

ServiceKey® 4.0 Validation Study

By

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Introduction

The primary purpose of this study was to investigate the relationship between ServiceKey® scale scores and various productivity measures at an energy company. The statistic that is used to show there is a relationship between two variables – for example, the ServiceKey® Energy scale scores and productivity – is a *correlation*; thus, we would expect to find correlations between ServiceKey® scores and productivity. Such a correlation means that the higher individuals score on a particular scale, the more productive they would be in that particular metric.

Method

Participants

- Employees ($n = 141$) took ServiceKey
- Had both ServiceKey data and sales productivity data for 98.5% ($n = 139$) of participants

Measures

- ServiceKey® 4.0: A measure of stable traits – personality characteristics, behavior patterns, and skill competences – related to service-to-sales productivity and team performance.
- Productivity: The Company supplied six metrics.
 1. QA Average is the average quality assurance provided by individuals who monitor customer calls for compliance to training and procedure.
 2. Average Talk Time is the average amount of time a rep spends actually in conversation with a customer.
 3. Average Handle Time includes talk time and time spent entering notes or completing paperwork after the conversation has ended.
 4. Internal Error Rate represents the number of errors made by an associate. More than two errors per month is unacceptable.
 5. Enrollment Gate Conversion Rate is the percentage of calls in which a representative is able to sell something.
 6. Tenure is the amount of time the individual has been at the firm.

Procedures

- ServiceKey® data and productivity data were entered into and analyzed using SPSS 17.0.
- Numerous analyses were conducted to explore the data: tests for normality, search for statistical outliers, etc.
- In each individual correlation analysis, extreme outliers (> 3 standard deviations) were removed

Results

Tenure

Tenure at the company was negatively associated with Average Handle Time¹, Average Talk Time², and Enrollment Gate Conversion³. This indicates that the longer someone works at the Company the less time is spent talking with customers and handling their needs. This may be positive in that experienced individuals could certainly be more efficient. However, the result that tenure at the Company is negatively associated with conversion is particularly interesting and perhaps troubling. The longer the individual is employed, the fewer conversions are made. A regression analysis showed that the best predictor of conversion rate was months of tenure⁴.

$$\text{Conversion rate} = 21.54 + (-.58 * \text{months of tenure})$$

Obviously, this kind of model has built-in practical limitations: if someone is employed for two thousand months, their conversion rate won't drop to 0. But it might be interesting to calculate the average conversion rate after 12 months, 24 months, etc. The model is also limited because our sample did not have 3, 7, or 11 months of tenure, so there wasn't a lot of variance in the data.

Interestingly, tenure at the company was also positively associated with the Communications scale⁵. This leads us to conclude that the longer someone is employed at the firm, the better they are at communicating with a broader range of customer buying styles. This usually indicates that the rep is able to not only meet business needs, but the emotional needs of the buyer as well.

QA Average

Because the QA Average variable did not conform to a normal distribution⁶, the non-parametric Spearman correlation analysis was used. Non-parametric statistical tests can be used for data that are not normally distributed; however, unfortunately they are

¹ $\rho = -.40, p > .0001$

² $\rho = -.42, p > .0001$

³ $\rho = -.45, p = .0001$

⁴ This model $F(1,77) = 38.55$ is statistically significant $p > .0001$ and explains 34% of the variance in conversion rate.

⁵ $\rho = .23, p = .04$

⁶ Kolmogorov-Smirnov $Z = 1.92, p = .001$

less sensitive than parametric statistical tests. Energy⁷ and Risk Sensitivity⁸ were positively associated with QA Average. This indicates that customer service representatives with more energy, higher activity levels and more of a disposition toward caution and deliberation are rated higher. This makes sense as individuals with higher energy have the resources available to perform well and more cautious individuals will more closely adhere to protocol.

Poor quality calls are associated with individuals who show a lot of Creativity⁹ and considerable Patience with Complexity¹⁰. This result indicates that individuals higher in original thought and individuals who enjoy thinking about complex issues are rated lower. Such individuals likely tend to creatively experiment with customer service approaches or “over-think” interactions with customers and therefore get rated lower.

Internal Error

Because the Internal Error variable did not conform to a normal distribution¹¹, the non-parametric Spearman correlation analysis was used. Non-parametric statistical tests can be used for data that are not normally distributed; however, unfortunately they are less sensitive than parametric statistical tests.

Seven scales proved to be significantly correlated with making errors on calls. Confidence¹² is the optimism of the individual. Being over-confident apparently leads to errors. Initiative¹³ is the pro-activity of the service rep. Showing a lot of Initiative may create the attitude that it's easier to ask forgiveness than permission when uncertain about how to handle a certain situation. Related to this is the correlation between Service Aptitude and the Internal Error rate¹⁴. Although not as strong a correlation as some of the other scales, the more helpful an individual wants to be to customers the more likely they are to make errors. The statistically significant correlation between Internal Error and Coachability¹⁵ may indicate that the more dependent on managers and trainers the service rep is the more errors he or she is likely to commit. Creative people make more errors¹⁶.

Average Handle Time

The Average Handle Time variable was normally distributed and positively associated with Goal¹⁷ and negatively associated with Energy¹⁸. Higher Goal scores are indicative of individuals who are intrinsically motivated to do the “right thing.” People with more Energy are able to get more done in the same amount of time. So this finding

⁷ $\rho = .17, p = .05$

⁸ $\rho = .19, p = .03$

⁹ $\rho = -.19, p = .03$

¹⁰ $\rho = -.17, p = .04$

¹¹ Kolmogorov-Smirnov $Z = 5.08, p > .0001$

¹² $\rho = .14, p = .10$

¹³ $\rho = .15, p = .08$

¹⁴ $\rho = .19, p = .03$

¹⁵ $\rho = .20, p = .02$

¹⁶ Creativity ($\rho = .17, p = .05$)

¹⁷ $r = .15, p = .09$

¹⁸ $r = -.19, p = .03$

suggests that handle time is increased by people who may actually be going the “second mile” for a customer but they may be doing so primarily to avoid working at a faster pace.

Average Talk Time

The same can be said for Average Talk Time as this variable was also normally distributed, positively associated with Goal¹⁹ and negatively associated with Energy²⁰.

Enrollment Gate Conversion Rate

None of the ServiceKey® measures correlated with enrollment gate conversion rate at statically significant levels; however, Gate Conversion Rate is correlated with average handle time²¹ and average talk time²². The fact that we were able to find correlations of test scores with the time variables but not the conversion rate variable suggests that there may be “noise” in the data.

Predictive Validity

A binary logistic regression was performed to assess the extent to which ServiceKey® predicts producers whose Enrollment Gate Conversion rate meets or exceeds 20% and those whose Enrollment Gate Conversion rate is lower than 20%. All ServiceKey® scale scores along with years in sales and tenure at the company were entered into the model. This model was statistically significant²³, indicating that the model was able to distinguish between the two groups. The model as a whole explained between 44%²⁴ and 60%²⁵ of the variance in group membership, and it correctly classified 82.3% of cases correctly. As shown in Figure 1, the model was better at classifying those who did not reach the 20% target (90.2% accurate) than those who reached the 20% target (67.9% accurate).

¹⁹ $r = .14, p = .10$

²⁰ $r = -.18, p = .04$

²¹ $\rho = .50, p > .0001$

²² $\rho = .57, p > .0001$

²³ $\chi^2 (24, N = 139) = 45.11, p = .006$

²⁴ Cox and Snell R square

²⁵ Nagelkerke R squared

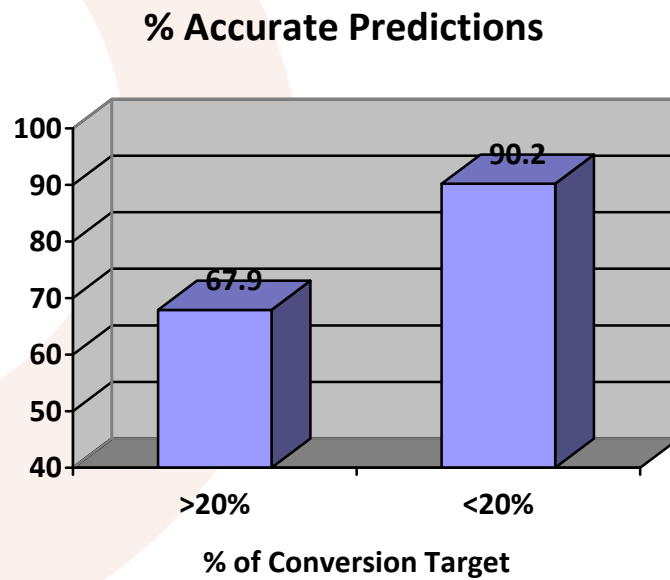


Figure 1

Discussion

The challenge is how to make a statistical model user-friendly. The answer lies partly in building a regression formula, if possible, that will predict the Enrollment Gate Conversion Rate at an acceptable level of accuracy. As it turns out, we were able to build a formula that works fairly well within the sample of those tested and we are 99% confident it should generalize to the broader population.²⁶

This formula will remain proprietary but ServiceKey® will include the output on the Graphic Summary report (on page 2). **This statistic is not a guarantee of performance but a mathematical indicator of the individual’s sales capabilities.** The formula will be a useful tool when comparing profiles or for evaluating overall service-to-sales performance within a relatively stable environment that continues to reflect the business realities of those involved in the study. Over time, the formula will need to be re-evaluated every 2-3 years so that it might become more and more reliable as a predictive tool. However, there is no substitute, regardless of statistical sophistication, for a properly trained manager or recruiter knowing the assessment and the inter-workings of its many robust measurements.

²⁶ $r_{xy} = .46, p > .0001$

In preparation for interviewing prospective salespeople, managers are encouraged to review the following scales of interest. (These scales will be highlighted in the ServiceKey® report.)

1. Above average **Energy** scores (65-89), but not exceptionally high, as high Energy individuals tend to become frustrated in sedentary jobs.
2. Strong **Goal** clarity (65-100).
3. Strong **Initiative** (65-100) points to a person who will be proactive with customers.
4. Strong **Creativity** (65-100) individuals will excel at coming up with solutions to meet customer needs.
5. **Patience with Complexity** (65-100) means an ability to think through problems and not become frustrated with details.
6. **Coachability** (55-90) is important for helping salespeople reach higher and higher levels of productivity. Candidates who score above 90 on Coachability may become overly reliant on trainers, managers, and coaches.

Conclusions

ServiceKey® will significantly increase the likelihood of the company selecting individuals who will perform at or above the 20% conversion ratio as well as providing developmental insight into key areas for improving productivity of current employees. However, the purpose of ServiceKey® is not to absolve managers and recruiters of their professional selection responsibilities, but to be one source of data in that process.