Analyzing and improving the CBSA performance using PSES data: Data Science Way

Submission to the Culture Division in the Chief Transformation Officer Branch

<u>Summary</u>

- The following methodology is the industry standard commonly used for improving performance of complex systems. For example, we use it for analyzing and improving the performance of biometrics kiosks (PIK) across all airports. Why not to use to improve the CBSA culture? All the CBSA needs for this is:
    - 1) Complete PSES data (over several years),
    - 2) Data tracking tool such as iTrack PSES Web App (https://itrack.shinyapps.io/PSES), which can be developed in house – specifically tailored for CBSA, or downloaded from pubic domain.
    - 3) Upper Management's will and courage to do so.
- The described methodology is illustrated below using the CBSA-SED as an example, and can be applied to any other directorate within CBSA.
- The agency has Data Scientists (from CDO and SED) , who have right skill-set and motivation to develop the required data science tools, as well as the support from EAP office, trained on dealing with employees' well-being related issues, such as those identified by PSES. Both groups have been already socialized on this proposal and showed interest.
- By formalizing the Culture Improvement process as a scientifically defined problem that has an established way of resolving, the Agency will be able to reduce the level of discomfort and human bias associated with finding and presenting weak results.
- By further keeping the process transparent and visible to all Agency employees, the Agency will be able to further improve confidence and trust of its employees, which - according to PSES results – is identified as one of its key opportunities for improvement.

Methodology:

It is only <u>by comparison</u> that we know that is something is good (or has improved), and something else is bad (or has deteriorated) and therefore needs special attention.

Therefore the following three-step process should be established in order to improve the agency's performance:

- Step 1: Using established performance metrics such as PSES questions (e.g. a question related to employees' confidence in senior management – Question #30), the Agency needs track the results obtained on these metrics "vertically" (i.e. compare results across various Units within the org. chart - as shown in Figure 1) and "horizontally" (i.e. compare results for each Unit across different years – as shown in Figure 2) in order to identify two things:
    A. <u>"High performers" vs. "Low performers"</u> (i.e. the units who exceed GoC / CBSA averages vs. units that have lower results than GoC / CBSA average) .

    → As seen in Figure 1, even though CBSA average (blue box) is rather low compared to Public service average (purple box), the variation of performance in this metric among different Directorates with the same branch (ISTB) is very large. - There are directorates where confidence is even higher than Public Average, while for some others is it much lower.   Consequently, the special attention should be given to the latter.
    B. <u>"Historical events"</u> (changes within the unit or agency) that could be potentially linked to the changes in unit performances.

    → As seen in Figure 2, even though SED score is rather low in recent two years, it has not been the case in the past, when it used to be one of the highest in the Public Service. Consequently, the special attention should be changes that happened in the directorate between then and now, specifically related to the matters in question.

- Step 2: Units/Directorates that have been identified in Step 1 as "low performers" in specific metrics (i.e. where majority of responses are negative) should be required to conduct anonymous crowd-sourcing or facilitated consultation sessions with their employees for the purpose of populating the <u>"list of factors"</u> (i.e. possible explanations on why employees responded negatively to these particular metrics)
    - Since many of those metrics relate to employee's well-being and trust, such sessions may need be facilitated by a third party, for example by Agency's EAP professionals.

- Step 3: The <u>"list of factors"</u> obtained in Step 2 should be shared with Units/Directorates senior management and HR VP – for them to decide if any of these can be fixed.

Figure 1: Variation of performance on Question 30 (confidence in senior management) across directorates within the IST branch.
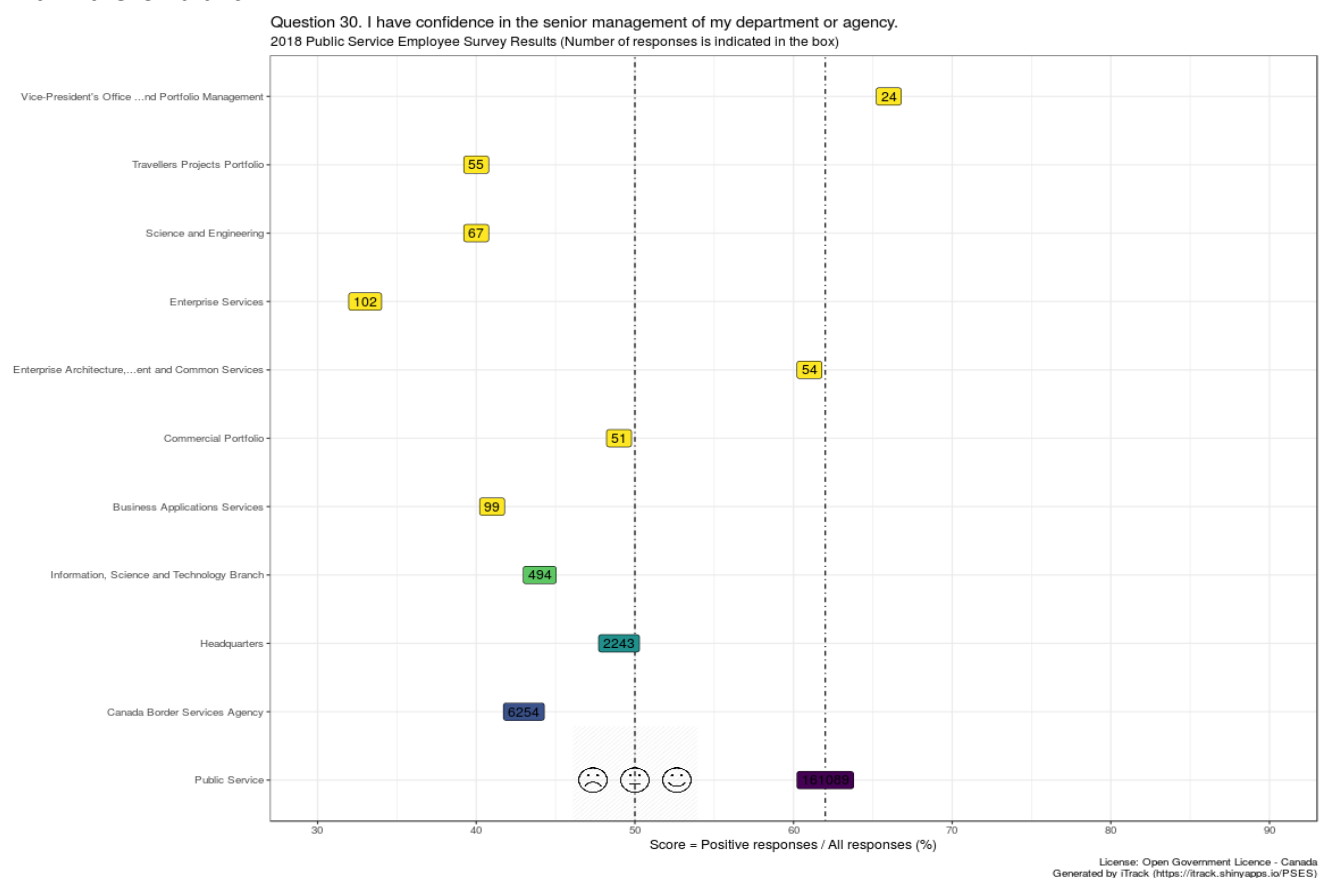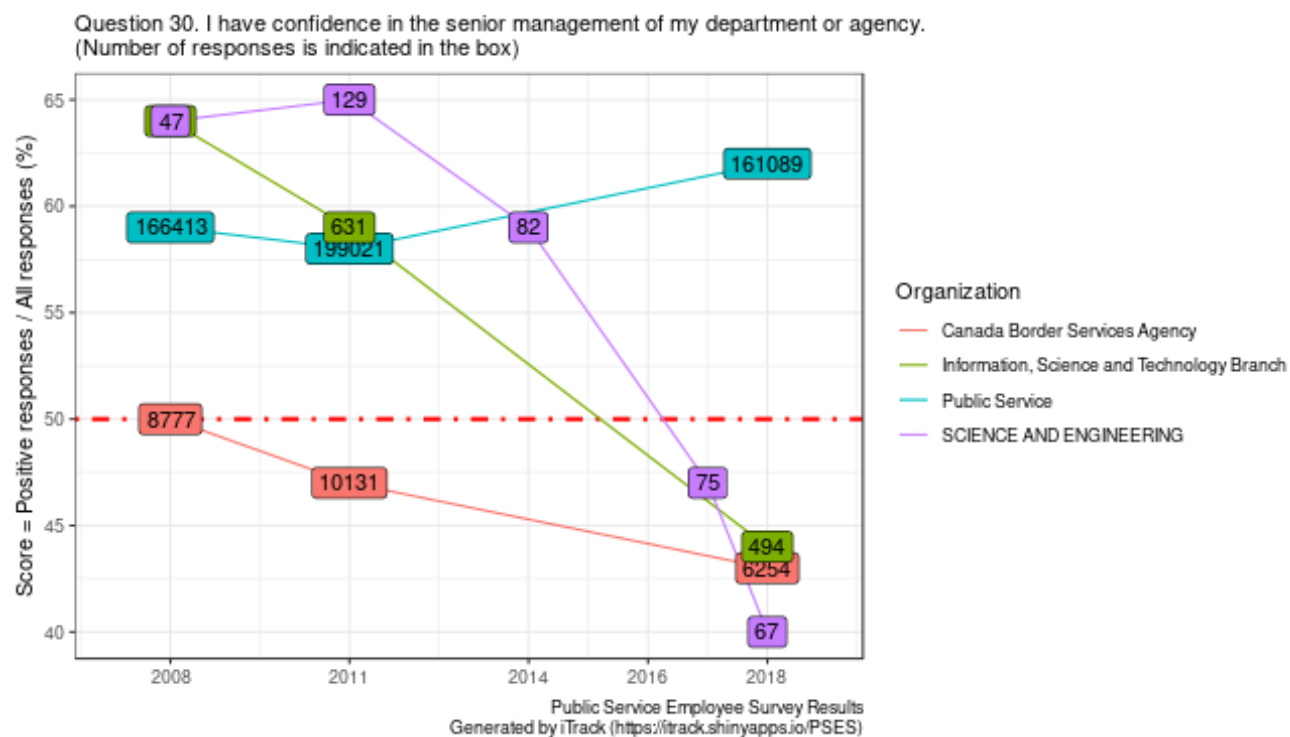

Figure 2: Variation of performance of the Science and Engineering Directorate on Question 30 across years*.

* More examples specific to SED are available at: https://itrack.shinyapps.io/PSES-CBSA-SE