Commissioner Brad Avakian
Bureau of Labor and Industries

Contact: Kate Newhall, Legislative and Communications Director
971-673-0786
Rick Gardner, Performance Measure Coordinator
503-378-3117

BOLI - Composite Measure Elements and Data Summary

1. General Overview

These two proposed KPM's would become the primary method for assessing, improving and reporting how well BOLI is achieving the terminal outcome of providing core services in Civil Rights and Wage and Hour operations in a timely and effective manner. These proposed measures are also structured to serve as the data foundation for ongoing process improvement efforts and extended quantitative analysis of these functions to help drive continuous improvement.

People are most accustomed to composite measures in the form of indices such as the Standard and Poor's, or the Consumer Price Index, in which numerous individual measurements are aggregated into a single number and then tracked over time. This single number becomes a definitional outcome. In the case of the Consumer Price Index, the final aggregated expression has come to represent the outcome of one significant factor in looking at both the overall health of the economy and such things as inflation in core prices.

Composite measures have two primary advantages; they allow a broader and more complete range of measures of a complex process without resorting to several individual measures, which then have to be correlated; composite measures show a big picture at a glance. Secondly, they allow mixing different types of data together. A composite can be formed of time, quality, and frequency datasets even though each of these individual things is measured differently. An index can also be formed of positive (increase) and negative (decrease) expressions, simultaneously.

Most frequently, even in a complex process there are a small number of critical variables which can be identified. The basic idea is two-fold: first, to clearly identify the most critical performance variables in a given process and measure them; and, to "compress" or aggregate several variables to form a more complete "picture" of a complex process which can be reported out more simply and understandably.

2. BOLI Composite Measures Rationale

These two measures represent a new type of KPM in the system, a composite (multi-element), Statistical Process Control (SPC) based measure. While the design of such measures can be somewhat complex, in operation, maintenance and reporting they are quite simple and very accessible to a wide range of users.

This type of measure offers several advantages over more traditional KPM's.

- **Outcome-based**: The measures provide a simple expression of the targeted outcome, which can be understood by a variety of users at a high level, virtually at a glance (quasi-dashboard).
- **Transparent**: Every step and element in the measure (including all calculations) is transparent and anyone wishing to do so, can "unroll" the measure back to the raw data if need be; all calculations are provided so that auditing is greatly facilitated. The use of discrete components also allows for the measure to be disaggregated completely back to the original raw, non-normalized data and provides a virtual line of sight through the entire process.
- **Statistically-based**: From the mechanics of the measure, through built-in quantitative analysis for continuous process improvement, to true mathematically-based targets, these measures are constructed in a manner consistent with accepted scientific and statistical methodology. This means the output is both accurate and valid, as long as the raw data is accurate and complete. This means it is possible to build algorithms in the measure to forecast impacts of changes in volume and or resources.
- **Stable Expression**: Because the measures are based on a set expression, continuity in the measure over a period of years can be achieved.
- **Multi-User Utility**: The measures are designed to be of use for a wide range of purposes and consumers. Of particular note is the fact the measures help drive data-based performance analysis at the agency level, while providing more accurate and usable data to both budget and policy decision-makers.
- **Integrated**: Each of the measure components is supported by additional agency operational metrics. In this way the KPM's will be fully integrated into the agency management system and practices.

3. Value of Time as a Process Measurement

Time (as a primary measure of any process performance) is highly significant because ineffective processes produce delays, bottlenecks, redundancies, gates, wait-time, and other non-productive effects, each of which negatively impact quality, customer service and efficiency of operations. While it is possible (and often the case) that good service can be provided with poor processes, it requires significantly more resources to compensate for ineffective processes.

For these reasons, even though these two proposed measures do not specifically speak to "Quality" in the more traditional sense, they speak clearly to **process** quality, which along with customer service, are the primary determinates of a technical definition of quality in service organizations.

From restaurants providing food to patrons, to issuing car licenses to the public, the end-user (customer, claimant, applicant, etc.) experience is first framed by, "*Did I get what I needed/wanted/requested in a prompt, timely and courteous manner*?"

Through the entire range of service organizations it is primarily process quality that determines the answer to this question. Even treatment of customers by employees is driven by how well the process works: frustrated and discouraged employees generally do not deliver optimal service levels, whatever their levels of competency and personal motivation.

The second essential element of timeliness as a primary quality measure is **efficiency**. When a process is short, simple, and works smoothly much more can be done in a shorter time; this reduces costs. For example, if a process is reduced from fifteen steps to five, and from two days to two hours … and if individual employees are provided more autonomy to respond more quickly, a great deal more can be accomplished at any given resource level, when compared to less efficient processes. Through process optimization, gains in efficiency can be achieved.

4. BOLI Specific Issues

Each component of these two proposed new measures is inter-related and interdependent but non-linear in operation. There are time overlaps, stops, and other non-sequential elements in the two processes under consideration, which are a natural part of the actual work being done. Because of these non-linear functions, a straight line measure is relatively uninformative, both of the individual component under consideration, and of the whole. This makes the use of a composite measure (or index) the most effective choice.

The components in the proposed BOLI measures represent the smallest number of functionally distinct process elements in the work being measured. The selected components also represent the entire core process directed at the identified outcome. This means the measures are no more complicated than necessary to form a valid picture of the outcome, but sufficiently robust to be valid and informative.

5. How the measures work

<u>Identification of Essential Components:</u> Each of the components were identified and described by agency personnel in a highly participative and collaborative process. An internal agency workgroup and management worked to identify the essential components of both a Wage Claim investigation and a Civil Rights Division investigation. The phases for both processes are as follows:

Civil Rights Division

<u>CRD Phase I: Intake Inquiry</u>
The first phase of the Civil Rights complaint process measures how long it takes the division to respond to the initial inquiries of potential complainants. The strategy is to

make sure individuals know their rights by answering the inquiries of employees or others who believe they have been discriminated against as soon as possible. Often the individual calling has a need to know whether or not the individual's experience amounts to or may amount to a violation of the civil rights laws of the state of Oregon. It is critical to explain the difference between treatment that seems, and may well be, unfair versus treatment that is unlawful or is a matter over which BOLI has jurisdiction. Internally, the division has a goal of responding to these inquires within two business days; Phase I for CRD measures the length of time it takes the division to respond to these initial inquiries from the general public.

<u>CRD Phase Ib: Completion of Perfected Charge</u>

After intake, and when the intake officer finds basis for filing a complaint, the intake officer sends a questionnaire to the complainant to complete and return to the Division. After the completed questionnaire is received, the intake officer drafts the formal discrimination complaint. In most cases, the intake officer needs additional information from the complainants to draft the charge and will follow-up with the complainants to gather the completed information. Once the formal charge is drafted by the intake officer, it is mailed to the complainant for review. Complainants then must review, sign and notarize the final complaint before the complaint is filed. The day the division receives the signed and properly notarized complaint is the official filing date and the date the perfected charge is received. CRD Phase Ib measures the time, in business days, from when a complainant's questionnaire is originally received by BOLI to the day the perfected charge is received, signed and notarized, by BOLI.

<u>CRD Phase II: Initial Interview</u>

Before a civil rights investigation begins, a complainant (the person alleging discriminatory treatment) and the respondent (against whom the complainant is filing charges) must provide a formal position statement. After a formal charge and allegation has been drafted and filed with the division, the initial interview process includes an investigator obtaining: 1) a response to the complainant's charge from the respondent (i.e. employer or landlord) and 2) a rebuttal from the complainant. Respondents are initially given two weeks to respond to the charges filed by the complainant and then rebuttal interviews are conducted with the complainant. Often respondents ask for extensions to respond to a complainant's allegations, and as a standard, BOLI will regularly grant ONE 2 week extension.

Since a large part of the investigation depends on these initial interviews, it is important that the division provide adequate time for the respondent and complainant to prepare thorough responses. The longer the respondent takes, the longer an investigator is delayed in conducting a rebuttal interview with the complainant. The Division has an internal goal of completing these initial interviews within a 40-day window.

<u>CRD Phase III: Investigation Length</u>

Investigations are conducted by CRD investigative staff who interview involved parties, witnesses, submit requests for information (such as personnel records, employment department data, etc), and examine evidence during the course of their investigation of the complainant. Phase III measures the length of time, from assignment to an investigator to the day the investigation is completed and findings are issued.

The length of an investigation can depend on many factors including the complexity of the case, the cooperation from complainants and respondents, the number of witnesses, etc. and the division has a goal of completing 65% investigations within 180 calendar days.

Wage and Hour Division

WHD Phase I: Intake
When BOLI receives a wage claim from an employee, the first phase of the wage claim process is that the wage claim is reviewed by designated division "screeners" to determine whether the agency appears to have jurisdiction over the matter and whether sufficient information and evidence has been provided to support further pursuit of the wage claim. If and when, through the screening process, it is concluded that the agency appears to have jurisdiction and sufficient information has been provided to further pursue the claim by the division, a "demand letter" (Notice of Claim) is sent to the employer requesting payment of the wages owed to the employee. If the employer responds to the Notice of Claim by paying the employee the wages demanded, the case is closed and no investigation is conducted. If the employer disputes the claim, or refuses to respond to the demand letter, certain claims are assigned to compliance staff for investigation. (Some claims are pursued only through the "demand letter" phase.)

WHD Phase I measures the time, in calendar days, to send a wage claim to an employer after receiving a wage claim from an employee. Often the wage claims received are incomplete and need to be returned to the claimant for more information. Phase 1 measures the time between when a claim is first received, even if incomplete, to the day the demand letter is sent to the employer.

WHD Phase II – Demand Letter
After a demand letter is sent to an employer and no response is received, or the claim is refuted by the employer, if the claim meets certain standards established by the division, the claim is designated to be assigned to compliance staff for investigation. To balance investigator workload, cases are assigned by management based on the date received and the number of cases each investigator is handling. WHD Phase II measures the length of time, in calendar days, cases await assignment to an investigator and the investigation can begin.

WHD Phase III – Investigation
Once assigned to an investigator, WHD Phase III measures the actual time, in calendar days, of a wage claim investigation. From the date the investigator is assigned a case to the date the investigation is closed, WHD Phase III measures the time of a wage claim investigation. If a wage claim is pursued by the division beyond the investigation stage (as in the case of an administrative (contested case hearing) or legal proceeding), the case can remain open after the investigation is closed, and that time is not included in WHD Phase III measurements.

6. Methodology Detail

Data Analysis - Basic

Once the components for each measure were identified, raw data was taken from the agency data base for each component. Using standard methodology, the raw data was analyzed and the following values determined:

1. **Mode** (average) = most **frequent** time to completion for each phase (in days)
2. **Median** (average) = **middle point** of the time distribution (half of the distribution lies on either side of this point)
3. **Mean** (average) = **mathematical average**
4. **Range** (lowest number of days to highest number of days)
5. **Standard Deviation (**statistical measure of variability in a distribution). In this case, the degree of variation in the amount of time required for each phase. Processes with high standard deviations are more variable than those with lower standard deviations.

Data Analysis - Analysis of Distribution

From these calculated values we were able to complete an analysis of distribution. The primary enemy of process quality is variation. To the degree a process varies, it is out of control, and to the degree it is out of control it will produce unpredictable (but generally suboptimal results). The basis of structured process improvement is to first understand and then reduce common and special causes of variation in the process.

Specifically for BOLI, analysis of special causes (characteristics of those cases lasting longer than mean + 2 Standard Deviations revealed an unexplained phenomenon where a disproportionate percentage of long duration cases were with Spanish speaking claimants, independent of agency efforts to have a high level of bi-lingual services available. It is not clear yet why this is happening, but it may well be a non-documented phenomena that extends into other organizations besides BOLI. Without this level of analysis it is likely this would have gone unnoticed. Another finding was a significant issue with data-entry errors (frequently show up as special causes of variation). In the case of the errors, without excising them, the results would have been inaccurate.

One common cause of variation appears to be an issue in the intake process that results in a certain number of applicants having their claim returned for bad or missing information. The agency will need to examine the intake process to see if it can be made less challenging for claimants.

A distribution histogram provides a graphic representation of the distribution of time in each phase. This tool allows anyone at a glance to see basically how the process is working. This also provides agency management with very useful analysis and tracking for process improvement; generally, the higher the level of variation in a process, the more opportunity for improvement.

Data Normalization – Removing Outliers:

There are two specific, sequential methods for normalizing data to be used in an index or composite measure. First, raw data for each proposed component of the index should be normalized before being compared to any specific target by excising anything outside of mean +/- 2 standard deviations and the "excised" data addressed as "special causes of variation."

This should be done for any performance measure dataset, single or composite. These statistical "tips and tails" can have a highly distorting impact on mean-based results because they lie significantly outside normal process variation (thus they are not reflective of performance in the true sense of the word). For example, if the mean of a dataset is 200 and the standard deviation is 20; mean plus/minus two standard deviations would include everything between 160 and 240; anything above 240 or below 160 is removed from the dataset and the mean re-calculated on the remaining data. This will result in a "normalized" distribution, which can then be used for accurately evaluating normal variation within the process

Normalizing Dataset Expressions: Targets within Targets

A common scale or expression is required for a composite or index measure. For purposes of performance measures, setting targets for individual elements intended for the composite measure as a percentage figure is perhaps the simplest and most familiar way of achieving the second level of "normalization." This converts individual dataset values to a common scale based on 100.

For example external to BOLI: dataset A is expressed in numbers of weekly law enforcement traffic stops which result in a defined "enforcement" result; B as the number of highway crashes on targeted routes where excessive speed, alcohol and/or drugs are primary contributors, and C is the total number of enforcement "contacts' made per week on targeted routes.

Obviously, each of these datasets will produce disproportionate counts (the total number of contacts will vastly exceed those resulting in enforcement actions, which will vastly exceed the number of crashes where alcohol and/or drugs are causal factors). Simply combining the raw data and computing the mean will not produce anything useful.
By converting each dataset to a percentage of target, the expression is normalized, but it remains relatively easy to see how each element is performing against its individual target. Using the earlier illustration of a composite for measuring the outcome of increasing highway patrol frequency:

> Dataset A has a target for a minimum of 50 weekly traffic stops which result in a defined "enforcement" action.
>
> > Actuals are 55.
> > Percentage of target = +110%
>
> Dataset B has a target for no more than 25 highway crashes on targeted routes where alcohol and/or drugs are primary contributors.

Actuals are 20
Percentage of target = +120%

Dataset C has a target for 500 enforcement "contacts' made per week on targeted routes.
Actuals are 700.
Percentage of target = +140%

In building the composite performance measure, the three results noted above (converted to percentages of target) are then used as whole numbers, 110, 120 and 140, resulting in an un-weighted total of 370 against a base of 100 for each of the three measures, or 300. In practical terms both actuals and targets have been "normalized" by converting them into expressions based on some ratio of a base 100.

7. The Importance of Targets

Since the output from each component is normalized by conversion to a single ratio expression (% of established target) before it can be used for the index, the logic/evidence supporting both the original individual component and aggregate target methodology is critical to the integrity of the index. If the targets are arbitrary, so will be the output of the composite measure based on them. It's like defining 70 as passing for a test with no real validation or rationale. Legitimate targets can be based on statistical or other criteria (such as Federal Requirements).

<u>Mathematical-Based Targeting</u>
One of the more significant aspects of these proposed measures are the targets, which are mathematically determined, based on analysis of current performance levels. In choosing the % expression for each target, both the range and standard deviations were considered. The goal for the target was to set a value that is reachable based on current levels of process performance (within process control limits), but which can only be met through some level of process optimization (Continuous Improvement).

Once constructed, there is no need to update the original calculations; targets can be set by recalculating process performance against the baseline calculations. The actual number eventually becomes an abstraction, and performance tracking is based on movement of the number up and down, relative to historical values. In this way the measure can be held relatively constant over time without the need to "tweek." Changes in targets can be made more or less transparently because the expression remains % of target.

8. Subject Matter Expert Panel – Component Weighting

Because each of the proposed measure components are not necessarily equivalent in impact or importance to the desired outcome, an SME (Subject Matter Expert) panel was assembled and each component was given a specific weighting (100% agreement from all panel members on all components in both measures was achieved).

Weighting is perhaps the most controversial issue in composite measures. The ideal situation is an index of equivalent elements (each presumed to have similar impact on the ultimate outcome being measured). This is rarely the case. Most often, there are at least two levels of elements: critical, and contributory.

Presumed impact is only one factor in weighting. It also can be used to equalize elements with higher or lower raw numbers. Some elements of a measure may be more prone to confounding variables (longer time period, more impacted by things outside of the program confines, etc.). When this is the case, it might be argued the element is less critical to the measure, because it is intrinsically more random and variable in nature.

Typical factors to consider when weighting elements of a measure are:

- How important is the specific element to the ultimate desired outcome? (impact)
- How much risk (liability, safety, budget consequences, etc.) is involved in the specific element? (risk)
- What is the degree of agency control for this element ? (high, moderate, low, uncertain, etc.) (control)

KPM Measure Expression

In this specific case, the KPM metric would be expressed as a percentage of aggregated target, with a downward trend being positive, and an upward trend being negative.

9. Utility

Because this measure is based on actual quantitative analysis, the agency can readily see the impact of improvement efforts and cost out the impact of significant target or resource changes. The histograms provide essential information on measure analysis, clearly showing specific data and process trends, and each of the calculations is documented for audit and validation purposes. Instead of being essentially arbitrary, targets are based on