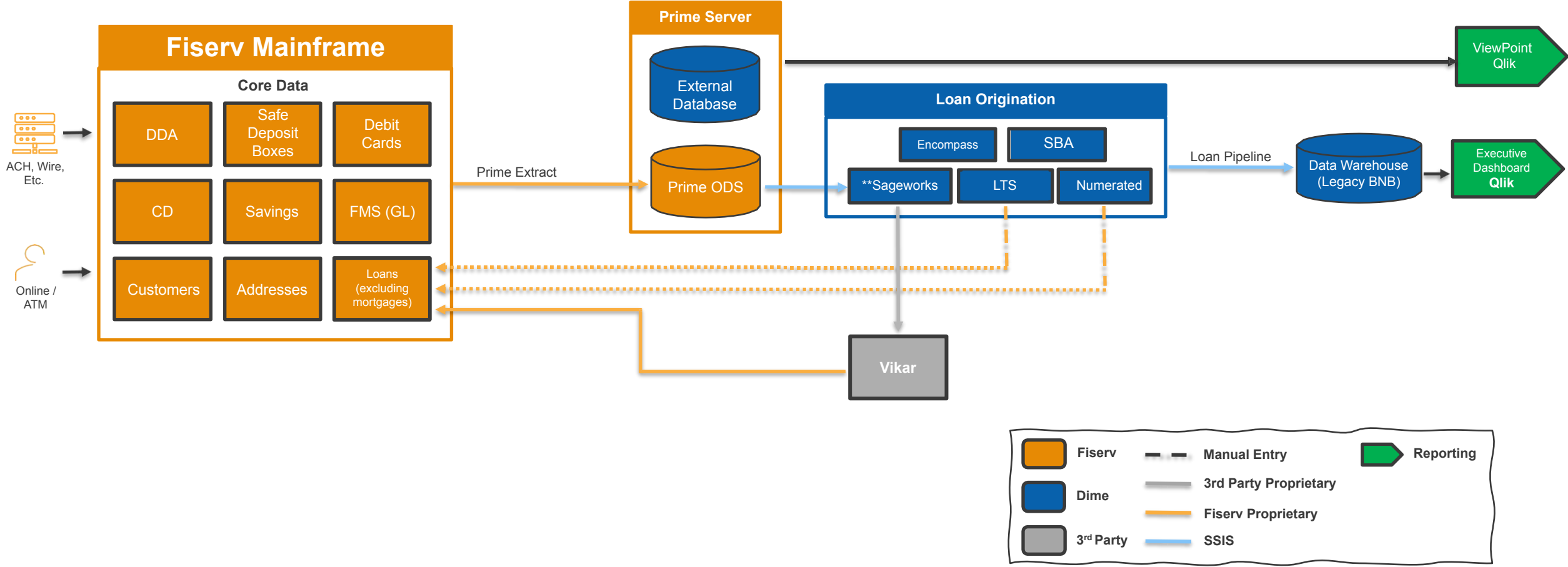

Issues and Gaps:
1. Lack of complete information on the boarding sheet, often requiring to go back and forth with other teams (underwriting, Loans Admin, Loans Funding groups) to complete the booking process.
2. Flex fields on Core are validated for data types only.
   - Data is checked based how the flex attribute in defined, i.e. numbers, text or dates. No other validations are done on the Core.

Key Requirements:
1. Need improved integration between Loans Origination systems and Fiserv Core. This is already in progress using Vikar.
   - Vikar will be used to integrate and validate data from the Loan Origination applications and Core.
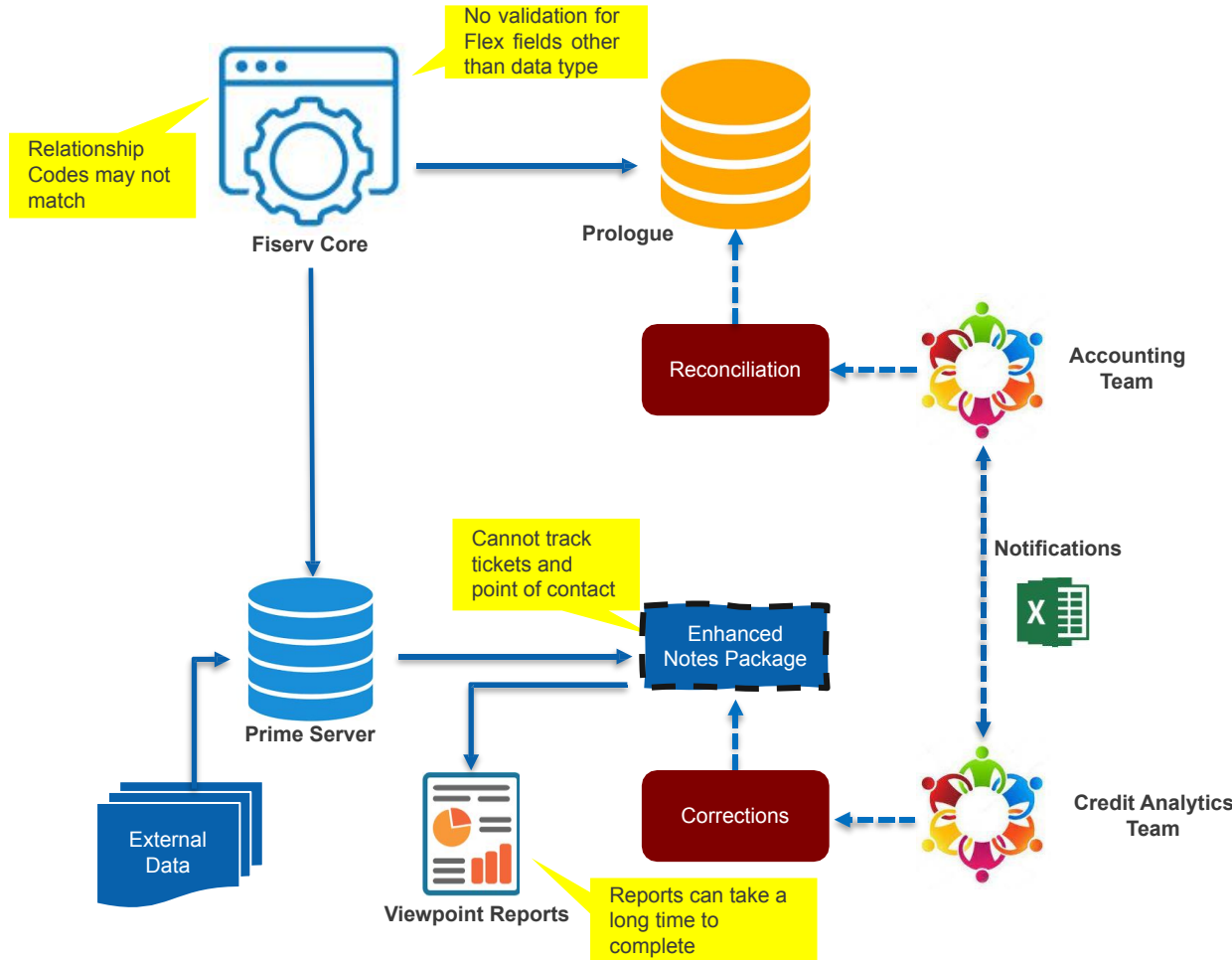   - The QC team will review and approve the changes before sending back to Core.

Loan Origination Integration – Project Under Way

The Loan Origination Integration project aims to address data gaps and manual steps in the current process that are outlined in a later slide.

Credit Analytics

The Credit Analytics team uses the Enhanced Notes Package as the foundation to reconcile balances with the General Ledger.

No validation for Flex fields other than data type

Relationship Codes may not match

Fiserv Core

Prologue

Reconciliation

Accounting Team

Cannot track tickets and point of contact

Enhanced Notes Package

Notifications

Prime Server

Corrections

Credit Analytics Team

External Data

Viewpoint Reports

Reports can take a long time to complete
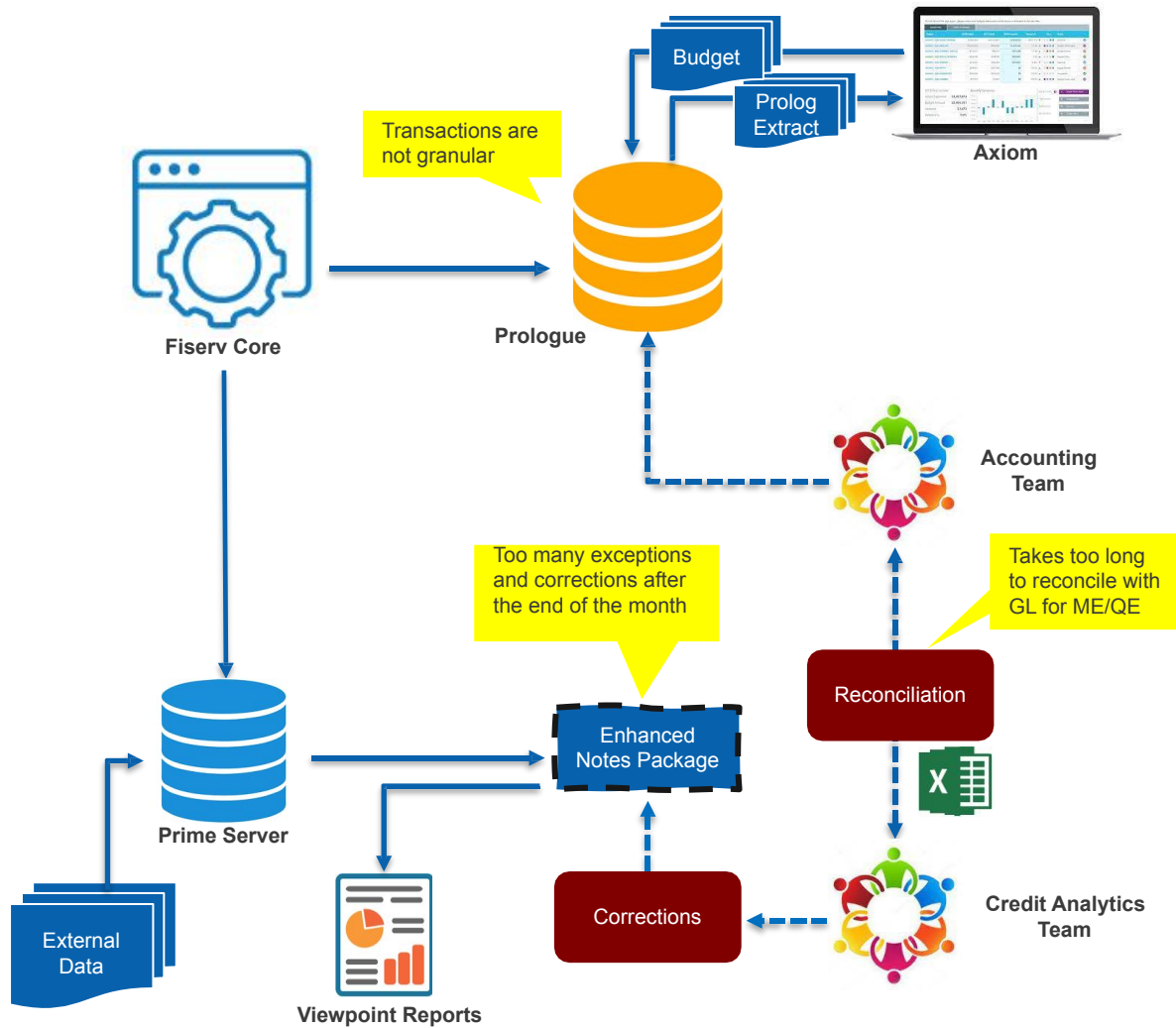
Issues and Gaps:
1. Reports can take a long time to complete. When several reports are scheduled at the same time, the reports can take anywhere from 20 min up to an hour to generate.
2. Flex fields lacking validations.
3. Relationships Codes are used to group the households. These codes are free-format text and may not always match on different accounts.

Key Requirements:
1. Centralized Household identifiers.
2. Numeric codes to define households.
3. Ability to track open tickets for fixes, with the assignee and point of contact included in case of any delays with the ticket.

Accounting

The Account Management and Credit Analytics teams perform reconciliations and apply corrections in Prologue. Reconciliations are sent to Axiom.
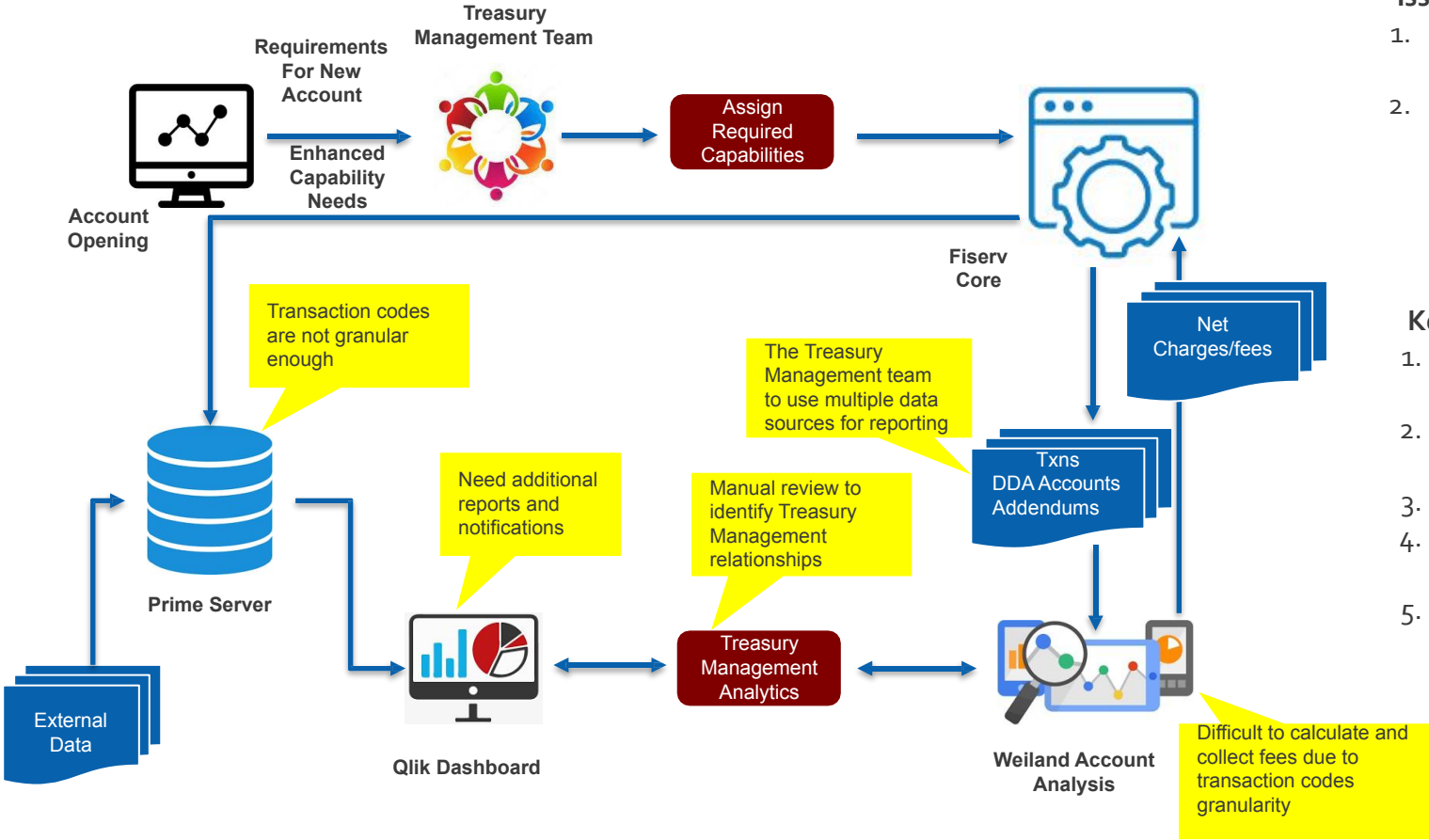

Issues and Gaps:

1. Granularity Of Transaction Data – Most transactions on Deposits and Loans except for Teller transactions are batched together and sent to the GL System. The batched transactions can't be individually identified for research.

2. Delayed Month-end(ME)/quarter-end(QE) closings - Closing takes up to 20 days after the ME/QE. One of the reasons given was that there were too many corrections identified after the ME/QE that have to be applied via Enhanced Notes package by the Credit Analytics Team

Key Requirements:

1. The accounting system needs the transactions at their most granular format as posted in Premier.
2. Improve Month End/Quarter End closing period

   - Upcoming rollout of Vikar may improve the closing period as Loan Ops will not need to focus on onboarding loans at the last minute.

Treasury Management

Treasury Management Services is responsible for providing enhanced services like outgoing ACH, wire transfers etc. to DDA clients. The group is also responsible for calculation of charges and earning credits and posting the net charges to the customer accounts on monthly basis.
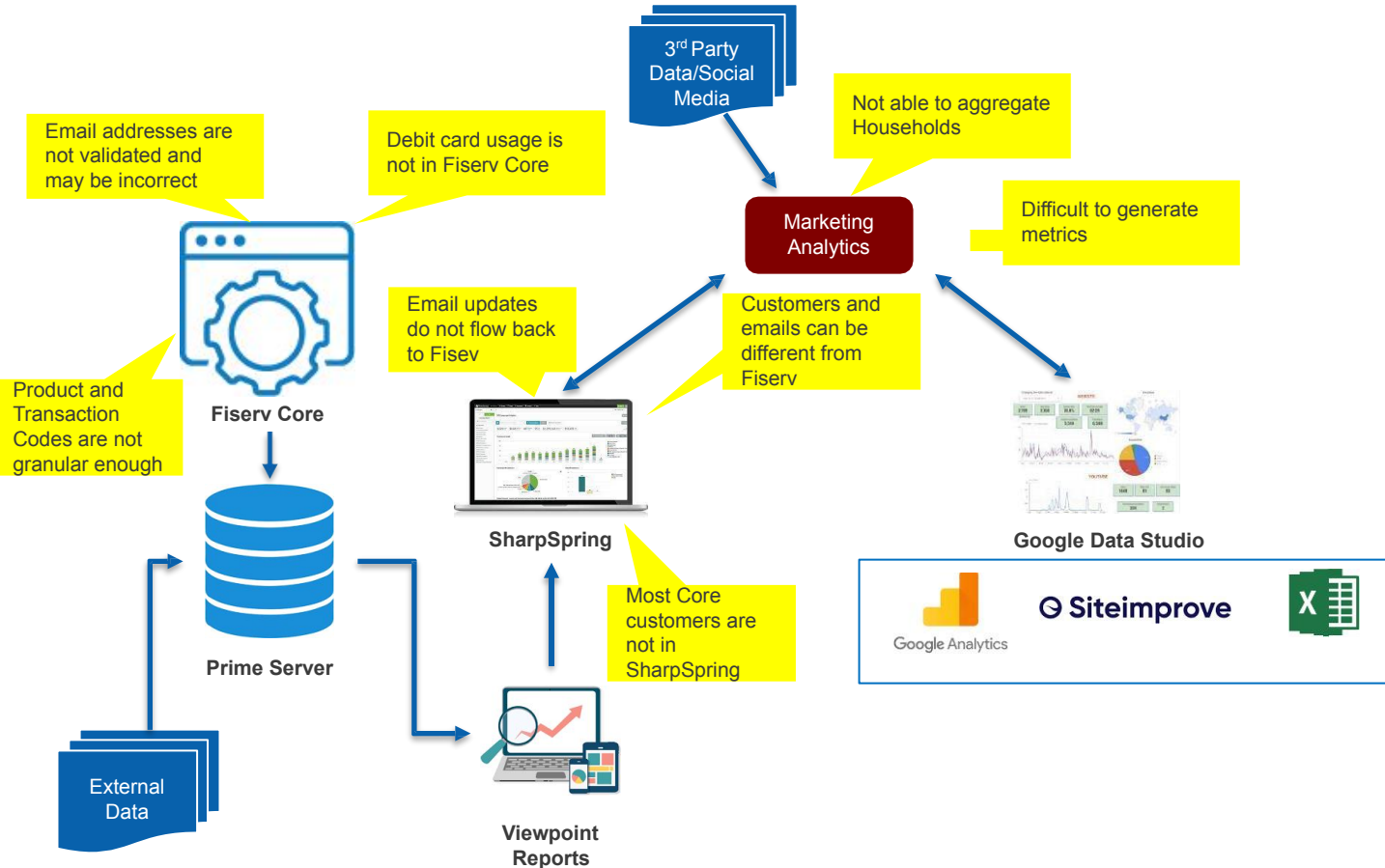

Issues and Gaps:
1. There is no direct way to identify Treasury Management relationships without manually reviewing the transactions.
2. Transaction codes defined in Fiserv are not granular enough to identify Treasury Management services and that makes it difficult to collect required fee on certain transactions thus impacting bank revenue.

Key Requirements:
1. Capability to charge for each item in a transaction, in addition to the transaction itself.
2. Capability to charge additional services such as savings wire transfer templates for future use.
3. Notifications for account activities.
4. Monthly reports for Sales, Revenue by Product, Actuals v Budget, Gross v Net Revenue.
5. Consolidate Treasury Management data (such as Budget) to a single source from which reports can be generated.

Marketing

The Marketing team uses the SharpSpring Marketing Automation and CRM platform for marketing, and a combination of external data sources and manual processes for other functions.

3rd Party Data/Social Media

Email addresses are not validated and may be incorrect

Debit card usage is not in Fiserv Core

Not able to aggregate Households

Difficult to generate metrics

Marketing Analytics

Email updates do not flow back to Fisev

Customers and emails can be different from Fiserv

Product and Transaction Codes are not granular enough

Fiserv Core

SharpSpring

Google Data Studio

Prime Server

Most Core customers are not in SharpSpring

External Data
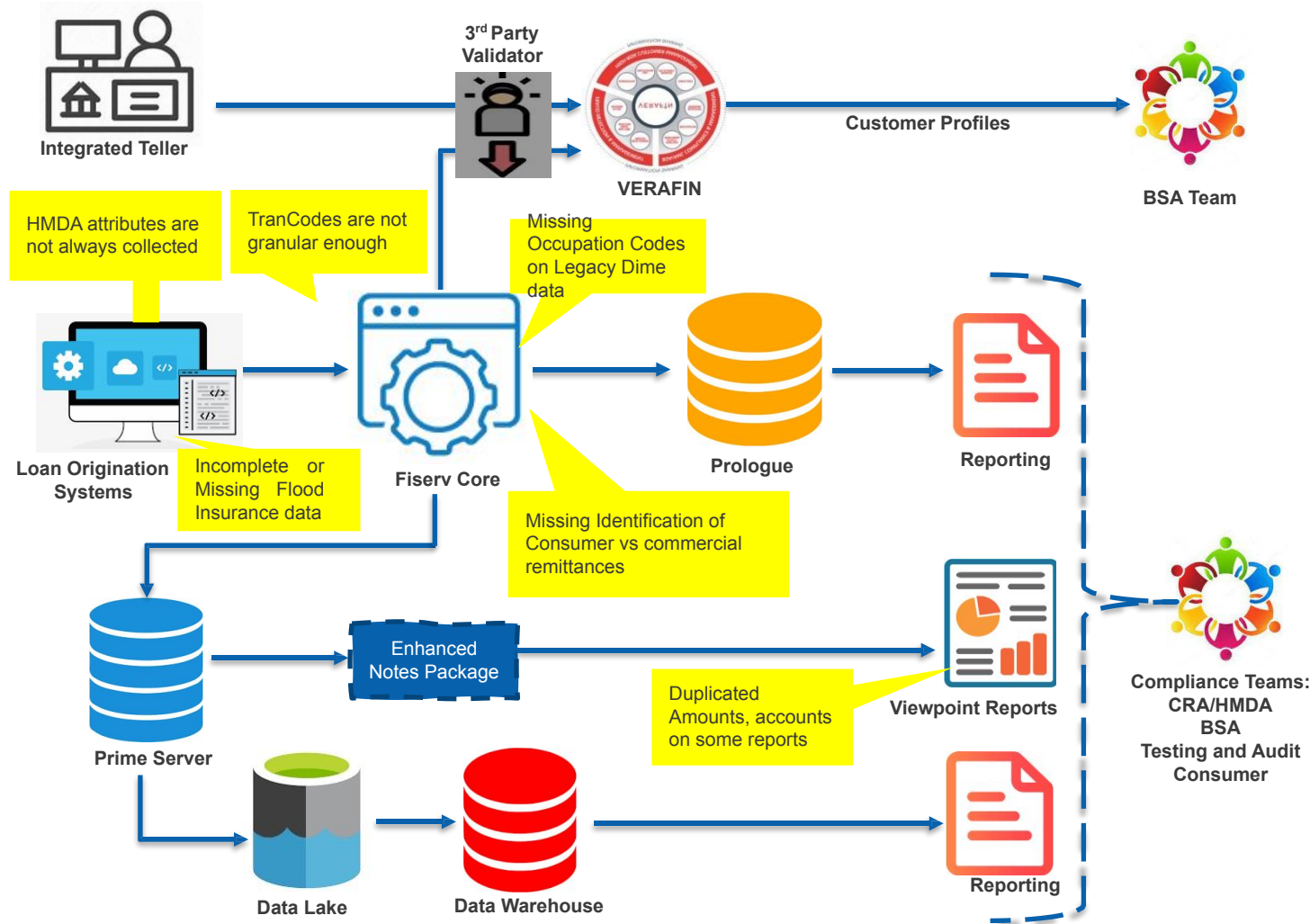
Viewpoint Reports

Issues and Gaps:
1. Not able to aggregate Customers based on enterprise level Households.
2. Product and Transaction Codes are not granular enough for Marketing purposes.
3. Incorrect or non-existent email addresses that are not validated or confirmed by customers.
4. Updates to email addresses in the SharpSpring system do not flow back to the Core due to bank policy and procedures
5. Debit Card usage is captured in the EFT system. This is not integrated with the Core.

Key Requirements:
1. Consolidated platform for Marketing data.
2. Ability to link Marketing data to the Core by name, email, etc.
3. Addition of remaining Core customers to SharpSpring.
4. Consistent email addresses between SharpSpring and Core.
5. Centralized Household identifiers.

Compliance

The Compliance team can pull reports from most systems/applications used by other teams for compliance monitoring and auditing.

3rd Party Validator

Integrated Teller

VERAFIN

Customer Profiles

BSA Team

HMDA attributes are not always collected

TranCodes are not granular enough

Missing Occupation Codes on Legacy Dime data

Loan Origination Systems

Incomplete or Missing Flood Insurance data

Fiserv Core

Missing Identification of Consumer vs commercial remittances

Prologue

Reporting

Prime Server

Enhanced Notes Package

Duplicated Amounts, accounts on some reports

Viewpoint Reports

Compliance Teams: CRA/HMDA BSA Testing and Audit Consumer

Data Lake

**Data Warehouse**

Reporting

Issues and Gaps:
1. Duplicated or triplicated account numbers and amounts on a compliance report involving collaterals.
2. Legacy Dime records lost the Occupation attribute after being merged.
3. Transaction codes are not granular enough to pull population data for compliance reporting.
4. Flood insurance reporting is mostly incorrect because of incomplete data collection at booking or manual transmission of data between teams.
5. The identification of consumer vs commercial for foreign remittances is not well defined, impacting compliance reporting.

Key Requirements:
1. Develop more controls/validations around collaterals to avoid data duplication.
2. Build comprehensive MIS reporting capabilities for compliance.
3. Define identifiers for consumer vs commercial foreign remittances and apply the definition consistently across all remittances.
4. Add descriptions of codes to reports where codes are not descriptive enough.
5. Build a consistent mechanism for capturing HMDA attributes across all Loans Origination platforms.

Reference Data

Reference data comes from Fiserv and other sources. There is no single authoritative source. Ownership and change management processes are not clearly defined.
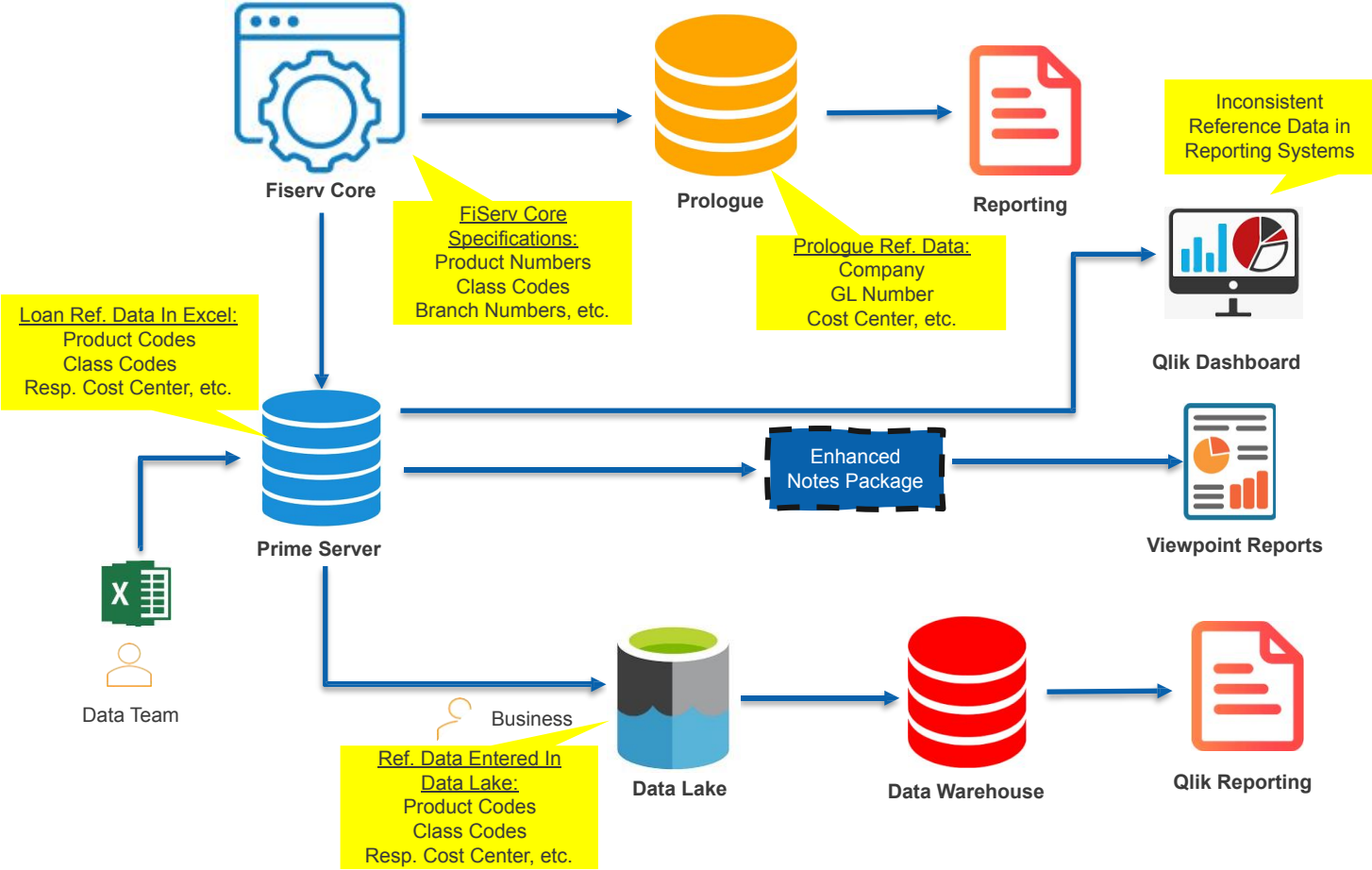
Issues and Gaps:
1. Reference data is entered in multiple places including Fiserv, the Prime External Database, the Data Lake and Prologue.
2. There is no clear ownership by data domain or platform. The same reference data may be updated in multiple places by different stakeholders.
3. There is no centralized governance to assure reference data consistency and manage changes, although there are checks to see if new reference data is added in Fiserv.

Key Requirements:
1. Need a data governance process to manage reference data, including -
   - Clearly defined roles and responsibilities
   - Processes to approve and apply changes
   - Remediation processes for errors and inconsistencies.

High Priority Requirements

The following requirements were identified as Critical or High Priority to implement the Future State vision. *These requirements are urgent and important. They are generally related to compliance or immediate business needs. These requirements need to be implemented in the next 6 months. Not implementing them will have an adverse effect on the business.*

High Priority Requirements
Business
- Ability to identify Treasury Management Clients explicitly (TM1)   - Capability to charge for each item in a transaction, in addition to the transaction itself (TM2)   - Define granular transaction codes (TM4, M3)   - Develop additional reports: Sales, Revenue by product, Actuals Vs Budget, Gross Vs Net Revenue (TM4)   - Define granular Product codes (M3)   - Develop reports showing profitability by customers based on household definition (M4)
Technology
- Integrate additional TM data to a single source for report generating (TM6)   - Create reports of 360° view of customers based on household definition (M6)   - Automate integration of the following marketing data sources into the core / single-source: external customer data, marketing email addresses, and Dime website clicks / social channel clicks (M12-M16)   - Develop reports based on integrated marketing data to calculate metrics on ROI, Marketing Channel Effectiveness, etc. (M17)   - Implement distinct household definitions specified by underwriting, credit analytics, treasury management teams or a common enterprise definition (CA2, M4)   - Improve validations on Flex fields (L1, CA1)   - Develop more controls/validations around collaterals to avoid data duplication (C8)   - Send granular transactions from Core to Prologue or develop ability to produce reports on underlying details of the batched transactions.(A1)   - Need controls and visibility around ME/QE corrections to the Loans data. (A2)
Process
- Improve ME/QE closing period (CA7)   - Integrate the Loan origination systems with the Core (L2)

Medium and Low Priority Requirements

The following requirements were identified as Medium or Low Priority to implement the Future State vision. *These requirements are important to the business but not as urgent.*

Medium Priority Requirements

- ❑ **Business**
    - ❑ Capability to charge additional services like allowing to save wire transfer templates etc. (TM3)
    - ❑ Develop processes to minimize non-validated fields errors (D1)
    - ❑ Legacy Dime data requires a backfill for the "Occupation" attribute that was lost during the merge with BNB (C1)
    - ❑ A flag should be added to any customer records where Verafin has identified suspicious activities (C2)
    - ❑ Define granular transaction codes in consultation with the Compliance team (C3)
- ❑ **Technology**
    - ❑ Integrate debit card behavior from EFT system to a single Source (M11)
    - ❑ Automated MIS reporting capabilities for compliance (C4)
    - ❑ Automate Flood insurance data collection and transmission (C5)
    - ❑ Build mechanism to capture consistent HMDA attributes across all Loans Origination platforms (C9)
- ❑ **Process**
    - ❑ Improve search field names in Viewpoint reports (CA3)
    - ❑ Review and improve current change control process (CA6)
    - ❑ Address current deficiency of Fiserv system when ME/QE falls on a weekend (CA8)
    - ❑ Fix residual issues in Loans servicing after implementation of Vikar (L3)
    - ❑ Define identifiers for consumer vs commercial foreign remittances and apply the definition consistently across all remittances (C6)
    - ❑ Address current deficiency of Fiserv system when ME/QE falls on a weekend (CA8)

Low Priority Requirements

- ❑ **Technology**
    - ❑ Review current DQ issues with the view to develop better prevention, detection and resolution (D2)
- ❑ **Process**
    - ❑ Review current processes, enhanced notes model and code for the slower reports for improvement (CA5)
    - ❑ Add descriptions of codes to reports where codes are not descriptive enough (C7)

VR VERTICAL RELEVANCE

Requirements not Prioritized

The following requirements are not yet prioritized.

Requirements Not Prioritized

❑ **Business**
 	
    ❑   Add missing email addresses, validate and, verify current email addresses (M1)
 	
    ❑   One time correction of 3000 invalid mailing addresses(M2)
 	
❑ **Technology**
 	
    ❑   Ability to validate email addresses for new accounts and changes to existing email address (M5)
 	
    ❑   Ability to integrate marketing email addresses with Core/Single Source(M6)
 	
    ❑   Ability to integrate marketing Opt-In/Opt-Out choices and additional attributes maintained by the marketing group to the single source(M7)
 	
    ❑   Build capability to automate validation of physical addresses(M8)

Appendix

Deposits

ID	Type	Requirement	Description	Priority: H/M/L
D1	Business	Develop processes to minimize non-validated fields errors.	There have been Data Quality issues with the data entered by Branch staff - mostly in the non-validated fields like name, addresses, etc.	**M**
D2	Technology	Review current DQ issues with the view to develop better prevention, detection and resolution.	Need prevention, detection and resolution mechanisms for Data Quality issues.	**L**
D3	Observation		Fiserv front-end system has two interfaces: Business Process Manager (BPM) and Core (also referred to as Navigator or Premier). The difference is that BPM will have guided workflows for account operations whereas users will have to bring up individual screens in the Core interface.	
D4	Observation		On either the BPM or Core interface, users will only see the options/data that they are allowed to use.	
D5	Observation		QA Team will have trouble finding required documents for accounts if the Branch staff add documentation after the initial account creation as they may not have followed the expected naming convention for these files.	
D6	Observation		QA Team will check on data entered by Branches for completeness and quality, ensuring that all required documents have been recorded. BPM will warn/prompt users for required documents, but users have the option to override.	
D7	Observation		Fiserv does not validate the address to ensure that they exist.	
D8	Observation		For new customers added to the system, QA can click on the Google Maps address validation to ensure the address exists. In the case of an address update for existing customers, Branch staff is expected to validate the address.	
D9	Observation		All account numbers (except Safe Deposit Boxes) are auto generated by the system. Legacy accounts were entered by users. The auto generated account numbers are next-available numbers. There are no duplication of account numbers.	
D10	Observation		Safe deposit account numbers are Branch Numbers + Safe Deposit Box numbers.	

VR VERTICAL RELEVANCE

Deposits

ID	Type	Requirement	Description	Priority: H/M/L
D11	Observation		*Accounting Group and Branch Number are not the same*	
D12	Observation		*Non-Interest-Bearing Product with Interest Rate > 0%*	
D13	Observation		*Invalid Product Number and Class Code combination*	
D14	Observation		*Invalid IOLA Codes*	
D15	Observation		*Maturity Date in the past*	
D16	Observation		*Open Account with Date Closed*	
D17	Observation		*Closed Account without Date Closed*	
D18	Observation		*NOW Personal: Invalid Account Type Code*	
D19	Observation		*NOW Public: Invalid Account Type Code*	
D20	Observation		*NOW Non-Personal:Invalid Account Type Code*	

VERTICAL RELEVANCE

Loan Operations

ID	Type	Requirement	Description	Priority: H/M/L
L1	Technology	Improve validations on Flex fields	Flex fields on Core are validated for data types only. Data is checked based how the flex attribute in defined, i.e., numbers, text or dates. No other validations are done on the Core.	**H**
L2	Process	Integrate the Loan origination systems with the Core	The most common issue the Loans operations face is lack of complete information on the onboarding sheet, often requiring them to go back and forth to complete the onboarding processes.	**H**
L3	Process	Fix issues in Loans servicing	Implementation of Vikar should address 95% of the current issues, however the Loans services issues will remain and will need to be identified and fixed.	**M**
L4	Observation		Loans underwriting, Closing, and funding are done manually or on Loan origination applications like Sageworks, outside of the Core. After a loan is closed, the Bookers receive an onboarding sheet to enter the loan into Core.	
L5	Observation		Loans onboarding team receives several daily reports on Data Quality and Data Integrity issues from the loans, a day after they are onboarded.	
L6	Observation		*Missing product numbers in the Product Table*	
L7	Observation		*Invalid Product/Class Code/Purpose Code Combination*	
L8	Observation		*Missing Accounting Group in Cost Center Table*	
L9	Observation		*Missing Responsibility Code in Responsibility Code Table*	
L10	Observation		*Invalid State / County / Census Tract Combination*	
L11	Observation		*Invalid EOD Code*	
L12	Observation		*Invalid Original Note Date*	
L13	Observation		*Open Notes with Active Principal Balance < $5 and Net Payoff < $5*	

Loan Operations

ID	Type	Requirement	Description	Priority: H/M/L
L14	Observation		*Notes with Active Principal Balance and Total Exposure = 0 and Unearned Fees or Unearned Costs <> 0*	
L15	Observation		*Notes with Product Number 180531 (Freddie Mac) and Outstanding Balance <> 0*	
L16	Observation		*Missing Collateral Code*	
L17	Observation		*Collateral Code is Zero*	
L18	Observation		*Collateral Code Not In Collateral Codes Table*	
L19	Observation		*Has Appraisal Date and No Collateral Value*	
L20	Observation		*Collateral ID and Collateral Lien Position are the Same for Multiple Loans*	
L21	Observation		*Loans with Multiple Collateral in the Same Collateral Addenda Number (Pledge Position)*	
L22	Observation		*Invalid or Missing Non-Accrual Code*	
L23	Observation		*Invalid or Missing Renegotiated Debt Code*	
L24	Observation		*Invalid or Missing NAICS Code*	
L25	Observation		*Invalid Owner-Occupied Code*	

VR VERTICAL RELEVANCE

Credit

ID	Type	Requirement	Description	Priority: H/M/L
CA1	Technology	Improve validations on Flex fields	The team has no Data quality issues complaints, except for the Flex fields that lack validations.	**M**
CA2	Technology	Implement household definition specified by credit analytics team	Relationships Codes are used to group the households. The relationship codes are free-format text and may not always match on different accounts. The group suggested that it would be better if there are Numeric codes to define households. (Their definition of household should be the same as the Underwriters' definition.)	**H**
CA3	Process	Improve search field names in viewpoint reports	Search field names are not easy to use in Viewpoint reports.	**M**
CA4	Process	Improve errors generated from reporting tool to make them more actionable	Errors generated from reporting are not easy to understand.	**M**
CA5	Process	Review current processes, enhanced notes model and code for the slower reports for improvement	Reports can take a long time to generate. When several reports are scheduled at the same time, the delay can be especially bad. It takes anywhere from 20 min up to an hour to run the report.	**L**
CA6	Process	Review and improve current change control process	The team would like to be able to track any open tickets for fixes so that they know who is assigned and who to contact in case of any delays with the ticket.	**M**
CA7	Process	Improve ME/QE closing period	Accounting has raised concern that the month-end(ME)/quarter-end(QE) closings are completed up to 20 days after the ME/QE. One of the reasons given was that there were too many changes identified after the ME/QE that must be applied via enhanced notes package. The Premier doesn't allow back-dated transactions hence that changes must be applied as adjustment that causes the delay	**H**
CA8	Process	Address current deficiency of Fiserv system when ME/QE falls on a weekend	Fiserv and GL have different processes for calculating Amortization/Accretions on discounts/premiums/deferred fees. Currently, the Credit Analytics team manually average out the differences in order to reconcile with GL. This needs to fixed/automated.	**M**
CA9	Observation		Fiserv data is received via Viewpoint reports, external sources, and DMI (Mortgage Servicing Platform).	
CA10	Observation		The Credit Analytics Team uses the Enhanced Notes Package for making corrections to the loans data for Month end and Quarter End closings.	
CA11	Observation		Credit Analytics works closely with the Accounting and Loans Ops teams to validate data accuracy.	
CA12	Observation		Data from the Loans Data Warehouse is eventually reconciled with the GL (Prologue).	
CA13	Observation		The team posts adjustments and generates reports for month end/ quarter end closings.	
CA14	Observation		The Enhanced Notes Model is the combined data set from the Core and external data sources.	

VR VERTICAL RELEVANCE

Accounting

ID	Type	Requirement	Description	Priority: H/M/L
A1	Technology	Send granular transactions from Core/Premier to Prologue or have ability to produced reports on underlying details for batched transactions	Premier sends the teller deposit and withdrawal transactions in the most granular format (i.e., 1:1 with actual core transactions) to the GL (Prologue). These transactions can't be cross-referenced with the Core without looking at the actual ticket. All other transactions on Deposits and Loans are batched together and sent to the GL System. Any transactions that are batched can't be individually identified for research. Financial Management System (FMS - A module within Premier) has the transactions at most granular level.	**H**
A2	Technology	Need controls and visibility around ME/QE corrections done on Loans Data Warehouse.	Need data governance processes around ME/QE corrections to amounts as well as other attributes on Loans Data Warehouse (Enhanced Loans Package). The changes should be documented and approved and reviewed for completeness.	**H**
A3	Observation		The Accounting team uses Prologue for GL accounting. Prologue receives applicable data (Deposits, Loans, FMS GL data) from Premier, mortgage data and the applied corrections via enhanced notes package from the Credit Analytics Team.	
A4	Observation		Prologue does not receive transaction codes from Premier or other sources. It does not use transaction codes for identifying GL accounts. Segments, Class Codes, Cost Centers, and debit/credits are used to identify GL accounts.	
A5	Observation		The Accounting team sends data extracts from Prologue to Axiom.	
A6	Observation		The Accounting team also sends files to the Loans Analytics Team.	
A7	Observation		No concerns over Data Quality issues.	
A8	Observation		DNA used to have a report with the details of transactions that were batched and sent to the GL System. In DNA, it was possible to research batched transactions using the detailed transaction report, however, the same facility is not available in Premier.	

Treasury Management

ID	Type	Requirement	Description	Priority: H/M/L
TM1	Business	Ability to identify Treasury Management Clients explicitly	Currently there is no direct way to identify TM relationships. This is only possible by manually reviewing the transactions for accounts under the relationship. TM would like to add an attribute to identify treasury Management Clients.	H
TM2	Business	Capability to charge for each item in a transaction, in addition to the transaction itself	Require capability to charge for each item in a transaction, in addition to the transaction itself. I.e., if a deposit transaction consists of 10 checks, we should be able to charge for one deposit transaction and 10 checks.	H
TM3	Business	Capability to charge additional services like allowing to save wire transfer templates etc.	Require capability to charge additional services such as saving wire transfer templates for future use, and notifications for account activities etc.	M
TM4	Business	Define granular transaction codes	Transaction codes defined in Fiserv are not granular enough to identify TM clients. Need more granular transaction codes such as BAI defined transaction codes.	H
TM5	Business	Develop additional reports: Sales, Revenue by product, Actuals Vs Budget, Gross Vs Net Revenue	TM team would like to have monthly reports for: Sales, Revenue by product, Actuals v Budget, Gross v Net Revenue.	H
TM6	Technology	Integrate additional TM data to a single source for report generating	Ability to integrate additional TM data like budget to a single source to be able to generate reports.	H
TM7	Observation		Multiple types of transactions use the same Transaction Code. This impacts revenue as it makes it difficult to collect the required fee for certain transactions.	
TM8	Observation		TM team is already in discussion with IT and the Data Team to prioritize the transaction code issue.	
TM9	Observation		A possible solution for the transaction codes issue that was discussed, was to adopt the industry standard set of codes used by most financial institutions. I.e.., BAI (Bank Administration Institute) transaction codes that are aligned to Treasury and Payment systems.	
TM10	Observation		TM relationship groupings are different from other relationship groupings such as marketing or underwriting.	

VR VERTICAL RELEVANCE

Marketing

ID	Type	Requirement	Description	Priority: H/M/L
M1	Business	Add missing email addresses, validate and verify current email addresses	Core faces the following issues with email addresses: Missing for most customers, incorrect or non-existing email addresses, email addresses are not validated or confirmed by the customers.	
M2	Business	One time correction of 3000 invalid mailing addresses	3000 Invalid physical addresses have been identified.	
M3	Business	Define granular transaction and product codes in consultation with Marketing team	Product/Transaction Codes are not granular enough for Marketing purposes. It is not possible to identify TM customers for example.	H
M4	Business	Develop reports showing profitability by customers based on household definition	Due to the Product/Transaction code granularity issue, profitability by Product/Consumer segments cannot be calculated.	H
M5	Technology	Ability to validate email addresses for new accounts and changes to existing email addresses	Team would like to explore ways to improve email addresses captured at data entry: Double data entry to avoid typos (if possible, in Fiserv or outside of Fiserv), Send confirmation email to the captured email and request the recipient to verify.	
M6	Technology	Ability to integrate marketing email addresses with Core/single source	Marketing updates email addresses in the Sharp Spring system. These updates do not flow back to the Core. Due to bank policy and procedures, account email addresses are not allowed to be updated from the marketing email addresses. Marketing may need a separate email address that can flow back to Core/DW/PDW (SSoT) for future use.	
M7	Technology	Ability to integrate marketing Opt-in/Opt-Out and additional attributes maintained by marketing group to the single source	Marketing also updates an Opt-In/Opt-Out flag in Sharp Spring that needs to flow back to Core/DW to ensure that the Opt-Out email addresses are excluded in future campaigns.	
M8	Technology	Build capability to automate validation of physical addresses	Validate physical address using USPS or other 3rd party APIs.	
M9	Technology	Implement household definition specified by marketing team	Marketing team is not able to aggregate Customers based on enterprise level households. Need ability to define an enterprise level household.	
M10	Technology	Create reports of 360 view of customers based on household definition	Without a household level identifier, Marketing cannot get a 360 view of the customer. This impacts ability to cross-sell products, check customer profitability, etc.	H
M11	Technology	Integrate debit card behavior from EFT system to a single Source	Debit Card Usage Behavior is captured in the EFT system. This is not integrated with the Core/DW/PDW (SSoT). This data will need to be integrated in a SSoT to be utilized for marketing purposes.	M
M12	Technology	Automate integration of core/single source customer data (required attributes) with SharpSpring	Sharp Spring is only used as a marketing solution and is not used as a complete CRM solution yet. The list of customers to add into Sharp Spring arrives as a flat file from Core and is manually loaded in. Only 1% of customers' existing in Core have been brought into Sharp Spring.	H
M13	Technology	Integrate external data sources used by marketing into a single source	All the external data used by Digital Marketing are brought in and analyzed manually. Those data sources are not integrated with the Core platform.	H

VR VERTICAL RELEVANCE

Marketing

ID	Type	Requirement	Description	Priority: H/M/L
M14	Technology	Integrate marketing email addresses in sharp Spring to core/single source	There is no direct link between emails/customers in Sharp Spring and customers in Core.	**H**
M15	Technology	Integrate queries on Dime website/clicks on social media sites etc. with the single source	There is no direct way of knowing if an ad/Inquiry (from the Dime website) converted into a new account/customer.	**H**
M16	Technology	Integrate all marketing data into a single source	The team expressed need for a single platform where all digital marketing data will be consolidated. The team would like to have the capability to link the marketing data to the Core (via name, phone numbers, email addresses).	**H**
M17	Technology	Develop reports based on the data integrated from the external marketing sources to calculate metrics for ROI, marketing channel effectiveness etc.	There is no direct way to understand ROI or calculate customer acquisition costs.	**H**
M18	Observation		Sharp Spring System is used for email campaigns. Email addresses in Sharp Springs are linked with NameId/CIFIds.	
M19	Observation		Most of issues with the email addresses data is an operational issue that will need to be addressed via a one-time email cleanup.	
M20	Observation		Due to the bank policy and procedure, a physical address cannot be updated in the Core unless the customer comes into a branch to provide a signature.	
M21	Observation		Household is loosely defined as all related accounts within a relationship. There are multiple identifiers attached to customers (Name Id, Tax Id, Portfolio Numbers, Relationship Code etc.). None of these are sufficient for marketing purposes.	
M22	Observation		33,000 Name IDs in commercial business and 86,000 in Consumer Business.	
M23	Observation		Product/Transaction Code granularity issues stem from legacy ACI that has been replaced with Commercial Center recently.	
M24	Observation		External data is brought in and used by the Digital Marketing team from the following sources: Google Analytics: Website search data Site-Improve: Site monitoring data, quality scores, etc. Sharp Spring: CRM used for outgoing communication Social Channels: Track ad clicks across different channels	
M25	Observation		These data sources arrive in separate files, are aggregated into a single spreadsheet and analyzed using Qlik.	
M26	Observation		Name, Emails, and Phone Numbers of potential customers are collected through the Dime website. This data can be used to identify or link to customers in the Core. Currently this is not being done but Gavi has suggested that his team can implement & automate this process.	

VERTICAL RELEVANCE

Compliance

ID	Type	Requirement	Description	Priority: H/M/L
C1	Business	Legacy Dime data requires a backfill for the "Occupation" attribute that was lost during the merge with BNB,	The following DQ Issue was identified by the BSA team: Legacy Dime data is missing Occupation attribute when it was merged with BNB. IT/Data team and the BSA team are looking into a mass data load to fix the issue.	M
C2	Business	A flag should be added to any customer records where VERAFIN has identified suspicious activities.	Requirement to flag a customer record when VERAFIN profile shows suspicious activities. This flag would alert other teams to contact the BSA team before approving new accounts/activities for the customer.	M
C3	Business	Define granular transaction codes in consultation with the Compliance team.	It is not always possible to pull out certain population of data for compliance purposes. There are cases where trancodes are not granular enough (i.e., set off transactions can't be identified separately) and other cases where the required attribute for identifying a population is not present.	M
C4	Technology	Automated MIS reporting capabilities for compliance.	There is a need to have automated MIS reporting for compliance. There some reports are available but metrics such as current number of loans, are answered with the help of IT/Data team. Some reports must be compiled manually because of the lack of granularity from trancodes (i.e., Offset report).	M
C5	Technology	Automate Flood insurance data collection and transmission.	Flood reporting is mostly incorrect because of incomplete data collection at booking or manual transmission of data between teams. This needs to be automated. The flood reporting was an audit issue recently and needs to be addresses before it becomes a compliance issue resulting in an MRA.	M
C6	Process	Define identifiers for consumer vs commercial foreign remittances in consultation with the Compliance team and apply the definition consistently across all remittances.	There is a need to distinguish between consumer and commercial foreign remittances for compliance reporting. The identification of consumer vs commercial is not well defined, the business needs to reach consensus on the definition, and IT will need to apply the definition consistently across all remittances.	M
C7	Process	Add descriptions of codes to reports where codes are not descriptive enough.	Some of the codes are not very descriptive.	L
C8	Technology	Develop more controls/validations around collaterals to avoid data duplication.	Recently one of the compliance reports had account numbers and amounts duplicated and even triplicated in some cases compared to the Core. This is an existing report that is being used for some time. The reason was that there were multiple collateral records entered in the system.	H
C9	Technology	Build mechanism to capture consistent HMDA attributes across all Loans Origination platforms.	Loan Origination Systems – There are multiple Loans Origination systems. Some of these systems capture HMDA (Home Mortgages Disclosure Act) related attributes and some do not. In cases where system doesn't capture HMDA attributes, the compliance team must go back to original documentation to get required details. – Should be addressed thru Vikar	M

VR VERTICAL RELEVANCE

Sample Data Quality Rules

Data Quality Issue Type	Data Element	DQ Issue	Sample Validation Rules
Simple Validation	NAICS Code	Invalid or Missing NAICS Code	Should be mandatory for commercial customers, should be numeric, have valid number of digits and should exist on NACIS Codes Reference Data Table
Simple Validation	Loan Purpose Code	Invalid or Missing Purpose Of Loan Code	Should be mandatory for loans products, should exist on Purpose Code Reference Data table
Simple Validation	Product Number	Invalid or missing Product Number	Should be mandatory, should exist on Product Code Reference Data table
Simple Validation	Collateral Code	Missing or Invalid Collateral Code	Should be mandatory on each collateral, should exist on Collateral Code Reference Data table
Cross Validations	Product/Class Code	Invalid Product Code Class Code Combination	Product and Class Code combination must be valid as defined in the Product Code Class Code Cross Reference table.
Cross Validation	Product/Class Code/Purpose Code	Invalid Product, Class Code and Purpose Code Combinations	Product, Class Code and Purpose Code combination must be valid as defined in the Product Code Class Code, Purpose Code Cross Reference table.
Cross Validation	Appraisal Date/Collateral Value	Has Appraisal Date and No Collateral Value	Either both data elements should have valid values or both should be blank.
Complex Validation	Collateral ID and Collateral Lien Position	Collateral ID and Collateral Lien Position are the Same for Multiple Loans	While adding a new Lien on an existing collateral, ensure that the same Lien Position for the same collateral is already existing on some other Loan
Complex Validation	Email Address	Invalid, non-existing or non-verified email address	Request the email id to be entered twice, accept only if they match. Check email address format – Should have embedded @ sign ending in a dot followed by valid literal like .com, .edu etc. Also, verify the email address by ending verify email and capturing response.
Complex Validation	Mailing Address	Invalid, non-existing address	Check existence of the mailing address using commercially available service.

VR VERTICAL RELEVANCE