

Revenue reconciliation and reporting dimensions for a payment acquirer

Work sample, anonymised — Dominique Corradi, engagement manager

Data Standardization and Reconciliation project, 2016 — two deliverables: 2.1 Reporting Dimensions Definition and 1.1 MSFRPT–MTPT Reconciliation Report (core sections)

Client, people, issuer, vendor and firm names removed; figures unchanged

Case summary — Problem

- ▶ The acquirer's official merchant-level revenue report could not be audited and conflicted with transaction-based dashboards, making every margin discussion a dispute over which numbers were credible.
- ▶ The work required a defensible transaction-grain view across 24,000 merchants and five months, while accounting for airline-specific settlement, interchange, and working-capital economics.

Case summary — Action

- ▶ Rebuilt volume, merchant service fees, and interchange from transaction grain and benchmarked the result against the official report.
- ▶ Defined 17 economically meaningful dimensions with owners, definitions, users, lifecycles, and limitations; rejected unsupported splits; and stamped historical card attributes at load time.
- ▶ Built interchange classification, pre-settlement cost prediction, and airline settlement-flow forecasting models.
- ▶ Delivered a three-hour monthly extract feeding three reports, a governed dictionary, named ownership, operating procedures, and a threshold-based reconciliation control that Finance, MIS, and platform teams could run independently.

Case summary — Result

- ▶ Reconciled 24,000 merchant IDs within 0.04% on volume and 1.83% on fees; excluding one government merchant with missing MasterCard Debit fees, the fee gap was 0.47%.
- ▶ Isolated and fixed the March anomaly and February-onward fee omission.
- ▶ The airline team changed configurations and GDS data and used settlement forecasts in carrier negotiations; no validated post-engagement financial improvement was available.
- ▶ The production process replaced unauditable report-level debate with owner-validated evidence, while deeper source weaknesses were documented for future remediation.

Reporting Dimensions Definition

Data Standardization and Reconciliation Project

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V 1.0

About this document

Objective and Benefits	• The document describes the analysis dimensions which are used for performance reporting within the acquirer's business • The definition provided are enforced organization-wide and ensure a common language throughout the organization • It provides the usage and the context to make the dimensions useful • It also describes the owner, users and lifecycles of these dimensions • The document is the single source for documenting and tracking the dimension that must be implemented in a new reporting process or technology.
How to use this tool/enabler	• Use this reference document for definition of reporting dimensions • Facilitate communication amongst dimension users • Share experience with other dimension users • Ensure application of recommended dimension usage
When to use this tool/enabler	• New report or evolution of existing report • Definition or refinement of KPI • IT: Database design / data feeds definition

Document details

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Gross Margin Performance Management Framework

		Owner	Business team	Finance team	Interchange	DCC	Airlines	Settlement	Acquiring Operations
1	Merchant Segment	Business	✓	✓					
2	Industry Classification	Business	✓	✓	✓		✓		
3	Airlines	Airlines		✓	✓		✓		
4	Utilities	Interchange		✓	✓				
5	Channel	AFU		✓	✓				
6	DCC Partner	DCC		✓	✓	✓			
7	New Business	Business	✓	✓					
8	Attrition	Business	✓	✓					
9	Scheme	Interchange		✓	✓	✓	✓	✓	✓
10	Card Type	Operations		✓	✓				
11	On-Us / Off-Us	Operations		✓	✓				
12	Premium / Non-premium	Interchange		✓	✓				
13	Geography	DCC		✓	✓	✓	✓		
14	Card Product Platform	Airlines		✓	✓				
15	International / Domestic	Interchange		✓	✓	✓	✓		
16	DCC Opt-in / Opt-out	DCC		✓	✓	✓			
17	Transaction Type	Interchange		✓	✓				

Findings (1/3)

Findings	Recommendations
1 The business segmentation was recently implemented and might be subject to further refinement for considering other variables such as past profitability, Total Customer Lifetime Value, Industry patterns, Loyalty/Propensity, Dual Merchant, integrated merchants, etc.	Evaluate and refine the business segmentation
2 Merchant group definition can sometimes vary between business team and finance, this difference could create some complexities in monitoring performance.	Review and align the merchant group definition
3 The Chain-ID data quality is not always confirmed -- some examples of merchants having multiple chain ID were identified	Perform a data analysis on the MID – ChainID grouping, to ensure a consistent definition and usage
4 As per other B2B peers, the industry dimension is a primary way of assessing the performance of the acquirer, however the number of reported industries is large (57), and might not always help in getting an aggregated and actionable view of the industries KPI	Further group the industries for reporting convenience (Max 10 industries)
5 There is a first tentative definition of attrition to enable identifying the merchant churn impact on the acquirer's business. this definition does not always enable to consider as well other variables such as seasonal businesses, one-off events, partial attrition of dual merchants, etc.	Further analysis and sophistication on churn – connect attrition with a loyalty definition as well to ensure it is actionable
6	

Findings (2/3)

Findings	Recommendations
6 The New business status is dependent upon the budget cycle, and therefore contingent on the time of the year when the merchant was onboarded, that might not always enable to monitor the complete ramp-up of new merchants	Evaluate and refine the New Business flag
7 Scheme, On-Us/Off-Us, Premium/non-Premium, Geography and Card product Platform are dimensions which are defined based on the card BIN. The definition of BINs are dynamic and could theoretically be reallocated, although this reallocation would not be done within the 6 months grace period after the expiry of the last card using the scheme (charge-back grace period), this could lead to some errors when manipulating historical data	Data modeling. Store these dimensions at the transaction data, without going through intermediate lookup BIN table, to hedge the risk of BIN re allocation
8 The card BIN is updated monthly, however changes can happen continuously – this can cause data to be erroneously tagged / calculated during the period the system will be out of sync	Review and optimize the BIN maintenance processes
9 Geographies is accepting 200+ values, which makes it difficult to aggregate and analyze	Further group the geographies into regions to limit the number of occurrences

Findings (3/3)

Findings	Recommendations
10 The International / domestic dimension does not drill down to the level of detail required by the airlines team: identify the Cross-Border v. International Acquirer transactions. That is generating extra work and risk of discrepancies to the Airline team, which has to recalculate the dimension	Further refine the dimension to enable providing the Cross-Border v. International Acquirer detail to the Airlines team
11 A dimension could be merged (Channel with Transaction Type)	Analyze and evaluate merger of the Channel and Transaction Type dimensions/
12 It has been some reported situations where banks went banks went through cross-border mergers and the country was not reported correctly in the geography	Analyze the impact of this issue
13 The GDS system hides some transaction details, such as origin of the transaction (ECOM/POS/MPOS) and Terminal ID. The settlement of merchants transaction through the GDS system is following specific rules, therefore the airlines dimension also used for working capital optimization.	Investigate the issue

Section 1 – Merchant-related Dimensions



1. Merchant-related Dimensions

1.1 Merchant Segment

Definition/Business Rules:

The **Merchant Segment** dimension describes the business segment in which the merchant sits in.

The merchant segment is defined at Chain-ID level.

The dimension segments allocates the acquirer's merchant portfolio based on last 12-months volumes, and is currently considering 2 segments: **Key Merchants**, with Chain-ID having a 40+ Million yearly volume with the acquirer, and SME, which is further split in to **Medium SME** (10 to 40 Million) and **Small SME** (less than 10 Million).

Context/Usage:

The dimension is primarily used for financial performance evaluation and monitoring.

The defined threshold of LCU 40M applies to the chain ID level.

Merchant segmentation remains constant during a 12 months period and is reviewed annually during budget finalization process.

New merchants are allocated an initial segment at the time of on-boarding – that is based on an estimated yearly volume and is reviewed for the following budget cycle.

The maintenance of the segments definition and the allocation of merchants to segments are under the control of the business team.

The initial allocation of merchants to the **Merchant Segments** is automated, and is based upon:

- The business rules presented above for the merchants having at least a complete year of activity with the acquirer at the end of the first budget cycle (2016), or
- The estimated business potential, as committed by the sales and documented by the AFU at the onboarding.

Owner:

- Business team

Users:

- Business Team (Sales Efficiency, Relationship Management)
- Finance Team (Performance)

Lifecycle:

- Initial allocation based on 2015 merchant performance
- Segment allocation of new merchants done at onboarding
- Segmentation review cycles aligned with budgetary schedule

1. Merchant-related Dimensions

1.2 Industry Classification

Definition/Business Rules:

The **Industry Classification** dimension describes the industry in which the merchant operates.
The dimension is defined based on Merchant Category Codes (MCC) description which is mapped to 57 industry groups.
The **Industry Classification** is defined at MID level

Context/Usage:

The industry classification is primarily used for monitoring performance and Interchange calculation.

The Industry classification of a merchant is identified through the MCC – these are stored at the MID level.
MCCs are assigned to each MID at the onboarding stage.
The MCC are further grouped into industry categories, which represent the **industry classification** dimension.
The mapping between MCC and **industry classification** is made through a lookup in a reference table, defined and managed by the Finance and Business teams.
The reference table which links MIDs and MCCs fulfills all current and historical reporting needs

The “**Industry Classification**” table aggregates MCC into 57 categories, such as “Hotels”, “Pharmacies”, “Restaurants”, “Car Rentals” and “Airlines and Travel Agents”. The table is managed by the business team.

The MCC of a MID can be updated either in a case of change of merchant activity or incorrect initial allocation, however the volume of changes is considered as negligible and historical values of past MCC are not kept.

Nota Bene: the **Industry Classification** “Airlines and travel agents” and “Utilities” should not be confused respectively with the dimensions **Airlines** and **Utilities**, as described later in this document. These carry different scopes and meanings.

Owner:

- Business team

Users:

- Business Team (Sales Efficiency, Relationship Management)
- Finance Team (Performance)
- Interchange (I/C Optimization)

Lifecycle:

- MCC is allocated at Merchant onboarding
- There is no set periodicity for MCC updates

1. Merchant-related Dimensions

1.3 Airlines

Definition/Business Rules:

The **Airlines** dimension describes the airlines merchants.
The dimension is defined on the basis of MCC the MCC value.

Context/Usage:

The **Airlines** dimension is used to monitor the acquirer's business performance, (Airlines were c. 15% of the FY2015 volume).
The Airlines volume is made from both domestic and foreign merchants, and the dimension is primarily tracked for Interchange optimization.

The **Airlines** dimension is made out of two categories of MCC:

- 3000 to 3299 for large airlines, such as the main national carriers
- 4511 to aggregate small airlines

Airlines transactions either be done:

- directly with the airline company through existing channels (POS, ECOM or MPOS), or
- through a travel agency which use the international Global Distribution System (GDS) for flight booking – GDS system hides the physical channel behind, and transactions are then considered MOTO.

Nota Bene: As mentioned in the **Industry Classification** dimension description, there is a scope difference between the **Airlines** dimension, and the **Airlines and Travel agents** category of the Industry Classification.

Owners:

- Airlines team

Useers:

- Interchange (I/C optimization)
- Finance (performance)

Lifecycle:

- The dimension is dependent on MCC classification and follows the **Industry Classification** lifecycle rules

1. Merchant-related Dimensions

1.4 Utilities

Definition/Business Rules:

The **Utilities** dimension describes the transactions where the card-holder would process a transaction such utility bill payment using Banknet, a standing instruction, a conversion of purchase into EPP, or a request of loan on card, as identified by:

- Transactions with merchants allocated under direct government services (identified with MCC #9950), or
- Issuing banks are Issuer A / Issuer B and transaction with a MID having a utilities provider MCCs

Other transactions are non-utilities.

Context/Usage:

Utilities payments volumes do neither attract MSF nor Interchange and are isolated for Gross Margin monitoring purposes, the **Utilities** dimension is therefore used for filtering the utilities volumes when calculating profitability.

The **Utilities** identification is based on a one of the conditions:

- The merchant is a utilities provider with MCC #9950, or
- The merchant is tagged as utilities provider other than MCC 9950 and the issuing bank is Issuer A or Issuer B

In this later case, the list of non-9950 utilities providers (**Utilities** MID list) is provided by the interchange operation team, and the issuing bank identification is based on the BIN number of the card holder.

The **Utilities** MID list is maintained by the interchange operation team, there is not set periodicity for the updates.

Nota Bene: As mentioned in the **Industry Classification** dimension description, there is a difference in scope and meaning between the **Utilities** dimension and the **utilities** category of the **industry Classification** dimension.

Owner:

- Interchange / Operations team

Users:

- Interchange (I/C optimization)
- Finance (performance)

Lifecycle:

- Dimension is dynamic, however variations are negligible, and there is no set periodicity for the updates
- Updates would be initiated by I/C operation team

1. Merchant-related Dimensions

1.5 Channel

Definition/Business Rules:

The **Channel dimension** identifies the type of payment which is supported by a merchant. It can fall within one of these three categories:

- POS is for the face to face payments
- E-COM is for the online payments
- MOTO is for Mail or Telephone orders

The **Channel** is defined at MID level

Context/Usage:

A higher security transaction attracts a lower interchange rate, and the **Channel** dimension is used in combination with the secured / unsecured attributes of a transaction for identification of interchange optimization opportunities.

POS is face to face payment where the card itself and the merchant are in the same physical location, and is considered as the most secured way of transacting

E-com, which has been a growing payment trend for last few years, is considered as less secure than POS, however solutions such as 3D Secure, involving a second factor identification improve transaction security

MOTO (also known as a “Card Not Present”) is a payment type for which the credit card is not physically swiped through a terminal. This type of payment includes telephone, mail or fax order. These are the highest risk transaction.

The **Channel** of a merchant is identified through the **Store Type** field, and is defined at MID level.

The information is stored in the card platform.

The information is initiated in the card platform by the AFU team when onboarding the merchant. AFU is also responsible for maintaining this information, however changes of the **Channel** dimension is negligible.

Owner:

- AFU team

Users:

- Interchange team
- Finance Team

Lifecycle:

- Channel is initiated at Merchant onboarding, and stored in the card platform
- Some changes might only (theoretically) happen in case of erroneous initialization. Past occurrences of this is negligible
- There is no set periodicity for updating this dimension

1. Merchant-related Dimensions

1.6 DCC Partner

Definition/Business Rules:

The DCC Partner dimension identifies the DCC vendor which is associated to a merchant (MID level) for processing international transactions. It can either be DCC partner 1 or DCC partner 2, or the new DCC vendor (DCC partner 3) for ECOM transactions. In some circumstances, a Merchant might not have a DCC agreement in place - the dimension would then be identified as No DCC Partner for the MID

Context/Usage:

The **DCC Partner** dimension enables to compare performance of the DCC partners by combining with the **DCC Opt-In/Opt-Out** dimension and calculating the Opted-In ratio of DCC partners.

DCC partner 3 transactions is being implemented for currency conversions over e-com payments – volumes are low (less than 0.01%), leaving DCC partners 1 and 2 as prominent DCC vendors.

The **DCC Partner** is defined at MID Level, which means that all eligible international transactions which are routed to a specific MID will be proposed the same specific DCC vendor, regardless of the attributes of the transaction.

The initial allocation of the DCC vendor to the MID is made by the AFU and communicated to the POS team when setting-up the POS of a new merchant, and based on DCC team policy. The merchant can refuse to be allocated a DCC vendor, however this situation is rare.

The update of a MID with another of DCC vendor, in case of incorrect allocation, can be done by the POS team upon AFU directions, however this re-allocation is negligible.

There are situations where merchants were not allocated DCC vendor initially, and agreeing to have one. In that case the update would be done by the POS team, upon directions from the relationship management team.

Nota Bene: the tracking of the opted-in ratio, involves the combination of the **DCC Vendor** dimension with **DCC Opt-In/Opt-Out** dimension presented later in this document.

Owner:

- DCC team

Users:

- DCC Team
- Relationship management team
- Interchange Team
- Finance Team

Lifecycle:

- DCC Partner Allocation at the onboarding stage
- DCC Partner per MID list is kept up-to-date in the card platform systematically
- There is no set periodicity for upgrading DCC partners values

1. Merchant-related Dimensions

1.7 New Business

Definition/Business Rules:

The **New Business** dimension identifies the MID recently created recently, either from an existing merchant or a new relationship. A newly onboarded MID would keep the **New Business** status during up to 12 months starting from the onboarding date. The **New Business** status is reinitiated at the end of the budget cycle.

Context/Usage:

The **New Business** dimension is used to enable the business team to monitor the performance of newly onboarded MID.

- Identify the new merchant volumes and potential volume leakages,
- Neutralizing the new merchants for like-to-like volume comparison of active merchants, and
- Identify new merchants not transacting – enable tracking potential issues

The initial list of **New Business** MID is provided by the finance team for initialization.

The updates are provided weekly by the AFU team, with new MID onboarded during the week.

At the end of the budget cycle, all new business MID are reinitiated
The dimension is static, and will not be updated during the budget year.

Owner:

- Business team

Users:

- Business Team (Customer onboarding, Sales Efficiency, Relationship Management)
- Finance Team (Performance)

Lifecycle:

- The dimension is static
- New MID are created by the AFU team, with New Business flag
- Weekly updates of new MID provided by AFU
- New business status reset for the at the end of budget year update processed by the IT team

1. Merchant-related Dimensions

1.8 Attrition

Definition/Business Rules:

The **Attrition** dimension identifies the merchants who are considered as having completely stopped doing business with the acquirer, or dual merchant having switched the bulk of their volume (75% of their volume) to another acquirer.

The **attrition** is defined at the MID level

Context/Usage:

The **attrition** dimension is used to enable the business team to

- Identify the churn rate and its impact on the acquirer's business, by isolating the volume during past periods of churned merchants,
- Neutralizing the discontinued merchant for like-to-like volume comparison of active merchants, and
- Identify the churned merchant to initiate some win-back initiatives.

The attrition rule is:

- Merchants with no volume during a complete month,
- Merchants with volume decrease of 75% over the past 3 months.

The attrition will be automatically re calculated monthly, and generate a list new attrition MID.

The attrition can be manually corrected by the business team, in case of erroneous allocation (seasonal business, technical disruption...).

The attrition will remain until the end of the budget cycle, and then will be reinitiated.

Owner:

- Business team

Users:

- Business Team (Sales Efficiency, Relationship Management)
- Finance Team (Performance)

Lifecycle:

- The dimension is static and re calculated monthly,
- It is generated by the IT team, and reviewed by the business team – historical values are not archived

Section 2 – Issuer-related Dimensions



2. Issuer-related Dimensions

2.1 Scheme

Definition/Business Rules:

The **Scheme** dimension identifies the payment networks linked to the payment cards. It is identified through the first digits of a card BIN. Typical global schemes are Visa, MasterCard, CUP, JCB and Diners, local transit and domestic schemes are also used by the acquirer's merchants.

Context/Usage:

The schemes dimension is used through the whole acquiring organization - the primary usages are:

- the calculation of Interchange fees and the scheme fees,
- the key role on the settlement processes,
- the tracking of volume and gross margin for the acquirer's performance management.

The scheme dimension is made of 4 main categories that are reported as "Acquiring Volume" by Finance Department:

- **MasterCard**
- **Visa**
- **JCB** (Japanese Credit Bureau), a Japanese global network predominant in East Asia,
- **CUP** (China UnionPay), the only Chinese domestic card, accepted also internationally,

Other remaining scheme categories are available but filtered from the "Acquiring volume" reports, and are as listed below:

- **Diners**: Agreement between Diners Club & the acquirer,
- **Private Label: Retailer & Private Company branded cards such as a transit card issued with the transport authority**
- **Domestic scheme: a scheme licensed in the country for specific usage, e.g. e-government payment services**

These later scheme categories are reporting low volumes (less than 1%).

Amex (American Express Scheme), is accepted by some of the acquirer's POS, however Amex is acquiring its own traffic and the volume is not reported in the card platform and does not appear in volume reporting – there is neither MSF nor I/C on Amex transaction, however a fee is charged to Amex for POS usage.

The Schemes is obtained through the card BIN, as part of the transaction information – that is static and there is no maintenance of this dimensions.

Owner:

- Interchange / Operations team
- Airlines team

Users:

- Finance Department
- Interchange Operations
- Merchant Settlement Unit
- Charge-back
- IT department
- the rest of the acquiring business

Lifecycle:

- Dimension is static – no maintenance.
- Scheme updates provided by operators and updated in the card platform

2. Issuer-related Dimensions

2.1 Card-Type

Definition/Business Rules:

The **card-type dimension** is used to identify type of cards transacting at the acquirer's channels. Three main card types create most of the value and are tracked by acquirers all around the world

- Credit Card
- Debit Card
- Prepaid Card

Context/Usage:

The **Card type** dimension is used for I/C calculation and optimization.

Internationally, some regulations are constraining debit cards interchange rates with cap. Although these regulations are not present in the country, the **Card-type** dimension enables to make some simulations and identify the impact on profitability these regulations might have on the acquirer's business.

In addition to Credit cards, Debit Cards and Prepaid cards, there are other card types available, such as reward cards. Since their volume is limited, and monitoring is not as critical as the other categories, these cards are categorized under **Other Cards**.

The dimension is static, there is no maintenance of this dimension.

Owner:

- Interchange / Operations team

Users:

- Merchant Settlement Team
- Interchange Team
- Finance Team

Lifecycle:

- Dimension is static
- Card type information is stored at transactional level within the card platform

2. Issuer-related Dimensions

2.3 On-Us/Off-Us

Definition/Business Rules:

The **On-us/Off-us** dimension defines the relationship of the acquirer with the bank of the card holder for a transaction:

- On-us: transaction where the issuer and the acquirer are the same,
- Off-us: transaction where the issuer is different from the acquirer.

On-us transactions are directly routed between the acquirer and issuer institution systems, whilst off-us transactions are cleared through the Schemes.

Context/Usage:

On-us transactions are tracked to enable calculating the I/C fees which would be directly settled to the issuing bank, whilst off-us interchange is provided in the reports from the Schemes (either VSS130 or FinPos)

When the issuer bank of a card transacted through one of the acquirer's POS:

- Issuers A and B for Visa and Mastercard schemes,
- Issuers C, D, E and F for Visa scheme,
- Issuers G and H for MasterCard scheme.

On-us transactions are exclusively domestic POS transactions and include ATM utility payments as well.

Airlines and Ecommerce through Cybersource (3D Secure) are Off-us regardless of issuing bank.

On-us volume tracking is done excluding the utility volume which do not attract interchange.

The identification of On-Us/Off-us is provided by the Scheme Settlement Team, which have in charge identification, communication and maintenance of this dimension.

The settlement team provides the list of cards BIN tagged "On-Us" every month. They are in charge of maintaining the list.

Owner:

- Interchange / Operations team
- Settlement team

Users:

- Issuing & Acquiring Operations
- Merchant Settlement Unit
- Interchange Team
- Finance Team

Lifecycle:

- Dimension is dynamic
- On-us maintained monthly
- No storage of past value, which leads to errors in historical reports

2. Issuer-related Dimensions

2.4 Premium / Non-premium

Definition/Business Rules:

The **Premium** dimension identifies the features of the card (Premium or non-premium) and the scheme interchange rates associated with it.

- Premium, relates to products that attract the card schemes premium rates of interchange
- Non Premium products attract the card schemes standard (non premium) rates of interchange

These Premium / Non-Premium card categories are available for Visa and MasterCard schemes. Other schemes fall into Non-Premium.

Context/Usage:

The **Premium** dimension is primarily used for calculating the I/C and monitor profitability.

A transaction is classified as “Premium” through the card which has initiated it.

The payment card used for the transaction enables the identification of the cards features through the following:

- The BIN number identifies the uniquely the scheme and product linked to the card (Product_ID),
- For Visa and MasterCard, the Product_ID is associated to Premium or non-premium

Card schemes release new BIN table and it is the responsibility of the interchange operation team to load them into the acquirer's systems.

Although new releases of the premium BIN are provided constantly by the schemes, the updates of the list is processed monthly.

Owner:

- Interchange / Operations team

Users:

- Interchange Team
- Finance Team

Lifecycle:

- Dimension is dynamic
- Interchange team in charge of updating the Card BIN reference table monthly

2. Issuer-related Dimensions

2.5 Geography

Definition/Business Rules:

The **Geography dimension** refers to cardholder country.

Owner:

- DCC team

Context/Usage:

The **Geography** dimension is used primarily for statistics. It provides valuable information about demographics and is a source for external publications.

Business units use the geography dimension to track the distribution of cards by country of issuance and monitor the variations of DCC Opt-in by cardholder's location.

Geography information is provided through the card BIN with a country lookup mapping.

The geography dimension is static. It is provided by the BIN of the card.
The interchange team is in charge of managing the BIN table

Users:

- DCC Team
- Airline Team
- Finance Team

Lifecycle:

- Dimension is static
- There is no set periodicity for maintaining this dimension

2. Issuer-related Dimensions

2.6 Card Product Platform

Definition/Business Rules:

The **card product** dimension enables to identify the appropriate interchange rates according to the card characteristics (Consumer & Corporate)

- Consumer Products related to personal payment features
- Corporate Products related to business, government and commercial payment features

Context/Usage:

The card product platform classification is available for Visa and Master Card schemes. Other scheme cards fall in to “Other Products” category.

The BIN number of a card enables the identification of card product platform:

- The BIN number of a card identify the product linked to the card (Product ID) – the product being unique for Visa and Master Card,
- For Visa and Master Card, the Product ID is associated to product description which contains card feature and profile

The **card product platform** dimension is static. It is provided by the BIN of the card.

The interchange team is in charge of managing the BIN table

Owner:

- Airlines team
- Card product platform team

Users:

- Interchange Team
- Finance Team

Lifecycle:

- Dimension is static
- Schemes are responsible of updating the Card BIN reference table monthly

Section 3 – Transaction-related Dimensions



3. Transaction-related Dimensions

3.1 International / Domestic

Definition/Business Rules:

The **International / Domestic** dimension identifies the context of a payment transaction by comparing the countries the three parties of that transaction: cardholder, merchant and acquirer.

- When all parties are from the same country, the transaction is domestic
- When some parties are from different countries, the transaction is international.

Context/Usage:

The **International / Domestic** is used by the interchange team for Interchange calculation and optimization.

The International / Domestic dimension is used by general management for communication externally about commerce happening in the country. Here the volume should be analyzed in combination with **country** dimension (country = home country) for measuring the domestic traffic.

The country of the cardholder is based on his card BIN (See Geography dimension).

The country of the merchant is based on the Merchant BIN

The country of the Acquirer is based on the acquirer BIN.

Remark:

Although the definition of Domestic is shared across all businesses at the acquirer, the definition of International could be further refined for Airline merchants (Acquirer International and X-Border) based on the location of the Acquirer, however this will not be tracked at this stage.

Owner:

- Interchange / Operations team
- Airlines team

Users:

- General Management
- Interchange Operations
- Finance Department
- Operations (settlement and chargebacks)

Lifecycle:

- Dimension is dynamic
- Schemes are responsible of updating the Card BIN reference table monthly

3. Transaction-related Dimensions

3.2 DCC Opt-in / Opt-out

Definition/Business Rules:

Dynamic currency conversion (DCC) or cardholder preferred currency (CPC) is a financial service in which credit cardholders, when making a payment in a foreign country, have the cost of a transaction converted to their home currency at the point of sale.

If the issuer and the merchant are eligible, the cardholder will be proposed to convert the currency, and he can either:

- Opt-in, and accept the rate proposed by the DCC vendor to proceed the transaction in cardholder chosen currency, or
- Opt-out, and chose to use his issuing bank conversion – the transaction will then proceed in merchant currency.

DCC eligibility will depend on:

- the card supporting DCC conversion (based on card BINs),
- The merchant having a valid **DCC partner** agreement in place (See DCC Partner)

Context/Usage:

The DCC Opt-out is used to monitor the performance of the DCC partners through the count and volume of conversions voluntarily refused by cardholders.

The DCC Opt-in is used in combination with the DCC Partner for identifying the business with DCC partners 1 and 2.

Opt-In is a static flag, stored at the transaction-level and provided by the card platform

Opt-out is an information, that is obtained from filtering all non-opt-in international transactions (transaction code different from 50 or 51) filtered from:

- Non-eligible merchants (merchant non-assigned to a DCC vendor), and
- Non-eligible Cards (based on a BIN lookup).

Owner:

- DCC team

Users:

- DCC Team
- Interchange Team
- Finance Team

Lifecycle:

- Dimension is static
- DCC Partner per MID list is kept up-to-date in the card platform systematically
- DCC Supported Bin List is provided by DCC team

3. Transaction-related Dimensions

3.3 Transaction type

Definition/Business Rules:

- The **Transaction Type** dimension identifies the way transaction is processed, transactions are either Manual or Electronic:
- Electronic is where the card is physically presented to the merchant, then swiped or dipped (relates to EMV chip cards) and verified at the point of sale. It also includes mPOS, contactless, self-service / kiosks with card reader device
 - Manual is where the card is not electronically swiped by the merchant — such as, MOTO and ECOM. Processing of a pre-approved transaction (such as Hospitality) without presenting the card falls also in that category
- Manual transaction attract a higher risk of fraud

Context/Usage:

- The **transaction type** dimension is defined from the perspective of MSF application. Card scheme, such as Visa and MasterCard, provide more transaction types, such as Inter Alia, Refund, Reversal, Quasi Cash, PWCB and Payment Transaction, which are not covered by this dimension.
- The **transaction type** dimension enable to identify Manual transactions attracting a greater risk of fraud, and higher I/C rate, therefore, filtering on transaction type is needed to calculate Interchange, and track profitability separately.
- The information is static and stored at the transaction level.
- New transaction types could be introduced in the future – these would be defined by the interchange team, and created within the card platform for allocation at the transaction time.

Owner:

- Interchange / Operations team
- Airlines team

Users:

- Finance Department
- Interchange Department

Lifecycle:

- Dimension is static
- Information is directly available at transaction level
- Possible update and creation of new transaction type, however this would be negligible

Current State Assessment Report Discrepancies and Their Root Causes

1. MSFRPT-MTPT Reconciliation Report

Data Standardization and Reconciliation Project

7th August 2016

V 1.0

About this document

Objective and Benefits	• The document presents the approach and the outcomes of the MSFRPT v. MTPT reconciliation • It compares the data of the two reports over a 5 months period (January to May 2016). • It enables to baseline MTPT against the “official” MSRPT which is used for reporting the acquiring business financial performance • It establishes that the overall difference between the two reports for both volume and MSF • It highlights the gaps, and list the MID which do not reconcile and need further analysis from the finance analysts and the IT the card platform and MIS teams
How to use this tool/enabler	• Use this document for confirmation of the MTPT data quality • Identify the list of non-matching MID • Get the list of MID to further investigate the identified gaps
When to use this tool/enabler	• Data quality review • MID volume and MSF data cleansing

Document details

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Findings

1. MTPT Master Query to populate the enriched acquiring report is significantly in line with MSFRPT report
2. March reconciliation result is higher than other months which is mainly caused by March MTPT source table
 - Other 4 months' (May, April, Jan & Feb) results prove the code is working accurately
 - For the March, MSFRPT and Acquiring dashboard volume figures (in original currency) is quite similar, while MTPT source table show a significant variance.
3. A significant amount of miss-matching MSF figures are sourced from a government services merchant account which the figure is not available in MTPT source file for Master Card transactions. The case should be investigated with card platform team.

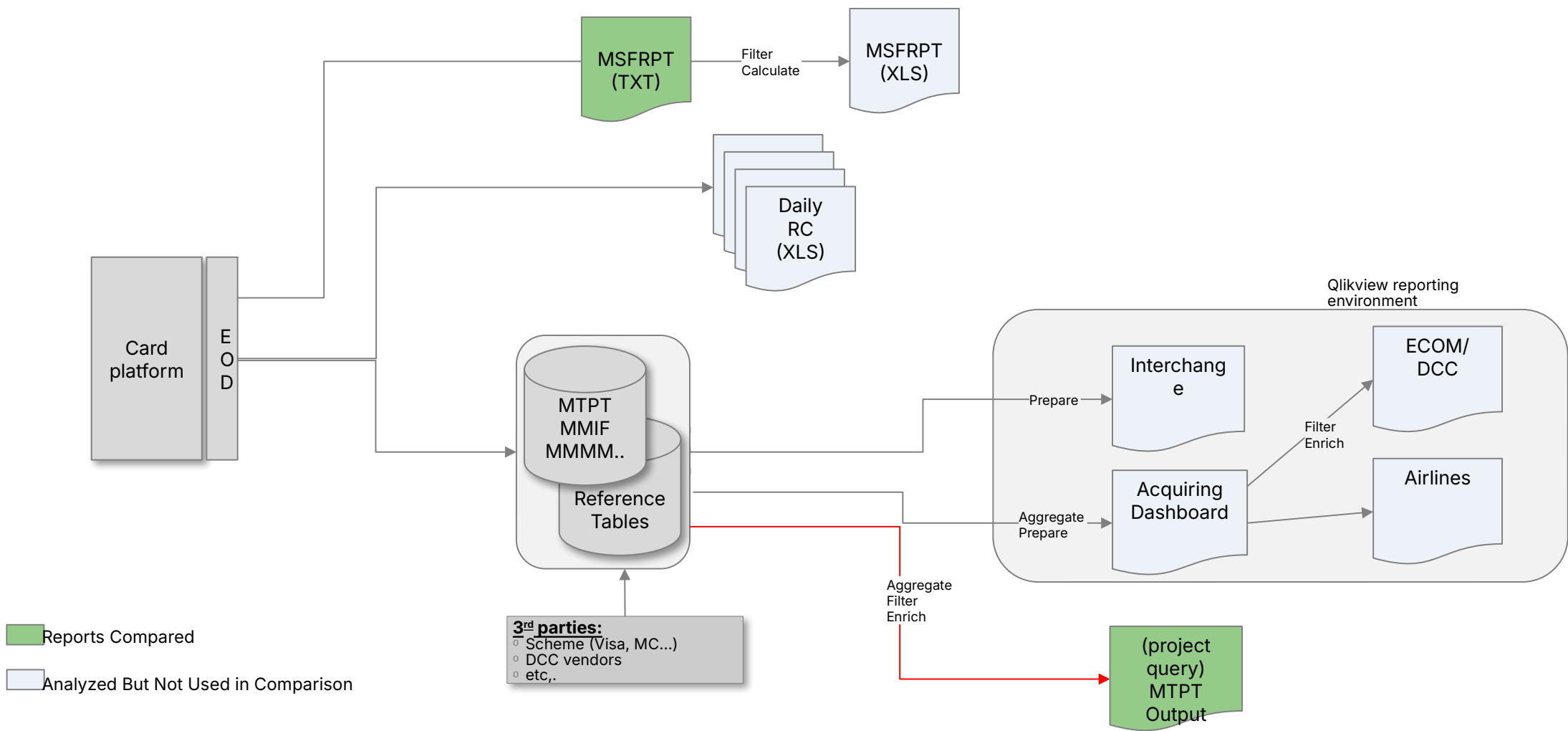
Section 1 – Reconciliation methodology



1. Definitions

- ▶ **Card platform** : The financial software application where all transactional and operational information is stored and managed
- ▶ **MTPT** : The main transaction level table in the card platform which is the source of any Volume & MSF figures
- ▶ **MSFRPT** : A report which is automatically created by the card platform and consist of MID level Volume & MSF figures and is used for reporting acquiring business financial performance

2. Gross Margin reporting environment



3. MTPT generation process

Query Flow

- ▶ **Transformation**
 - Currency Conversion
- ▶ **Enrichment**
 - Store Information
 - Card BIN Information
- ▶ **Filtering**
 - Non-group ORG IDs
 - Manual and Automated Cash disbursements (MCC 6010 & 6011)
- ▶ **Aggregation**
 - At ORG - MID Level

Real Query Output



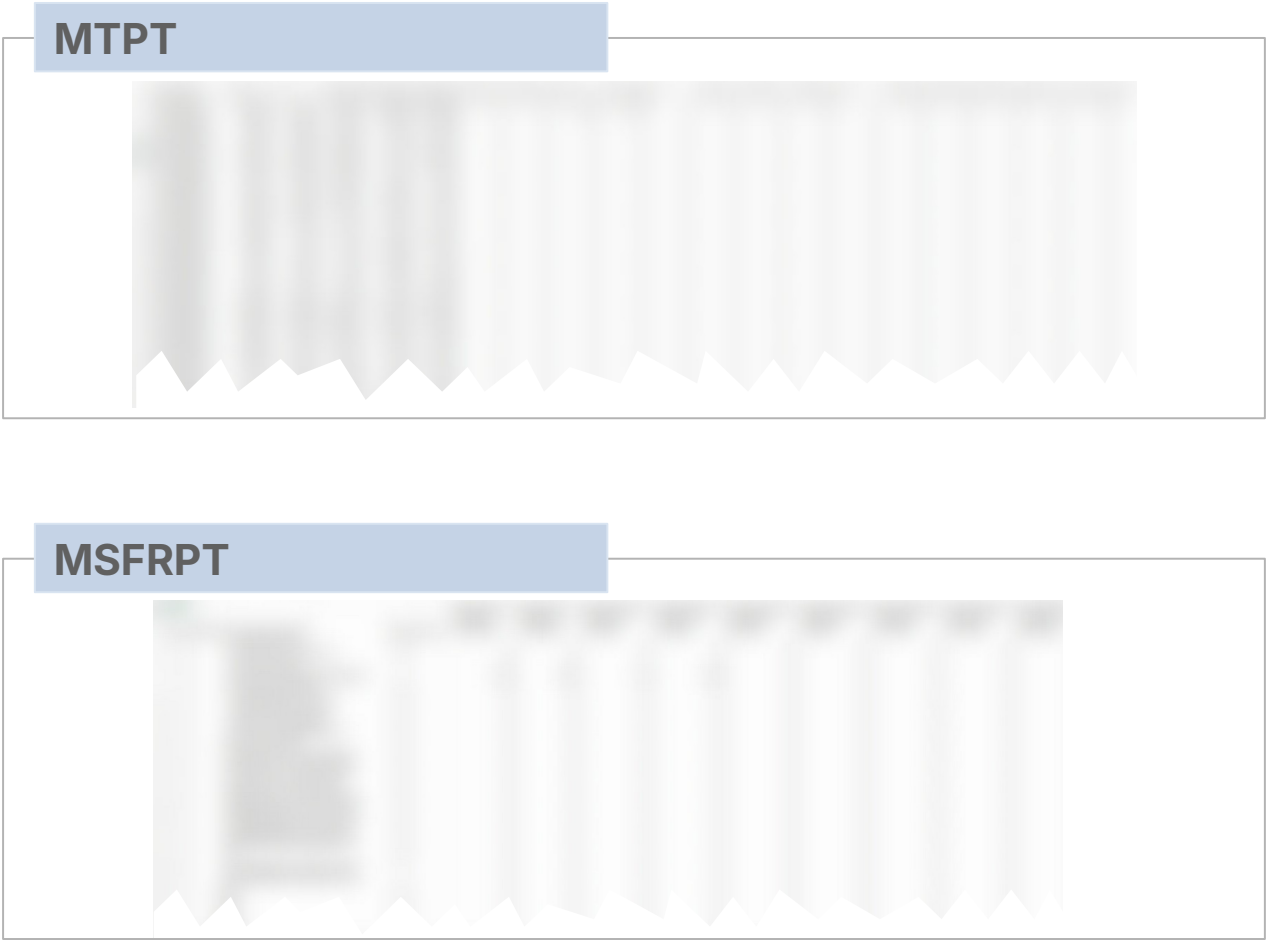
From the output of the project MTPT query, Volume & MSF figures coming from **Visa**, **Master Card**, **JCB** and **CUP** are included to analysis at MID level

* For further detail, please visit the deliverable 3.2 (Operating Procedures Documentation)

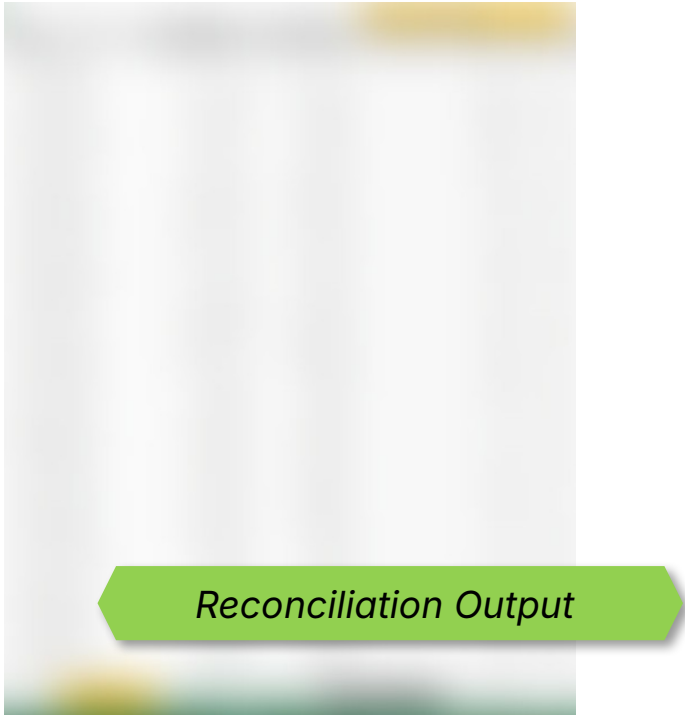
4. MSFRPT generation process



5. Reconciliation approach



Reconciliation is conducted at ORG & MID level by collecting like-to-like Volume & MSF figures from both sources



The reconciliation is conducted for the months of January, February, March, April and May 2016

Section 2 – Reconciliation outcomes



1. Overall reconciliation results - Volume

- ▶ The analysis is conducted over 24,089 MID during the period of the reconciliation: Jan-May 2016
- ▶ The overall reported volume during the period is LCU 41,464,320,859 in MTPT and LCU 41,447,824,743 in MSFRPT, so the total value of absolute gap is 16,496,116 or 0.040% of MSFRPT reported value
- ▶ There are 255 MIDs reporting an absolute gap value more than LCU 1,000 during the period, which is 1.06% of the analyzed MIDs
- ▶ There are 30 MIDs reporting an absolute gap value more than LCU 100,000 and representing a total gap of LCU 13,274,366 (80.5% of total gap)

Analysis and correction of the volume should concentrate on the 30 MIDs generating LCU 13.3M gap (list provided next page)

1. Overall reconciliation results - MSF

- ▶ The analysis is conducted over 24,089 MID during the period of the reconciliation: Jan-May 2016
- ▶ The overall reported MSF during the period is LCU 701,293,650 in MTPT and LCU 714,391,578 in MSFRPT, so the total absolute value of Gap is 13,097,928 or 1.83% of MSFRPT reported value
- ▶ There are 260 MIDs reporting an absolute gap value more than LCU 1,000 during the period, which is 1.08% of the analyzed MIDs
- ▶ 1 MID reports an absolute gap value of LCU 10,368,595 (79.2% of the total gap): one government services merchant. Neutralizing this MID, the outstanding gap is 3,333,492 or 0.47% of MSFRPT reported value
- ▶ 88 MIDs report a total absolute gap value of 2,708,537 (81.25% of the total gap)

Analysis and correction of the MSF should concentrate on the 88+1 MIDs generating LCU 13.1M gap (list provided next page)

2. Volume Reconciliation

	MTPT	MSFRPT	Exists in Both	Matching Accurately	Matching with Variance	Existing in Only One Table	Diff Amount	Diff Ratio
Volume - May	8,487,433,212	8,486,835,544	8,487,426,938	5,911,990,553	2,575,436,385	132,473	867,274	0.010%
Volume - April	8,170,715,636	8,170,855,527	8,170,715,636	6,651,062,680	1,519,652,956	-	305,837	0.004%
Volume - March	8,407,564,296	8,394,305,309	8,407,560,629	5,765,488,828	2,642,071,801	3,667	13,479,194	0.160%
Volume - Feb	7,694,310,012	7,697,550,669	7,697,279,500	3,685,890,580	4,011,388,920	-2,969,487	304,848	0.004%
Volume - Jan	8,668,034,940	8,667,976,244	8,668,034,940	4,028,561,335	4,639,473,605	-	88,275	0.001%

Finding	Recommendation
Some significant differences were identified in March, evidencing some errors during that month – although these did not re emerge since, it is important to conduct a root cause analysis to ensure the correction is permanent.	Analyze the reason for March major volume difference in MTPT daily source tables with MIS Team

3. MSF Reconciliation

									Excluding the government services merchant	
	MTPT	MSFRPT	Exists in Both	Matching Accurately	Matching w/ Variance	Existing in One Table	Diff Amount	Diff Ratio	Diff Amount	Diff Ratio
MSF - May	139,377,267	142,709,980	139,377,267	79,461,138	59,916,129	198	3,360,859	2.41%	410,711	0.29%
MSF - April	136,169,719	139,604,517	136,169,719	116,263,523	19,906,196	-	3,441,799	2.53%	633,302	0.45%
MSF - March	141,294,271	144,582,044	141,294,211	85,707,400	55,586,811	61	3,735,491	2.64%	920,158	0.64%
MSF - Feb	130,401,738	132,886,834	130,465,162	27,571,911	102,893,251	-63,424	2,362,441	1.81%	567,825	0.43%
MSF - Jan	153,316,461	154,001,716	153,316,461	31,167,728	122,148,733	-	689,297	0.45%	689,297	0.45%

Finding

For some merchants (including the government services merchant) Mastercard Debit transactions are not reflecting any MSF figures in the MTPT file, although volume figures are correct.
This is identified starting February, the results being correct in Jan.

Recommendation

There might be some operational block to flow Mastercard Debit MSF figure into MTPT, should be investigated with card platform team