

Case Study of the Effects of the Keynomics Performance System

Back Office Operations



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Introduction

This study was designed to test the effectiveness of the Keynomics Performance System on back office agents. The data focuses on overall throughput.

For an average agent, the productivity gained (8.79%) from the Keynomics Performance System will yield almost 2 more forms per day, contributing to over 1,400 more forms daily throughout a team of 700 agents.

Method

Team members of our client's operations centers were selected to take part in the study. Agents from domestic locations were chosen by our client to complete training using the Keynomics Performance System, referred to as the Pilot group.

The Keynomics Performance System consists of a set of proprietary modules. Twenty-four completed agents from the Pilot group are included in this study. Throughput data was collected for participants for two time periods (pre-training, referred to as "before," and post-training, referred to as "after"). The metric used to measure throughput was VPH, calculated as the total number of forms processed divided by total hours of work.

Keynomics not only focuses on increasing the volume of forms, but also on the quality and performance of each individual agent. The potential savings that can be achieved from the Keynomics quality and accuracy improvements often out-weigh the dramatic time savings benefits. These accuracy gains are reflected in the overall throughput metrics.

Our analysis began with detailed data presented by our client, showing the number of forms processed per hour and the number of processing hours worked on a daily basis for each of the 24 agents. Additionally, a Control group was established for comparison purposes which consisted of 68 agents that did not take part in any Keynomics training. Daily data was also collected for the agents in the Control group.

The pre-training time period begins May 1, 2014 and ends on May 30, 2014, consisting of 28 production days. Because the Keynomics training took place during the month of June, we will disregard this time period. The post-training time period begins July 1, 2014 and ends on July 23, 2014, consisting of over 3 weeks of data.

The goal of this analysis is to determine the efficacy of the Keynomics Performance System on back office agents. As such, we must calculate performance of agents for the time periods directly preceding and directly succeeding their respective training periods.

Scenario 1: Similar Forms

The following table summarizes the results of our findings when including only the forms used by both the Pilot group and the Control group in both the pre-training and post-training time periods.

Control Pre-Training VPH:	3.09 forms	Pilot Pre-Training VPH:	2.73 forms
Control Post-Training VPH:	2.71 forms	Pilot Post-Training VPH:	2.59 forms

Accounting for the Control group's negative performance yields an overall improvement in the Pilot group of 0.24 forms per hour (8.79%).

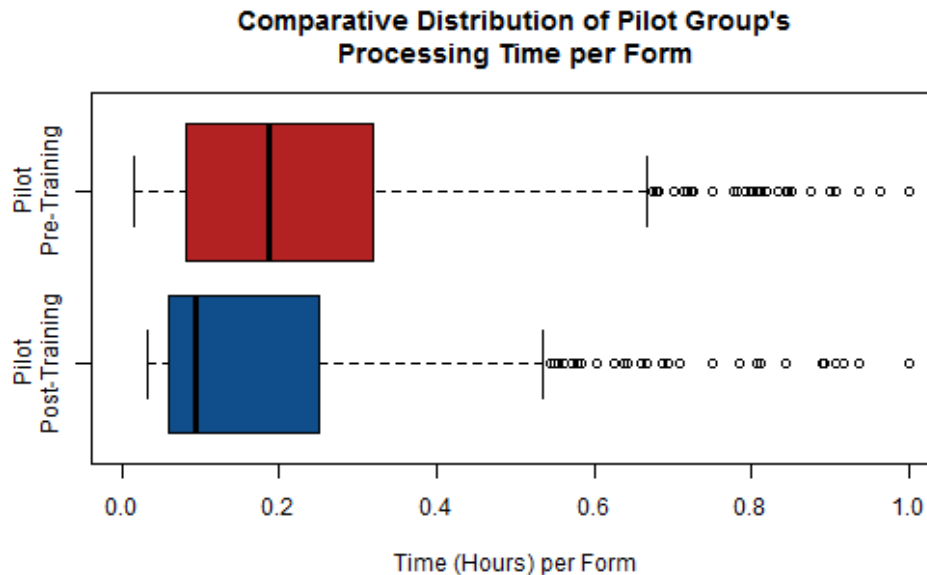


Figure 1: Distribution of average performance (hours per form) of Pilot group during pre-training and post-training time periods.

The above graph displays a summarizing visualization of the overall performance (hours per form) of Pilot participants during pre-training and post-training time periods. Firstly, we can see that the measure of center (average) was shifted lower when comparing the pre-training and post-training periods, indicating that the Pilot group's form processing efficiency increased as a whole. Furthermore, we also notice a decreased inter-quartile range. This indicates that the spread of data (or variability) was also reduced between the two time periods, meaning a centralization of the agents' skills towards a higher level.

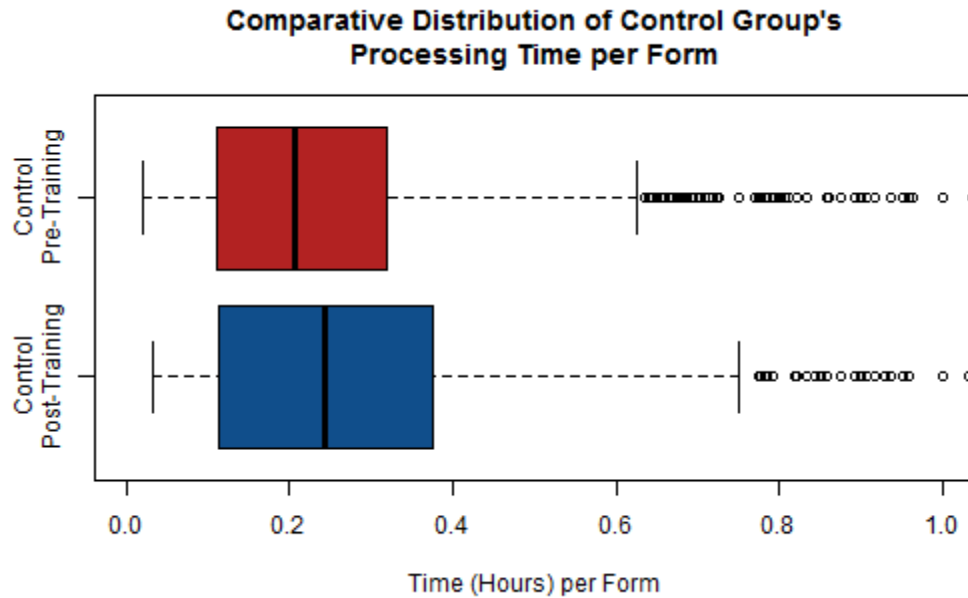


Figure 2: Distribution of average performance (hours per form) of Control group during pre-training and post-training time periods.

The above graph displays a summary of the overall performance (hours per form) of the Control group during pre-training and post-training time periods. Firstly, we can see that the measure of center (average) drifted higher when comparing the pre-training and post-training periods, indicating that the Control group's form processing efficiency decreased as a whole. Furthermore, we also notice an increased interquartile range. This indicates that the spread of data (or variability) increased between the two time periods, meaning a decentralization of the agents' skills.

Normally, we would expect to see the Control group's performance to remain relatively constant throughout the study's timeframe. However, externalities (such as a changing workload or various process changes) can affect the back office environment. The Control group's negative performance reflects how these externalities affected our client's back office during the pilot period. While the Control group experienced a 9.48% drop in performance, the Pilot group was able to boost VPH by 21.59%.

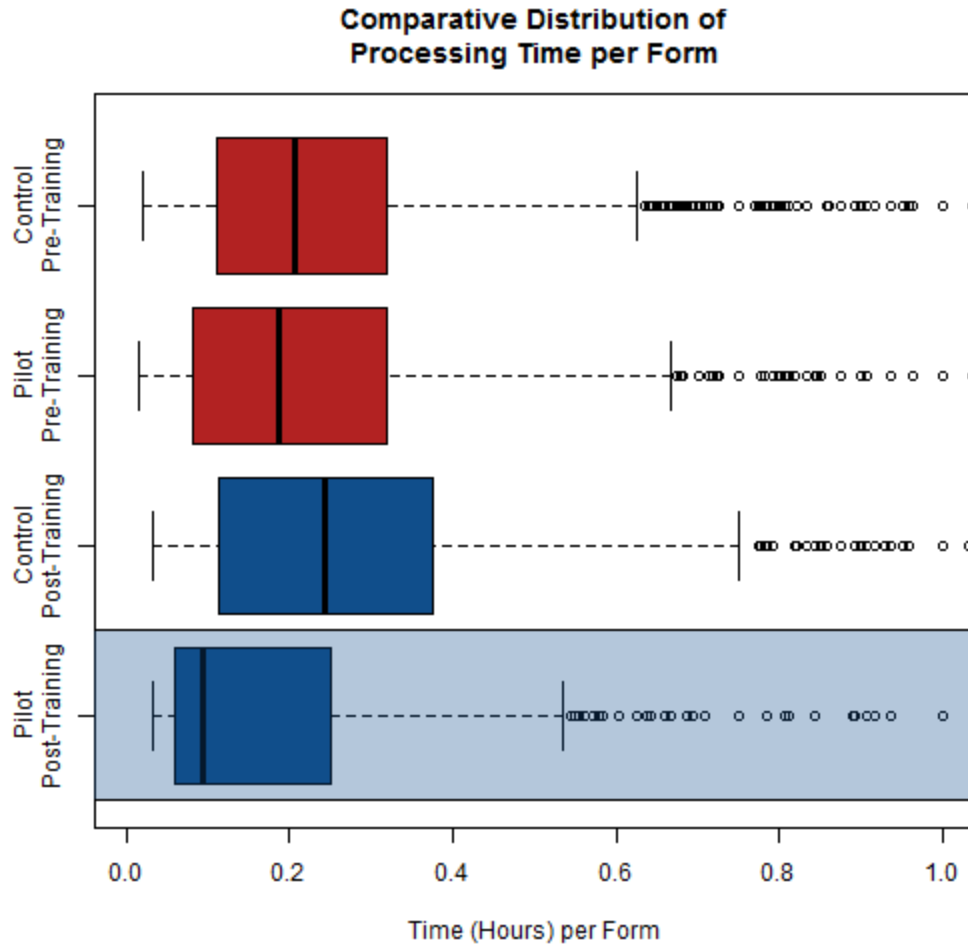


Figure 3: Distribution of average performance (hours per form) of Pilot group and Control group during pre-training and post-training time periods.

The above graph combines the previous figures into one visual. We can see that the Pilot group and the Control group begin with a very similar distribution, which is what we would expect to see because both groups were selected from the same population. However, there is a dramatic difference between the two groups when looking at the post-training time period. This change can be attributed to the Keynomics Performance System because it was the only variable between the two groups.

Distribution of Processing Time per Form for Pilot Group

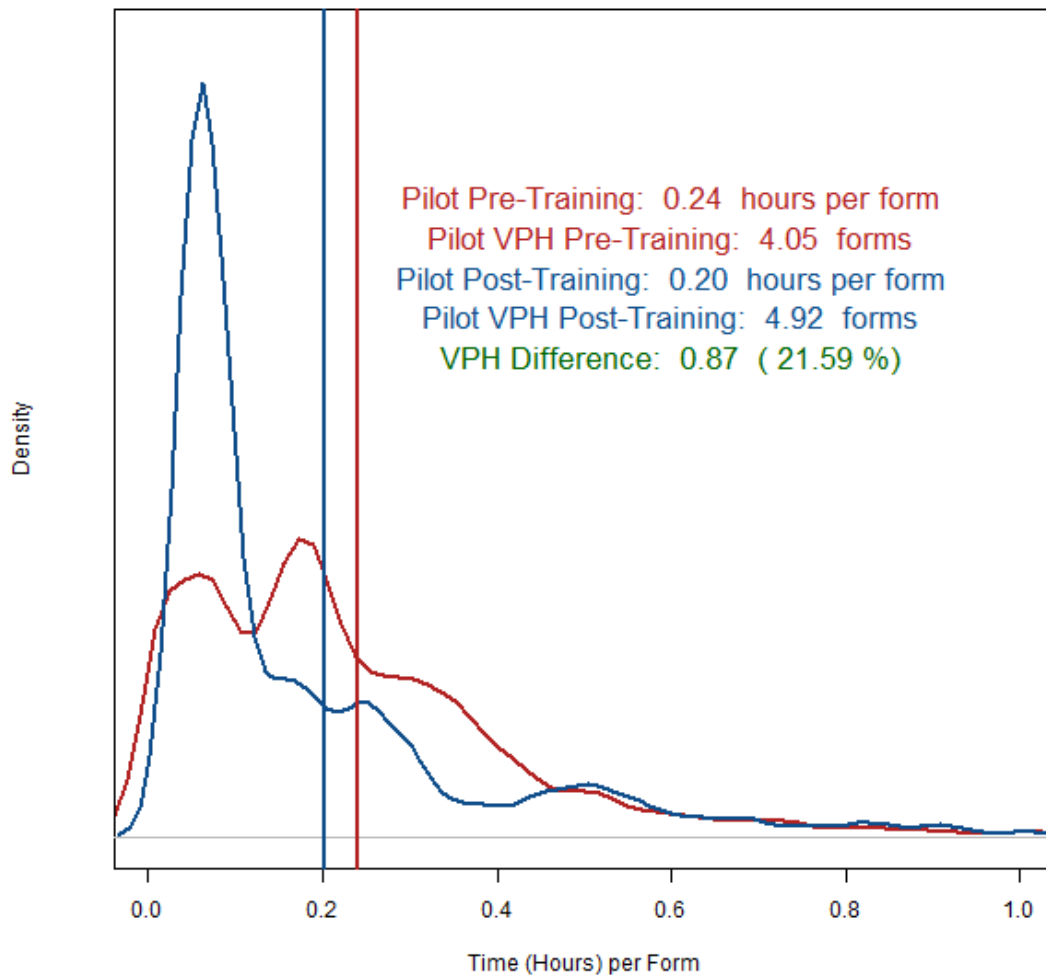


Figure 4: Time density distribution of Pilot group.

Figure 4 represents the density distribution of time per form values for the Pilot group both before (red) and after (blue) the training periods. Before training, average VPH was 4.05 forms per hour. After training, the Pilot group’s mean VPH rose to 4.92. They experienced a raw improvement of 0.87 forms per hour (or 21.59%). Additionally, when looking at the Pilot group after training (blue), we see the shoulders of the density curve to be narrower, meaning a more concentrated central tendency.

The Keynomics Performance System was able to increase throughput, while reducing variance. Why does this matter? A reduction in the variance of VPH allows operations leaders to make better-informed and more accurate predictions with regards to form processing and volume. The rise in VPH increases overall throughput, productivity, & efficiency.

Distribution of Processing Time per Form for Control Group

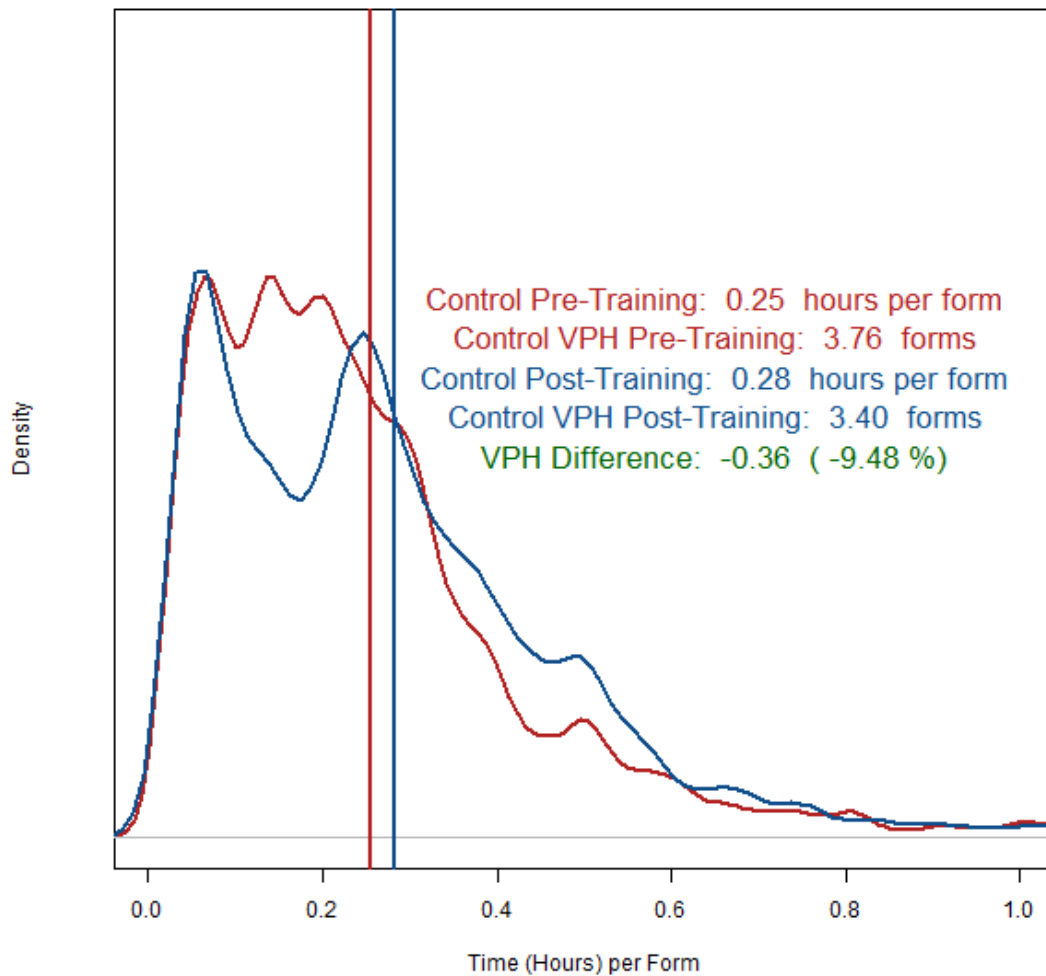


Figure 5: Time density distribution of Control group.

Figure 5 represents the density distribution of time per form values for the Control group both before (red) and after (blue) the training periods. Before training, average VPH was 3.76 forms per hour. After training, the Control group’s mean VPH dropped to 3.40. They experienced a raw decrease of 0.36 forms per hour (or -9.48%). Because the Control group did not go through any Keynomics training, the density curves are relatively similar. The decreased throughput experienced by the Control group can be attributed to external influences (such as seasonality or changing workloads).



When including all available data, we see that the Control group's performance declined when comparing the pre-training time period to the post-training time period. This leads us to believe that there may have been a change in process/workload among many more of the forms. To properly account for these external effects, we removed all forms that weren't handled by both the Pilot group and the Control group in both the pre-training and post-training time periods. The included forms are TRC-Trigger (.NET Q), TRC-PhyCon, TRC-Delprov Standard, TRC-HP Demo Leased, TRC-Delprov Prov Add, TRC-EPDL .Net Queue, TRC-HP Demo Standard, TRC - PSA – GOOD, TRC-PVOS Audit, TRC-HP Demo OHPH, and TRC Trigger.

After accounting for the negative performance of the Control group, the Pilot group's mean VPH improved by 0.24 forms per hour (8.79%).

This increase of 8.79% indicates that the Pilot group was able to adapt to the changing workload/processes more effectively than the Control group.



Scenario 2: Like Forms Comparison

The following table summarizes the results of our findings when analyzing the data with only identical forms across all agents.

Control Pre- Training VPH:	4.31 forms	Pilot Pre- Training VPH:	3.85 forms
Control Post- Training VPH:	3.42 forms	Pilot Post- Training VPH:	3.40 forms
<i>Accounting for the Control group's negative performance yields an overall improvement in the Pilot group of 0.44 forms per hour (11.43%).</i>			

While the productivity gains that Keynomics provides are best seen on a team level, we broke the data down to each agent. We are only including data on forms that existed in both the Pilot and Control group for which the same agent handled the same form in both the pre-training and post-training time periods. These adjustments modify the dataset to include just 19 Pilot participants and just 7 forms. The included forms are TRC-Trigger (.NET Q), TRC-PhyCon, TRC-Delprov Standard, TRC-HP Demo Leased, TRC-Delprov Prov Add, TRC-EPDL .Net Queue, and TRC-HP Demo Standard.

After accounting for the negative performance of the Control group, the Pilot group's mean VPH improved by 0.44 forms per hour (11.43%).



Conclusion & Summary

In conclusion, we have proven that with the training provided by the Keynomics Performance System, the Pilot group has shown a raw improvement in productivity of 8.79% when including all available data.

The following tables summarize the results of the two scenarios.

Scenario 1: Similar Forms

Control Pre- Training VPH:	3.09 forms	Pilot Pre- Training VPH:	2.73 forms
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<i>Accounting for the Control group's negative performance yields an overall improvement in the Pilot group of 0.44 forms per hour (11.43%).</i>			



We strongly believe that through the use of the Keynomics Performance System, our client has an excellent opportunity to increase the productivity and efficiency of all back office operations agents through improvements in accuracy, data entry skills, system navigation skills, review & edit skills, and analytic ability.

For an average agent, the productivity gained (8.79%) from the Keynomics Performance System will yield almost 2 more forms per day, contributing to over 1,400 more forms daily throughout a team of 700 agents.

Keynomics not only focuses on increasing VPH, but also on the quality and performance of each individual agent. For many of our clients, the potential savings that can be achieved from the Keynomics quality and accuracy improvements often out-weigh the time savings benefits. Keynomics dramatically improves not only the speed, but the accuracy of the agents as well. These accuracy gains are reflected in the overall throughput metrics.

With the investment of just 11 hours of training, Keynomics has shown improvements in the core skills and competencies of the average back office operations agent while providing the necessary tools for continuous improvement and major production gains.