

Before the
POSTAL REGULATORY COMMISSION
WASHINGTON, DC 20268-0001

Service Performance Measurement
Systems for Market Dominant Products

Docket No. PI2015-1

PUBLIC REPRESENTATIVE COMMENTS
CONCERNING SERVICE PERFORMANCE MEASUREMENT SYSTEMS
FOR MARKET DOMINANT PRODUCTS

(April 8, 2015)

I. INTRODUCTION

On October 17, 2014, the Postal Service began discussions with the Commission on proposals to develop new internal service performance measurement systems for several of its market dominant products, including products within domestic First-Class Mail, Periodicals, Standard Mail and Package Services. On January 29, 2015, the Commission issued Order No. 2336,¹ and invited comments concerning the Postal Service's plan for Service Performance Measurement of market dominant products (Service Performance Measurement Plan). In that Order, the Commission scheduled an off-the-record technical conference, which took place on March 18, 2015.² The description of the Service Performance Measurement Plan was initially filed in Library Reference PRC-LR-PI2015-1/1, which accompanied Order No. 2336.³ The Postal

¹ Notice of Request for Comments and Scheduling of Technical Conference Concerning Service Performance Measurement Systems for Market Dominant Products, January 29, 2015 (Order No. 2336). "Internal" service performance measurement systems are under the direct control of the Postal Service. "External" service performance measurement systems are under the direct control of an independent third party. Order No. 2336 at 1.

² *Id* at 3. The technical conference originally scheduled for March 5, 2015 was later rescheduled due to inclement weather. See Notice and Order Rescheduling Technical Conference and Comment Due Dates, March 9, 2015.

³ Notice of Filing Library Reference PRC-LR-PI2015-1/1, January 29, 2015.

Service later filed two revisions for the Service Performance Measurement Plan.⁴ The Postal Service also provided additional information in its Responses to two Chairman's Information Requests (CHIR).⁵

Pursuant to 39 U.S.C. § 3691(b)(1)(D) and (b)(2), for each market-dominant product, the Postal Service, in consultation with the Commission, shall establish a system of objective external performance measurements as a basis for measurement of Postal Service performance (unless the Commission approves the implementation of an internal measurement system, 39 U.S.C. § 3691(b)(2)). If the Commission approves the proposed Service Performance Measurement Plan, which partially replaces the external measurement system with the internal system, the Postal Service intends to use it in reporting service performance beginning FY 2016.⁶

II. COMMENTS

The Public Representative hereby provides initial comments on the Service Performance Measurement Plan, Revised of March 24 (Postal Service Plan).⁷

A. The Postal Service Plan – Overview

As illustrated in Table 1 below, the Postal Service Plan contains two major revisions of the current service performance measurement system. First, for First-Class Single-Piece letters and flats, the Postal Service eliminates the traditional measurement

⁴ See Notice of the United States Postal Service Concerning Filing of Revisions to the Service Performance Measurement Plan, March 3, 2015; Notice of the United States Postal Service Concerning Filing of Second Set of Revisions to the Service Performance Measurement Plan, March 24, 2015.

⁵ Responses of the United States Postal Service to Questions 1-16 of Chairman's Information Request No.1, March 31, 2015 (Responses to CHIR No. 1); Responses of the United States Postal Service to Questions 1-4 of Chairman's Information Request No.2, April 2, 2015 (Responses to CHIR No. 2).

⁶ Order No.2336 at 2 and Responses to CHIR No. 1, Question 9.

⁷ USPS Service Performance Measurement Plan (Revised March 24, 2015), March 24, 2015.

system, EXFC,⁸ and replaces it with the internal three-stage measurement system. Second, for Presort Mail that is currently subject to service performance measurement using the hybrid system,⁹ the Postal Service eliminates external reporting on the Last Mile (between the last processing scan to actual delivery) and replaces it with the internal measurement system. *Id* at 15, 26-27. The Postal Service Plan also contains some revisions to service performance measurement of Single-Piece First-Class Mail International. Thus, due to elimination of EXFC that currently serves as a proxy for Single-Piece First-Class International flats, the Postal Service proposes IMMS as a replacement.¹⁰

Table 1: Postal Service Plan: Current and Future State

Class and Category of Mail		Service Performance Measurement Approach	
		Current State	Future State
Single-Piece First-Class Mail Letters and Flats		EXFC	Internal system with three stages: First Mile, Processing Duration and Last Mile
Presort Mail		Last Mile: External Reporting	Last Mile: Internal System
Single-Piece First-Class Mail International	Flats	EXFC as proxy	IMMS
	Parcels	Single-Piece First Class mail parcels as proxy ¹¹	USPS tracking

⁸ EXFC – External First-Class Measurement System.

⁹ Applicable to First-Class Mail Presort letters and flats, Periodicals, Standard Mail services and Bound Printed Matter Flats. Hybrid measurement supplements mail scans available from the internal system with externally collected data. *Id* at 14.

¹⁰ IMMS, International Mail Measurement System, has been used to measure service performance for Single-Piece First-Class Mail International letters. IMMS is “an external measurement system for which an independent measurement contractor seeds mail into the mailstream.” *Id.* at 11. The Postal Service filings contain very limited information regarding the proposed changes to service performance measurement of Single-Piece First-Class Mail International. The Public Representative is unable to provide any comprehensive analysis on the proposed changes.

¹¹ The Postal Service uses such proxy for Inbound Letter Post parcels.

B. For First-Class Mail Single-Piece Letters and Flats, the Postal Service Proposes to Replace External First-Class Measurement System (EXFC) with the Internal System

1. Current Measurement System – EXFC

The current measurement system, *EXFC*, is an external performance measurement system,¹² specifically developed for the First-Class Mail, and in use since the beginning of the 1990s.¹³ Designed to measure the Postal Service's delivery performance from the customers' perspective,¹⁴ EXFC monitors the performance of individual tested mailpieces from their induction into the mailstream until final delivery. An independent third party that manages EXFC monitors the external panels of participants. Such participants are called either droppers (if they induce test pieces into the mailstream) or reporters (if they receive the test mailpieces).¹⁵

For First-Class Mail Single-Piece letters and flats, EXFC, which covers "nearly all 3-digit ZIP Code service areas,"¹⁶ measures the number of days from the "Start-the-Clock" (the date and time when the dropper induces individually identified and addressed mailpieces into a collection box or business mail chute) and the "Stop-the-

¹² External performance measurement systems are "outside the scope of normal Postal Service Operations". Postal Service Plan at 13.

¹³ See e.g. https://about.usps.com/publications/pub100/pub100_056.htm

¹⁴ Statement of Work Transit Time Measurement System (TTMS) External First Class (EXFC) 102592-02-B-0343, December 26, 2008 at 4 (Statement of Work).

¹⁵ An independent third party creates the panels of both droppers and reports, and they must meet certain eligibility requirements. See Postal Service Plan at 13-14, 23-24; Statement of Work at 9-12.

¹⁶ Docket No. PI2008-1, Second Notice of Request for Comments on Service Performance Measurement Systems for Market Dominant Products, June 18, 2008 at 14 (Docket No. PI2008-1, Second Notice).

Clock” (the date that the reporters receive the identified mailpieces).¹⁷ For tested mailpieces, EXFC compares the time measured between “Start-the-Clock” and “Stop-the-Clock” to the applicable service standards. The Postal Service provides quarterly reports of the aggregate EXFC data to the Commission.¹⁸

2. *The Proposed Service Performance Measurement (SPM) System*

The proposed internal SPM system (intended to replace EXFC) incorporates a three-stage measurement approach – the First Mile, Processing Duration and the Last Mile. *Id.* at 24-25. The overall estimate of the measured service performance time is based on a composite measurement that totals the calculated time for these three stages.

The First Mile Impact provides an estimate for the time from collection to the first processing operation. The proposed SPM system calculates the First Mile Impact as a composite score, which includes information from two types of scans. First, the Collection Point Management System (CPMS) scans provide collection time, location, and date information.¹⁹ Second, carrier scans of mailpieces from randomly selected collection points provide barcode information for these mailpieces.²⁰ The methodology

¹⁷ The delivery address might be residential, business or Post Office Box. EXFC methodology allows for an adjustment of both Start-the-Clock and Stop-the-Clock dates. See Postal Service Plan at 22-24.

¹⁸ A third party creates quarterly samples in accordance with the particular statistical design. The Postal Service maintains that this “statistical design determines the key aspects needed for the system to be representative of the population being measured and for achieving the desired precision of results.” *Id.* at 13.

¹⁹ Deployed in 2005, CPMS is a web-based system that “provides a monitoring tool for delivery unit managers”. It consists of a [mobile] “data collection device that scans a barcode located inside a collection box.” 2005 Comprehensive Statement of Postal Operations at 41, <https://about.usps.com/strategic-planning/cs05/cs2005.pdf>. See also Responses to CHIR No. 1, Question 12.

²⁰ To ensure that the First Mile Impact reflects the service performance of mailpieces coming across the retail counter, “retail clerks will be randomly prompted to scan mailpieces coming across the retail counter.” Postal Service Plan at 24.

for calculation of the First Mile Impact composite score includes multiple techniques needed to validate CPMS scans and sampled mailpieces, estimate average volumes of collection points, etc.²¹

Processing duration is the time between the first and last processing scans. Automation equipment has an ability to apply a unique barcode or ID Tag to a mailpiece, and this tracking information allows for measuring the processing duration for the mailpiece.

For the *Last Mile*, the Postal Service proposes that a random selection of delivery points will represent all 3-digit ZIP Code service areas to ensure the cumulative coverage of “a variety of shapes and characteristics representing a mix of service standards.”²² The proposed SPM system will transmit encrypted information on a sample of randomly selected delivery points into carriers’ CPMS. If the particular delivery point is in the sample, the carrier is obligated to scan mailpieces at that delivery point.²³

3. *Public Representative Analysis*

The Public Representative concludes that the Postal Service Plan is technology driven and may provide a step in the right direction towards improvement of the service performance measurement system. The Public Representative believes that the proposed SPM system should be cost-effective, at least in the long-run. However, the Postal Service Plan is still under development and many aspects regarding the underlying methodology and the measurement results are unclear. At the current stage of development, the proposed SPM system raises some concerns summarized below.

²¹ *Id* at 24-25; Responses to CHIR No. 1, Question 14.

²² Postal Service Plan at 25.

²³ After the carrier performs the CPMS scan at the delivery point, he/she will receive a request to his mobile device to scan mailpieces. *Id*.

Also, the Public Representative offers some suggestions that should help to ensure the smooth and effective replacement of EXFC with the proposed SPM system.

(a) Will the Proposed SPM System Measure the Same End-to-End Delivery Time as EXFC Measures Now?

Start-the-Clock and Stop-the-Clock together define the time brackets for service performance measurement of the mailpieces. Ideally, EXFC and the proposed SPM system would measure the same End-to-End mail delivery time. In other words, Start-the-Clock and Stop-the-Clock brackets should be the same under EXFC and the proposed SPM system. However, it might not be possible. The main reason - the two measurement systems pursue different approaches to estimating Start-the-Clock and Stop-the-Clock time.

In EXFC, Start-the-Clock is known in advance, and this is generally the time when a bundle of test mailpieces is actually induced into the mailstream (*i.e.* dropped into a collection box).²⁴ On the contrary, in the proposed SPM system, Start-the-Clock is unknown and needs to be determined, first, using the pick-up date and time and, second, following certain adjustment methodology (as explained on page 24 of the Postal Service Plan). It should be noted that the time when the measured mail is dropped into the collection box is outside of the service performance measurement process that begins with the carrier's SMPS scan at the collection point. Moving mail drop-off time outside the service performance measurement process substantially increases uncertainty about the actual Start-the-Clock time, "the date and time when the mailpiece enters the mailstream." *Id* at 7.

²⁴ The Public Representative recognizes the exception when the drop time is after the last posted pick-up time and, therefore the Start-the-Clock date will be the next valid pick-up date. (See Postal Service Plan at 22.) This exception, however, does not change the Public Representative's conclusion that the Start-the-Clock date is known in advance.

Under the proposed SPM system, Stop-the-Clock, defined as “the date on which delivery occurs or is initially attempted,”²⁵ is directly associated with the delivery scan and, theoretically, can be measured more precisely. However, a different estimate of the Stop-the-Clock date, obtained under the proposed SPM system and EXFC,²⁶ would lead to inconsistency between these systems in regards to the measured End-to-End time brackets.

The Public Representative suggests that the Postal Service should initiate some intermediate transitional state between EXFC and the proposed measurement system to ensure that these systems measure time that reflects *the same End-to-End mail delivery process*; otherwise, the service performance measurement results obtained under EXFC and the proposed SPM will not be comparable. The Public Representative suggests that the Postal Service implement an intermediate testing state to ensure *the consistency between Start-the-Clock and Stop-the-Clock time* under EXFC and the proposed SPM system. Such consistency becomes especially critical when taking into account that the current reporting system does not seem to be reflected in the proposed changes.

(b) Moving from a Real Mailpiece to a “Virtual” Mailpiece Highly Increases the Role of Statistical Analysis

EXFC and the proposed SPM system have very different approaches to service performance measurement. EXFC measures End-to-End performance of the tested mailpieces that *actually* enter the mailstream. The performance of these mailpieces is monitored until *actual* delivery. On the contrary, the proposed SPM system does not measure End-to-End performance of any real mailpieces. It measures the performance of a mailpiece that we would call “*virtual*”. This virtual mailpiece is the result of

²⁵ *Id* at 7.

²⁶ In EXFC, the date the reporter receives the mail is the delivery date with the exception when delivery occurs immediately after a non-delivery day. In such case, one day is subtracted from the service performance calculation for each consecutive non-delivery day. *Id* at 23-24.

averaging, weighting and combining real mailpieces on three different stages of the End-to-End delivery process. Statistics becomes the king here. For example, the First Mile Impact is based on a *composite score*, and its calculation requires a series of statistical procedures. The carrier scans mailpieces at collection boxes that are *randomly selected*. For each collection point, *average volume* is calculated using a *density volume test*.²⁷ The system *samples* the scanned mailpieces from *statistically-valid randomly selected* collection points in order to ensure a certain amount of spatial coverage.²⁸ The final *composite score* for this “virtual mailpiece” should reflect the actual time that it “takes from collection to the first processing operation.”²⁹

To ensure meaningful measurement results, this virtual mailpiece should be representative of the overall mail that is subject to service performance measurement under the proposed system. The accuracy of the representation of this virtual mailpiece strongly depends on the quality of the underlying statistical design, accuracy of sampling and other multiple statistical techniques. The Public Representative is confident that the implementation and operation of the proposed SMP system will not be possible without successful utilization of the integrated statistical system. A review of the Postal Service Plan shows that this system should include spatial sampling, averaging, combining and validating the data, calculating performance scores at different stages of the mail delivery process, combining and aggregating these scores and estimating the precision of the performed measurement. The Postal Service, however, confirms that the Statistical Design Document is still under development.³⁰

²⁷ Responses to CHIR No. 2, Question 3.

²⁸ Postal Service Plan at 24; Responses to CHIR No. 1, Question 14.

²⁹ Postal Service Plan at 24.

³⁰ The Postal Service estimates that the design document will be provided to the Commission by June of the current year. “The design document will contain the methodologies and functional requirements for First Mile and Last Mile sampling.” Responses to CHIR No. 1, Question 10.

Until statistical documentation -- the key element of the Postal Service Plan -- becomes available, it is impossible to reach any valid conclusions regarding the accuracy and reliability of the proposed measurement system.

(c) Is the Proposed SPM System “Spoiled” in the First Mile?

The issue of adequate representation of measured mailpieces, discussed above, reappears when analyzing the mailpieces that the proposed SPM system is *generally able* to include in the measurement process. The proposed SPM system is designed for Single-Piece First-Class letters/ cards and flats, and has three stages (First Mile, Processing Operation and Last Mile). *The SPM system is only able to measure mailpieces that have a barcode.* During the processing duration, theoretically, any mailpiece that goes through the first processing scan can be subject to service performance measurement because automation equipment applies a unique barcode to this mailpiece.³¹ Consequently, when the mailpiece “arrives” at the Last Mile, it already has a barcode and might be scanned if it appears in a randomly-selected delivery point sample.

The situation is significantly different when considering the First Mile. There are many unclear issues regarding the potentially scanned mailpieces. For instance, what is the percentage of Single-Piece First-Class letters, cards and flats that have a barcode? For example, in residential areas, mail in collection boxes is generally unlikely to be barcoded. The Commission has previously warned the Postal Service that mail “excluded from measurement may impact the ability of the sampled mail to represent the total of the mail subject to measurement.”³² Since the majority of private letters do

³¹ It might be IMb, ID Tag or FICS ID Tag. Postal Service Plan at 25.

³² Docket No. PI2008-1, Order Concerning Proposals for Internal Service Standards Measurement Systems, November 25, 2008 at 11 (Order No. 140).

not have any barcodes, it is not clear how the Postal Service will ensure that the scanned letters are representative of the overall Single-Piece First-Class letters.

This concern arises from the very nature of the proposed SPM system. The proposed technology-driven system is *oriented on mailpieces with the scannable barcodes only*.³³ Such approach becomes problematic and leads to the potential bias in selection of the mailpieces for service performance measurement on the First Mile.³⁴ The Public Representative suggests the Postal Service perform special tests to compare performance measurement of the mailpieces excluded from measurement with the performance of the mailpieces covered by the proposed SPM system. This will help to ensure that the measured samples on the First Mile are representative of the all relevant sub-classes of mail.

Since the statistical design of the First Mile is still under development, it appears that the Postal Service is unable to provide solid answers to the above-raised questions to clear up the concerns. However, failure of the service performance measurement on the First Mile could result in the failure of the overall proposed SMP system.

(d) The Postal Service Should Carefully Consider All Costs

As the Public Representative noted above, the proposed SPM system should be cost effective in the long run. The current system, EXFC, has been criticized as a costly

³³ *Id.* The question still exists whether all barcodes contain information necessary for service performance measurement. For example, a carrier should be able to collect the required information after scanning Full Service IMb barcode. Mail participating in only the Basic IMb service will be most likely excluded from service performance measurement. See *Id* at 11.

³⁴ Opposite to the proposed SPM system, EXFC measures service performance of mailpieces with or without the barcodes. As the Postal Service confirms, "EXFC mailpieces are... "hand- or machine-addressed; stamped and are different sizes, colors and weights." Postal Service Plan at 22.

system.³⁵ The OIG Report found that in FY 2011-2012, EXFC was more than twice as expensive as IMAPS.³⁶

Table 2 provides the breakdown of the Postal Service's current annual costs associated with different systems of service performance measurements. After implementation of the Postal Service Plan, costs associated with service performance measurement of International Mail and Special Services should not change and will be the same as shown in Table 2.³⁷ Although it appears that the Postal Service is planning to significantly reduce costs of the service performance measurements of Single-Piece First-Class Mail, the amount of associated costs remains unclear.

Table 2: FY 2014 Postal Service's Costs Associated with the Service Performance Measurement

Class, Category of Mail	Measurement System	Annual Costs (Million \$)
Single-Piece First Class	External, EXFC	28.07
International Mail	External, IMMS	1.17
Special Services	External	0.57
Multiple Other	Internal and External	11.19
Total ³⁸	Internal and External	41.00

Source: Responses to CHIR No. 1, Question 1.

³⁵ See Evaluation of the External First-Class Measurement System, USPS Office of Inspector General, Report Number FF-AR-12-006, September 18, 2012. (OIG Report).

³⁶ IMAPS, Intelligent Mail™ Accuracy and Performance System, is a part of the hybrid system that the Postal Service currently uses to measure service performance of commercial mail (from Start-the-Clock to last processing scan). Postal Service Plan at 25-26.

³⁷ Responses to CHIR No.1, Question 4.

³⁸ In FY 2013, the Postal Service also incurred \$0.17 million for the biennial special study for off-shore locations. *Id.*

First, the Postal Service estimates the *nonrecurring costs* to implement the Postal Service Plan are \$10.75 million. These costs include \$2.10 million for internal “costs related to field training and project management of the SPM sampling interface,” and \$8.65 million for “the external vendor costs related to the design and development of the SPM application, sampling methodology, and sampling interface.”³⁹ The “one-time” costs are still not limited to the costs specified above. The Postal Service states that there are other internal costs associated with time that the Postal Service personnel spends on implementation of the Postal Service Plan. However, the time spent on each assigned responsibility is not captured. *Id.* The Public Representative believes that if the Postal Service took into account these “hidden” costs, the nonrecurring costs to implement the Postal Service Plan would be significantly higher than they are estimated now.

Second, the Postal Service estimates *recurring annual costs* of \$12.25 million. However, these costs are associated with the “external vendor support of the system” only.⁴⁰ The Postal Service confirms that it “has not developed any estimates for employee scanning or internal postal program management costs” and has no basis to estimate [the remaining] internal costs. Moreover, the Postal Service has not attempted to estimate the additional costs associated with the activities in which personnel are engaged for purposes of the service performance measurement, either on the First Mile or the Last Mile. Again, the Postal Service states that it does not have any basis for estimating such costs. The Postal Service also adds that “[n]o special cost study of these additional activities has been conducted.”⁴¹

The Public Representative concludes that the Postal Service has not provided any reliable or justified estimates for the costs of the proposed internal three-stage

³⁹ Responses to CHIR No. 1, Question 3.

⁴⁰ Responses to CHIR No. 1, Question 4.

⁴¹ Responses to CHIR No. 1, Questions 7 and 8.

service performance measurement system that is intended to replace EXFC. The Public Representative believes that the Postal Service's failure to attempt to estimate the *internal costs* of the *internal measurement system* is a major oversight. The Postal Service Plan assumes the integration of the proposed SPM system into the Postal Service's internal operations. Such integration, however, might result in an increase of the annual internal costs. If the Commission approves the proposed SPM system, the Postal Service will be required to calculate and report the costs associated with the new measurement system pursuant to 39 U.S.C. § 3652(a)(1) and 39 C.F.R. § 3050.

C. For Presort Mail, the Postal Service Proposes to Replace External Reporting (currently used for measurement of service performance on the Last Mile) with Mail Carrier Scans at Delivery.

For different classes and categories of Presort Mail, the Postal Service currently uses the hybrid measurement system that combines an internal measurement approach from Start-the-Clock⁴² to final processing (mail processing factor) with the external reporting on the Last Mile.⁴³ Currently, the selected and trained reporters provide information on actual delivery dates for mail with Full Service IMb. A final estimate combines the Last Mile results with the measurement scores obtained by the internal system for the mail processing factor and produces the overall service performance estimates.

The Postal Service will continue to use the same measurement system between Start-the-Clock and final processing as it uses now, but proposes to replace the external reporting with mail carrier scans on the Last Mile. After review of the Postal Service Plan related to development of the delivery factor on the Last Mile for Presort

⁴² For Presort Mail, Start-the-Clock is the documented arrival time at the postal facility, *i.e.* at the Business Mail Entry Unit (BMEU) for First-Class Presort Letters, Cards and Flats. See Postal Service Plan at 25.

⁴³ For more information, see Order No. 140 at 8-9.

Mail, the Public Representative concludes that the underlying methodology is similar to the one proposed for the Last Mile impact estimates for Single-Piece First-Class Mail. Since only mail with Full Service IMb is subject to service performance measurement here, all mail on the Last Mile should have scannable barcodes and, consequently, a chance to be included into the measured sample. However, it is very important to ensure that the measured mailpieces with Full Service IMb are representative of the entire population of presort mail, subject to service performance measurement. The Public Representative also needs to remind that the Stop-the-Clock time will be estimated differently than it is estimated now. Consequently, the concerns described above in Section II.B.3.(a) will remain applicable. The Postal Service should initiate the intermediate state of service performance measurement by performing testing and comparing the results obtained from external reporting and the proposed system for different categories of presort mail and for different service standards.

III. CONCLUSION

The Public Representative respectfully submits the foregoing comments for the Commission's consideration.

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