Broadband

Retail and Wholesale service provisioning and service assurance

2017 Report

Proximus publishes on an annual and semi-annual basis a comparison between the broadband services provided to its retail customers (Internet and TV) and the services provided to its wholesale customers (unbundled lines: ULL and bitstream).

Two metrics are compared:

(1) Installation time of a line (provisioning)

(2) Time required to resolve a technical trouble related to the Proximus' infrastructure (repair)

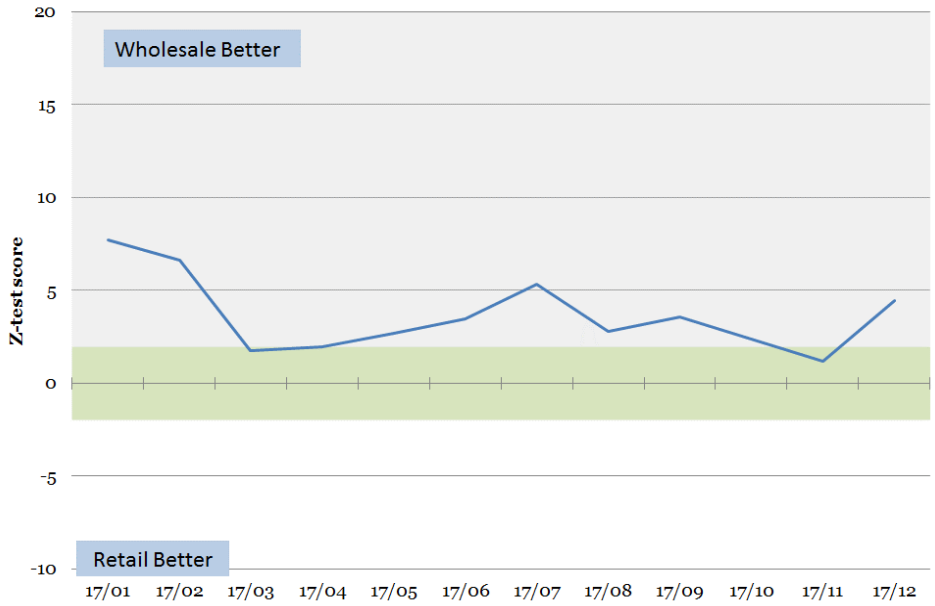
The comparison is based on the generally accepted Z-test used for statistical analysis of two sets of measurements (in this case proportions of wholesale and retail data). The data is compared on a monthly basis and presented in charts.

Z-scores between -1.96 and +1.96 indicate that it is unlikely that any observed difference is statistically significant (5% probability or below). This zone is colored light green in the charts.

Z-scores out of this band require an analysis to understand the factors that drive the difference.

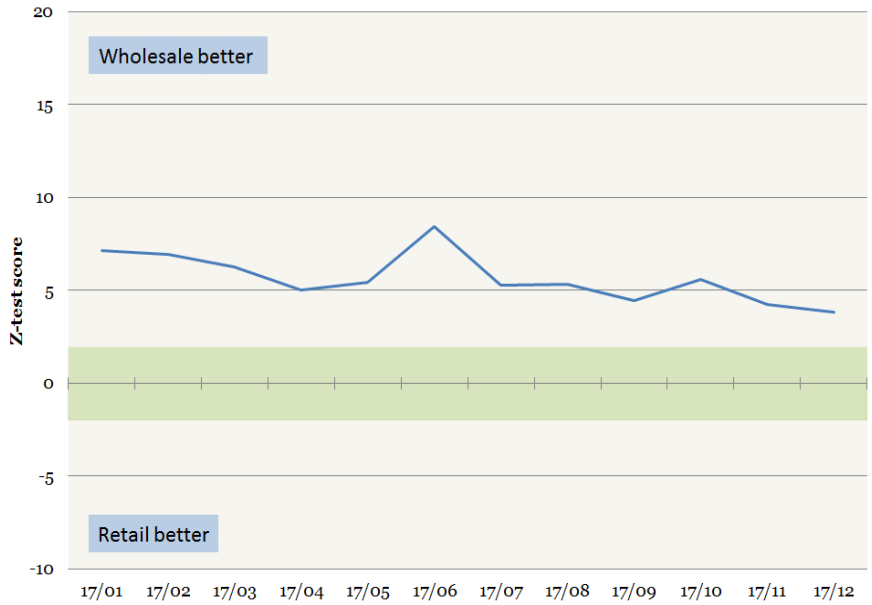
Proximus decided to publish the analysis on a voluntary and recurrent basis since it provides an objective measurement of relative performance between retail and wholesale and a valuable framework to discuss possible differences.

1. Provisioning



The chart shows that the overall 2017 performance was better for wholesale than for retail.

2. Service repair



The chart shows that the overall 2017 performance was better for wholesale than for retail.

3. Clarification on the Z-Test calculation

Through the present Equality of Service KPI's report, Proximus would like to take the opportunity to correct a statement made by the BIPT in its communication of 8 February 2011 regarding the audit of operational processes within Proximus.

According to this communication, the provisioning lead-time calculation excludes the following elements: overrun orders, the orders requiring a SNA, the customer absents and customers that are not ready for installation. This is not correct and it is therefore necessary to clarify hereby the computation method used in the provisioning lead-time calculation.

For BRxx and Retail, Proximus uses raw figures without applying any exclusion rules and compares performances based on new installations that took place during the considered period. For BRxx the lead-time calculated is the elapsed time between XML IN date and XML DONE sent date. For retail the lead-time is the elapsed time between the intake of the order in the Order Management System (PILA/OMS) and the installation date of the requested product.

In both computations, Proximus does not filter out events (customer absent, Small Network Adaptations, work overload, etc.) happening in between the Intake date and the DONE (installation date).

4. Independent Report on agreed-upon procedures

In February 2018, Ernst & Young performed agreed-upon procedures with respect to the present Equality of Service KPI's report. More specifically, these agreed-upon procedures encompassed the reconciliation of the present annual report with the semi-annual Equality of Service KPI's reports.

Upon the reading of the Ernst & Young report on agreed-upon procedures, Proximus noted no findings. The Ernst & Young report was communicated to the BIPT on 17 April 2018.

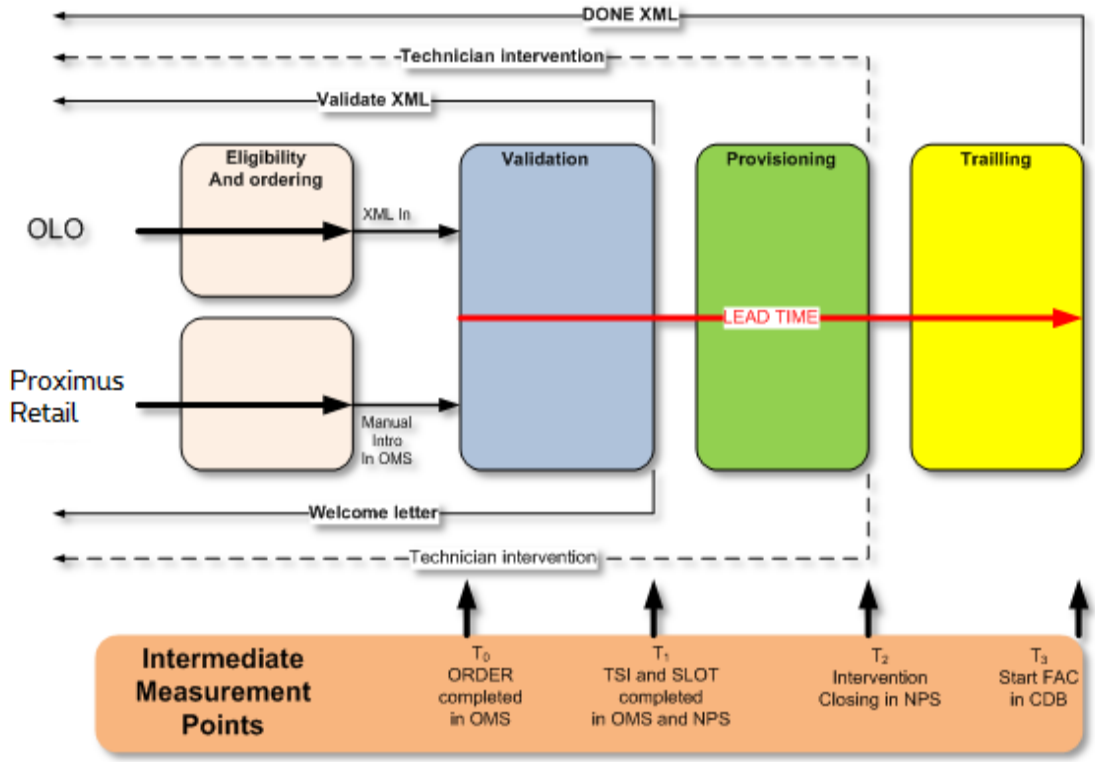
Agreed-upon procedures do not constitute an audit neither a limited review under auditing standards hence the auditor did not express any assurance as to the correctness of the present Equality of Service KPI's report.

Annex: the measurement model

To compare output performance for wholesale products with retail products, an alignment needs to be made between wholesale and retail products as the End-to-End processes for OLOs and retail are not fully comparable.

1. Provisioning

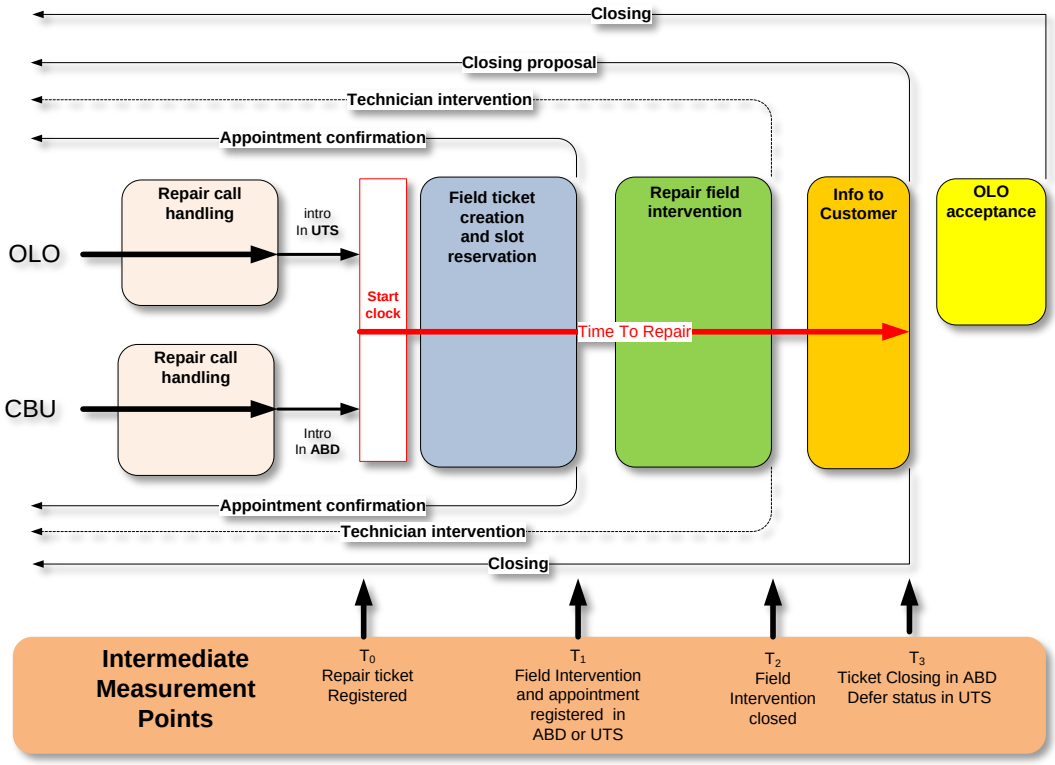
The model defines equal and comparable time stamps (T_0, T_1, T_2, T_3) for the building blocks *Validation*, *Provisioning* and *Trailing*. The latter is a merely administrative completion of the order. The **Lead Time** is defined as (T_3-T_0).



2. Repair

In accordance to the provisioning model, the Service Assurance model defines equal and comparable time stamps (T_0, T_1, T_2, T_3) for building blocks comparable between retail and wholesale. The **Time To Repair** is defined as (T_3-T_0). As opposed to retail, where the concept

does not apply, wholesale ticket lifecycle is subject to stop clocks[1]. Hence in order to have a comparable base, only "net" times are considered.



3. Z-test

The output performance KPI (Lead Time or Time To Repair) for every provisioning or repair action triggered by either wholesale or retail is considered to calculate the proportion of instances that comply with predefined SLA obligations. E.g. out of a total of 100 orders placed in a certain period of time, 95 were delivered within the 10 days SLA timer, yielding a proportion of 95%.

The Z-test, testing statistically the equality of proportions out of two different populations (i.e. wholesale and retail populations), supports the assessment of whether the KPIs are either equal or different, based on a 95% confidence interval.

The Z-test allows identifying areas where there may be differences. A Z-score falling inside the 95% confidence band results in ascertaining differences in performance to be insignificant. Z-scores out of this confidence band do not automatically lead to conclude

[1] Stop clocks are predefined agreements between OLOs and Proximus. Details about this process are available on request.

there is inequality in service delivery but require an additional analysis as several factors can cause the Z-score to fall outside confidence intervals.

Furthermore, equality or inequality of output performance for any service does not allow drawing a conclusion about SLA performance as both have strictly no link.

Disclaimer

This voluntary initiative is a result of Proximus' internal governance structure, and does not amount to any contractual commitment or regulatory obligation on behalf of Proximus.

The published data have been compiled and calculated by Proximus in good faith and following best internal standards. However, Proximus cannot be held responsible for any error in the quality of the information that would occur despite Proximus' internal precautions, nor for any damage that would allegedly be claimed pursuant to the publication of the Z-Test information.

The results of the output performance comparisons do not allow drawing any conclusions about the regulated SLA performance by Proximus, as there is no link between these elements.

The objective of this publication is to provide the market with a general observation on KPIs but does not constitute any commitment to reach a specific result related to these KPIs.