DAM18 - **Business Metrics**

Introduction

This document describes some business metrics, together with their definition. Metrics can be conceptually grouped into 2 main types:

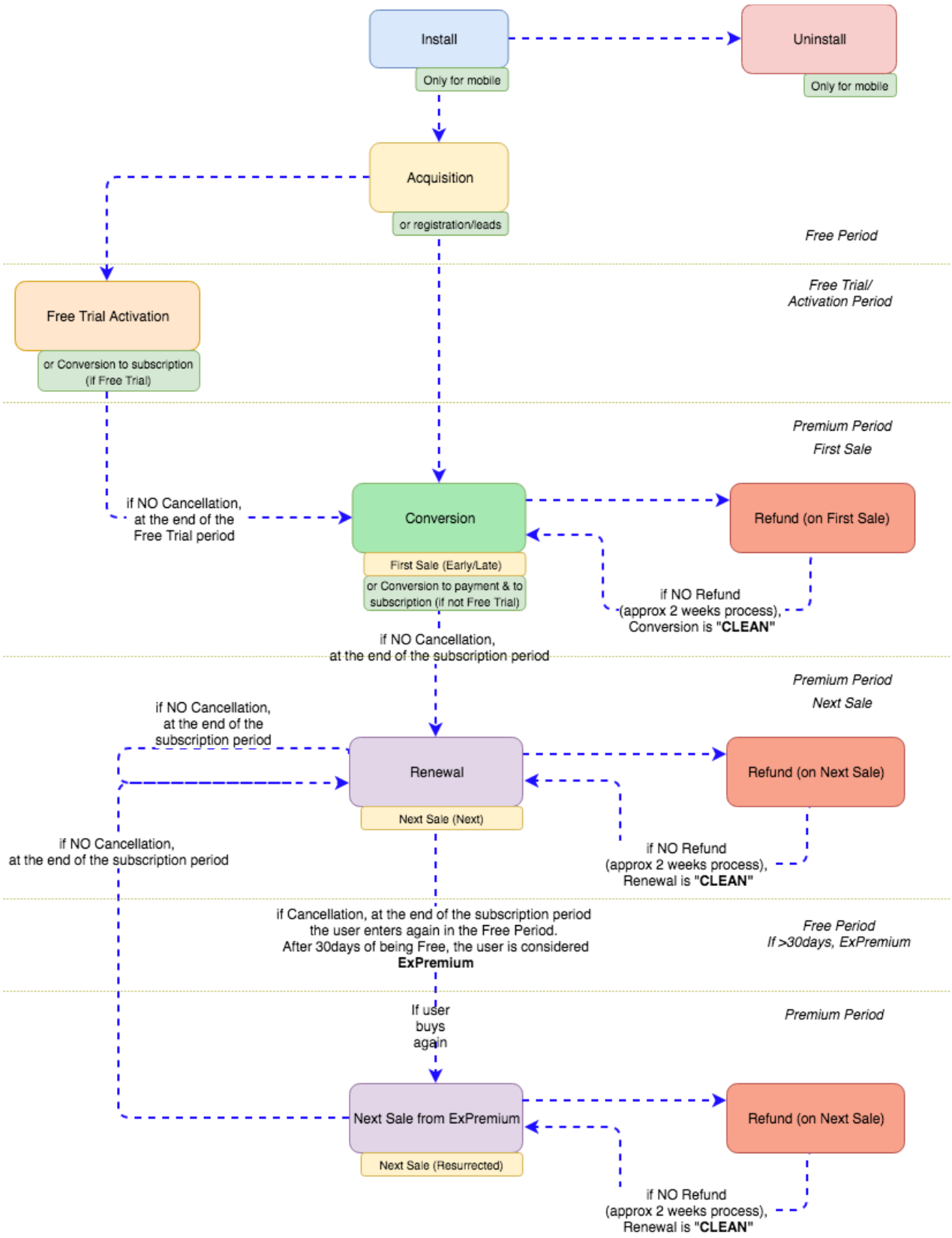
> - **Base Metrics** (or simply called ***Metrics***), such as Sales, Revenue, Conversions, Acquisitions, Investment, Installs, etc.
> - **Derived & KPIs Metrics**, such as Conversion Rate, Renewal Rate, ROI, LTV. These metrics are derived from the Based Metrics directly in ChartIO.

All metrics are then *calculated*, *filtered*, *grouped by* or in general *reported* according to several ***Dimensions***, such as Time, Country, Channel, Campaign, etc.

Metrics Flow in User Journey

Base metrics are a representation of the *user journey* which starts from the Acquisition (or Install if Mobile), and can ends with the payment of a subscription, and a possible Renewal.

Here below a simplified version of the User Journey:


Install
Only for mobile
Uninstall
Only for mobile
Acquisition
or registration/leads
Free Period
Free Trial/
Activation Period
Free Trial Activation
or Conversion to subscription
(if Free Trial)
Premium Period
First Sale
if NO Cancellation,
at the end of the
Free Trial period
Conversion
First Sale (Early/Late)
or Conversion to payment & to
subscription (if not Free Trial)
Refund (on First Sale)
if NO Refund
(approx 2 weeks process),
Conversion is "CLEAN"
if NO Cancellation,
at the end of the subscription period
Premium Period
Next Sale
if NO Cancellation,
at the end of the
subscription period
Renewal
Next Sale (Next)
Refund (on Next Sale)
if NO Refund
(approx 2 weeks process),
Renewal is "CLEAN"
if NO Cancellation,
at the end of the subscription period
if Cancellation, at the end of the subscription period
the user enters again in the Free Period.
After 30days of being Free, the user is considered
ExPremium
Free Period
If >30days, ExPremium
If user
buys
again
Premium Period
Next Sale from ExPremium
Next Sale (Resurrected)
Refund (on Next Sale)
if NO Refund
(approx 2 weeks process),
Renewal is "CLEAN"

User Acquisition

Install

A users has downloaded the app (from AppStore or GooglePlay) and installed it on the mobile.

Acquisition

The moment when a user signs up in our system (we have his/her email and generate a user_id). It can be also called **Lead** or **Register**.

Uninstall

A users has uninstall the app from the mobile.

[Derived] Acquisition to Install Rate

Relation between Installs and Acquisitions numbers. It can be also called I2L (Install to Lead)

$$Acquisition\ to\ Install\ Rate\ \% = \frac{Acquisitions}{Installs} * 100\%$$

[Derived] UnInstall Rate

Relation between Installs and Uninstall numbers.

$$Uninstall\ Rate\ \% = \frac{Uninstalls}{Installs} * 100\%$$

User Subscription

Conversion to Subscription

The **first time** a user has activated the **premium service.** It can be associated with a traditional subscription (and then a payment) or with the **activation** of a Free Trial Subscription (no payment yet).

Cancel

It occurs when a user cancels the **Free Trial Period** or the s**ubscription bought**. In these cases there wouldn't be respectively the **Conversion to payment** or the **Renewal**.

[Derived] Conversion Rate to Subscription User

It is the ratio between the number of Conversion to Subscription and the number of Acquisitions.

$$CRSU\% = \frac{Conversion\ to\ Subscription\ Day\ X}{Acquisition} * 100\%$$

It is normally reported as a Cohorted Metric, that is taking into account a specific number of days from Registration, such as Conversion Rate 8 days, Conversion Rate 1 month.

[Derived] FT Cancellation Rate

A user that **Activates** a Free Trial, can **cancel it during its period**. In this case there is **no first payment** and the user won't have the premium service.

$$FT\ Cancellation\ Rate\% = \frac{Conversion\ to\ Subscription\ Day\ 1 - Conversion\ to\ Payment\ Day\ 8*}{Conversion\ to\ Subscription\ Day\ 1} * 100\%$$

User Conversion, Sale & Payment

Sale

Any **payment** that a user can do during the time. It can be **First** (in case of a Conversion), or **Next** (any other payment excluding the first one). When Conversion occurs in the first **30** days from Registration, it is also called First Sale **Early**, otherwise First Sale **Late**.

Refund

Any **payment** for which user asked and obtained a **refund**. *Refunds can be applied on both First or Next Sales.*

Conversion

It is the **first *time a user makes a payment*** for buying a traditional subscription or when not canceling the Free Trial period (the payment is automatically generated at the end of the FT period). It is also called **First Sale**, **Conversion to Payment** or **First Payment**. First Payment that are Refunded are removed from Conversions.

[Derived] Refund Rate

It is the ratio between the total number of Refunds among the total number of Sales:

$$Refund\ Rate\% = \frac{Refunds}{Sales} * 100\%$$

[Derived] Conversion Rate

It is the ratio between the number of Conversions and the number of Acquisitions.

$$Conversion\ Rate\% = \frac{Conversion\ Day\ X}{Acquisitions} * 100\%$$

It is normally reported as a Cohorted Metric, that is, taking into account a certain number of days from Registration, such as *Conversion Rate 8 days*, *Conversion Rate 1 month*.
Moreover, First Payment that are Refunded are removed from Conversions.

User Retention

Renewal

A renewal occurs when a subscription has exceeded its expiration date. It is also called **Next Sale** (when excluding Resurrected users) or **Next Payment**.

[Derived] Renewal Rate

Relation between the number of possible Renewals and the real Renewals.

$$Renewal\ Rate\ \% = \frac{Renewals}{Possible\ Renewals} * 100\%$$

Revenue & Investment

Revenue

Any payment (sale or refund) comes with a money import called **Revenue**. As for **Sales** and **Refunds**, it can be **First** or **Next** or **Resurrected**. Revenue could be reported as following:

- all revenue in the original **buyer currency**, which depends on Country and Payment System (e.g. EUR or USD or BRL or MXN)
- all revenue converted in **Eur**

Moreover, it is also reported as:

- **Gross** (original amount which includes Taxes and Fees)
- **Net**

Investment

The money spent from us in order to acquire users.

[Derived] Average Ticket

It is the ratio between Revenue and Sales. It can be **First** or **Next** or **ExPremium**.

$$Avg.\ Ticket = \frac{Revenue}{Sales}\ €$$

[Derived] Average Revenue Per User - ARPU

It is the ratio between Revenue and Acquisition. Revenue refers only to those Acquisition.

$$ARPU = \frac{Revenue}{Acquisition}\ €$$

It is normally reported as a Cohorted Metric, that is, taking into account all Revenue after certain number of days from Registration, such as *ARPU 8 days*, *ARPU 1 month*.

[Derived] Average Revenue Per Premium user - ARPPU

It is the ratio between Revenue and Conversions. Revenue refers only to those Conversions.

$$ARPPU = \frac{Revenue}{Conversion}\ €$$

It is normally reported as a Cohorted Metric, that is, taking into account all Conversions after certain number of days from Registration, such as *ARPPU 8 days*, *ARPPU 1 month*.

[Derived] ROI

Return of Investment is the percentage of Revenue related to users acquired on a specific Investment Period.

$$ROI\ \% = \frac{Revenue - Investment}{Investment} * 100\%$$

It is normally reported as a Cohorted Metric, that is, taking into account all Revenue from users acquired during a specific Investment Period. ROI is evaluated during the time of these users, such as *ROI 1 day, ROI 8 days*, *ROI 1 month*.

[Derived] Cost per Lead - CPL

It is the ratio between the Investment and the number of Acquisitions generated from the Investment.

$$CPL = \frac{Investment}{Acquisition}\ €$$

[Derived] Cost per Client - CAC

It is the ratio between the Investment and the number of Conversions generated from the Investment. It is also called CAC (Cost Acquisition Client).

$$CAC = \frac{Investment}{Conversion} €$$

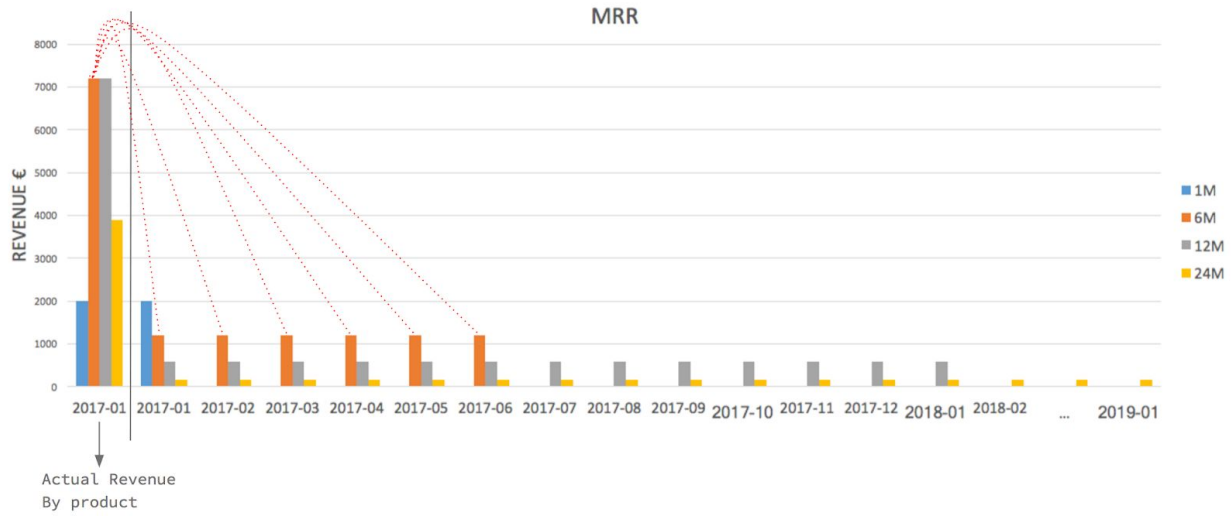
It is normally reported as a Cohorted Metric, that is, taking into account all Conversions from users acquired during a specific Investment Period. CAC is evaluated during the time of these users, such as *CAC 8 days*, *CAC 1 month*.

Recurring Revenue & Lifetime Value

Recurring Revenue

Recurring Revenue, or usually **Monthly Recurring Revenue**, commonly abbreviated as "MRR" is a financial way of revenue disposing which allocates the amount of a subscription for its entire extension period. The effect is to *normalize* revenue and therefore ticket of different subscriptions on a monthly base. In ChartIO we calculate *Monthly* and *Weekly* Recurring Revenue.

For example, the amount paid by a user in 2017-01 for a 6M product (e.g. 30€) is subdivided into 6 equal rates (e.g. 5€) during the 6 months of the subscription, that is from 2017-01 to 2017-06.



[Derived] Churn rate

Churn rate is the percentage of users who end their Premium subscription in a given period.

$$Churn\ Rate = \frac{\#\ of\ premium\ users\ lost\ in\ a\ period}{\#\ of\ premium\ users\ at\ the\ beginning} * 100\%$$

Example: Churn Rate of September is the % ratio between ***Premium users lost in September*** and ***Premium users in August***. *Premium users lost in September* is calculated as difference between Previous Premium users (Premium users in August) and ***those still Premium in September***. This last users are calculated as difference as shown in the following equation:

$$Churn\ Rate[Sep] = \frac{\#Premium[Aug] - (\#Premium[Sep] - \#New\ Premium[Sep] - \#ExPremium[Sep])}{\#\ Premium\ [Aug]} * 100\%$$

[Derived] LifeTime

Life Time is the average period of time of an average Premium user. It is calculated as the inverse of the Churn Rate, thus taking into account the geometric serie for which we approximate the same Churn Rate % every month.

$$Lifetime = \frac{1}{Churn\ Rate}$$

Example: If every month the Churn Rate is 5%, then Lifetime is 20 months.

[Derived] Recurring Ticket

Recurring Ticket, or Monthly Recurring Ticket or **Ticket MRR**, is the the average monthly recurring revenue per Premium users.

$$Recurring\ Ticket = \frac{Recurring\ Revenue\ €}{\#\ Premium}$$

[Derived] Lifetime Revenue - LTR

Lifetime Revenue **LTR** or also called Lifetime Value is the Revenue that an average Premium user produces during its entire Premium time period.

$$Lifetime\ Value = Recurring\ Ticket\ € * Lifetime$$

Recurring Ticket and Lifetime have to be calculated on the same base (e.g. Monthly).

[Derived] LTV/CAC

The ratio between Lifetime Value (indicating how much Revenue a Premium user generates) and CAC (how much we spend for that Premium user) gives us a KPI indicator of the profitability of the company (.

$$LTV/CAC = \frac{LTV}{CAC}$$

Our Data Base

Investment

```
CREATE TABLE decision_making.investment (
  date_of_investment        DATE          NOT NULL  ENCODE ZSTD,
  network                   VARCHAR(50)   NOT NULL  ENCODE ZSTD,
  campaign                  VARCHAR(100)  NOT NULL  ENCODE ZSTD,
  country                   VARCHAR(50)   NOT NULL  ENCODE ZSTD,
  channel                   VARCHAR(50)   NOT NULL  ENCODE ZSTD,
  impressions               INTEGER ENCODE ZSTD,
  clicks                    INTEGER ENCODE ZSTD,
  installs                  INTEGER ENCODE ZSTD,
  investment                NUMERIC(16, 6) ENCODE ZSTD

  CONSTRAINT investment_id_pk PRIMARY KEY (date_of_investment,campaign)
)
  DISTKEY(date_of_investment,campaign)
  INTERLEAVED SORTKEY(date_of_investment,campaign);
```

Users

```
CREATE TABLE decision_making.users (
  user_id                   INT           NOT NULL  ENCODE ZSTD,
  acquisition_date          DATE          NOT NULL  ENCODE ZSTD,
  country                   VARCHAR(50)   NOT NULL  ENCODE ZSTD,
  channel                   VARCHAR(50)             ENCODE ZSTD,
  network                   VARCHAR(50)             ENCODE ZSTD,
  is_premium                BOOLEAN                 ENCODE ZSTD,
  is_expremium              BOOLEAN       NOT NULL  ENCODE ZSTD,
  CONSTRAINT user_id_pk PRIMARY KEY (user_id)
)
  DISTKEY(user_id)
  INTERLEAVED SORTKEY(user_id);
```

Subscription Activated

```
CREATE TABLE decision_making.subscriptions_activated (
  user_id                   INT          NOT NULL ENCODE ZSTD,
  payment_date              DATE           NOT NULL  ENCODE ZSTD,
  acquisition_date             DATE           NOT NULL  ENCODE ZSTD,
  conversion_date             DATE          NOT NULL  ENCODE ZSTD,
  free_trial                BOOLEAN        NOT NULL  ENCODE ZSTD,
  country                   VARCHAR(50)    NOT NULL  ENCODE ZSTD,
  channel                   VARCHAR(50)    NOT NULL  ENCODE ZSTD,
  network                   VARCHAR(50)    NOT NULL  ENCODE ZSTD,
  payment_gateway           VARCHAR(50)    NOT NULL  ENCODE ZSTD,
  subscription_lenght          INT       ENCODE ZSTD,


  CONSTRAINT subscriptions_activated_id_pk PRIMARY KEY (payment_id)
)
  DISTKEY(payment_date)
  INTERLEAVED SORTKEY(payment_date);
```

Paylines

```
CREATE TABLE decision_making.paylines (
  payment_id                VARCHAR(50) NOT NULL ENCODE ZSTD,
  user_id                   INT         NOT NULL ENCODE ZSTD,
  payment_date              DATE          NOT NULL  ENCODE ZSTD,
  acquisition_date              DATE          NOT NULL  ENCODE ZSTD,
  conversion_date             DATE          NOT NULL  ENCODE ZSTD,
  country                   VARCHAR(50)   NOT NULL  ENCODE ZSTD,
  channel                   VARCHAR(50)   NOT NULL  ENCODE ZSTD,
  network                   VARCHAR(50)   NOT NULL  ENCODE ZSTD,
  payment_gateway           VARCHAR(50)   NOT NULL  ENCODE ZSTD,
  sale_type           VARCHAR(50)      ENCODE ZSTD,
  detailed_sale_type            VARCHAR(50)      ENCODE ZSTD,
  payment_status          VARCHAR(50)      ENCODE ZSTD,
  subscription_lenght             INT      ENCODE ZSTD,
  currency_code           VARCHAR(10)      ENCODE ZSTD,
  original_amount          NUMERIC(12, 4) ENCODE ZSTD,
  revenue_gross          NUMERIC(12, 4) ENCODE ZSTD,
  revenue_net           NUMERIC(12, 4) ENCODE ZSTD,

  CONSTRAINT paylines_id_pk PRIMARY KEY (payment_id)
)
  DISTKEY(payment_date)
  INTERLEAVED SORTKEY(payment_date);
```

Future Payments

```
CREATE TABLE decision_making.future_payments (
  date_of_payment        DATE          NOT NULL  ENCODE ZSTD,
  country                   VARCHAR(50)   NOT NULL  ENCODE ZSTD,
  channel                   VARCHAR(50)   NOT NULL  ENCODE ZSTD,
  payment_gateway           VARCHAR(50)   NOT NULL  ENCODE ZSTD,
  potential_revenue          NUMERIC(16, 6) ENCODE ZSTD,

  CONSTRAINT future_payments_id_pk
  PRIMARY KEY (date_of_payment,country,channel,payment_gateway)
)
  DISTKEY(date_of_payment)
  INTERLEAVED SORTKEY(date_of_payment);
```