

Modeling political campaign contact performance

The philosophy behind the activity, utilization, and performance (AUP) model

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Abstract—Evaluating political campaign contact performance has become increasing intrinsic to running professional contact campaigns. The A-UP contact performance optimization model was designed by practitioners and embedded academics working in the field of contact center management to be simplistic at first and then unfold into a very complex set of evidence based decision making tools to model political campaign contact performance. The A-UP campaign contact center performance model expressly evaluates activity, utilization, and performance. The experimental model was built by contact center practitioners and embedded academics working in the field of contact center management to be simplistic at first and then unfold into a very complex set of evidence based decision making tools. Reporting helps political campaign teams evaluate key performance indicators in terms of both leading and lagging models. Both increased contact rates and better campaign performance provide political campaigns distinct advantages over opponents who are not using optimized contact strategies.

Keywords; campaigns, project management, call center, staffing models, queuing models, workforce management, reporting philosophy, organic growth, leadership theory, key performance indicators

I. INTRODUCTION

Within the following paper the researchers introduce a special case scenario of the A-UP: activity, utilization, and performance model applied to political campaign contact center operations and strategy. Future research will deal with the generalization of the model based on comparing multiple case studies, but the scope of this paper has been limited to the special case example of political campaigns (McNabb, 2002). The special case scenario examined within this paper provides a use case that has clear cycles with distinct evaluation points based on political campaigns. The A-UP model was designed by seasoned industry practitioners and embedded academics working in the field to be simplistic at first and then unfold into a very complex set of reporting elements.

A. Reporting

The reporting elements can be the basis of linking a compendium of strategic organizational goals to evidence based key performance indicators to realize the goal of mixing performance evaluation and strategic planning (Ginsberg, 2013). The key to A-UP model implementation is how the model is rolled out in stages within the organization allowing for organic growth based on the values of accountability, transparency, and

collaboration. The leadership team introducing the model has to clearly define expectations throughout the process. Deployments with a lack of communication will lack a unifying message that clearly defines the organizations performance and strategic goals (Lindahl, 2006). Model adoption can occur organically from the bottom up or even from individual capable of managing up from the middle, but deployment is easier based on top down leadership delivered via a clearly defined project management framework with clear executive sponsorship.

B. Implementation

During the course of implementing the A-UP model within the organization the executive sponsor will have to evaluate the implementation of agent activity reporting before allowing the implementation of utilization reporting. After the organization successfully implements both activity and utilization reporting the executive sponsor will have to evaluate the benefits of implementing performance reporting. Each layer of the model requires ongoing management and review even within mature steady state environments. Contact campaign success or failure can be influenced by internal and external factors. Internal factors include executive interest, staffing, funding, and the availability of certain contact technology. External factor variability should be assumed and evaluated constantly.

C. Campaign Methodologies

Campaigns can be worked via multiple methodologies or channels. Contact can occur via an ever growing multitude of channels including (but not expressly limited to) direct messages within social media, messaging applications, email, SMS text, video calls, or traditional phone calls. Campaign contact performance can be impacted by the mix of contact channels the respondent may utilize. Methodologies need to be selected based on evidence based on what channels respondents are utilizing. Evidence based decision making rules will require that contact success rates can be compared to outcomes as a method of introducing institutional controls. Modeling contact and success rates by evaluating a variety of different methodologies and other factors can help identify meaningful signals vs. chasing noise within the datasets (Silver, 2012).

II. RELEVANT LITERATURE REVIEW

Relevant literature exists within a variety of fields from management sciences to systems theory. The literature spans almost one hundred years and includes a variety of different

academies of thought. Various groups have engaged in extensive analysis related to modeling call center design and even some research exists related to optimizing call center design (Garnett, Mandelbaum, & Reiman, 2002). Both Brad Cleveland (1997) and Ger Koole (2007, 2013) have made substantial easy to read mainstream contributions to the general management level understanding of contact center optimizations. Most technical literature draws inspiration from the complete work of A.K. Erlang (Brockmeyer, Halstrøm, & Jensen, 1948). More recent contributions come from Palm (1953), Riordan (1962), Baccelli & Hebuterne (1981), Halfin & Whitt (1981), and Fleming, Stolyar & Simon (1994) which have created a foundation for future workforce evaluation via complex queuing and telephony evaluations. Boxma & de Waal (1994), Harris, Hoffman & Saunders (1987), and Hoffman & Harris (1986) have provided insights into customer patience within the contact center space by adding to the queuing literature elements that describe respondent preference.

III. THE AUP MODEL

The risks associated with organizational change can be mitigated using modern project management techniques during implementation. A planning phase with the appropriate project management documentation (e.g. PMI based documents like the charter and RACI) should occur before implementation. The combination of setting proper exceptions and beginning with the end in mind goes a long way to implement a model built on best practices (Covey, 1989). Employees gain institutional knowledge at different rates depending on their unique knowledge, skills, and abilities (Nalbandian & Klinger, 2009). Rapid changes to performance reporting without clearly defining activity expectations can wreak havoc on a labor force. When agents do not understand the expectations they are being held to attrition occurs diminishing institutional knowledge exponentially as the staff turnover (churn) increases. Problems with agent expectations related to job performance can also seriously impact campaign performance. Throughout the process of implementing the A-UP model the executive sponsor will need to be familiar with or be taught how to read reporting metrics related to activity, utilization, and performance.

Ultimately, the three elements of the A-UP model work in concert to roll up into an overall metric that an executive sponsor can use to evaluate the business and make clear evidence based decisions about the future of the organization. Over time a library of these metrics will provide the possibility of longitudinal analysis. That analysis and the specific metrics in question have to directly link to a compendium of clearly defined and accepted key performance indicators used to evaluate organizational performance and strategic objectives at an executive level both quarterly and yearly. The rolled up metrics from the A-UP model can also be expanded back into full equation form for targeted analysis of specific problem areas. Tracking the A-UP model allows for empirical longitudinal evidence based decision making based on key performance indicators. Leaders within high performance organizations have to understand the means of activity achieving outcomes based on definitive statistical modeling. Without an executive sponsor level understanding the metrics will never be effectively communicated throughout the organization to drive performance. Performance modeling and simulation allows

operations decision makers to quickly evaluate how small changes to one element of the model will influence performance.

Specifically, the A-UP model for calculating the gap between the current state and the ideal state reads:

$$N = (A(1 - U))P \quad (1)$$

where N equals the model output, A equals activity, U equals utilization, and P equals performance. The model relies on the assumption that utilization cannot be greater than one hundred percent. If agents are being asked to work overtime, then the total hours worked need to be adjusted to reflect the change. The model for calculating the current state would be

$$N = (A(U))P. \quad (2)$$

Assuming an agent level unit of analysis; activity represents a calculation that derives the amount of usable time one agent can provide per day, utilization represents the amount of activity that is actually being used, and performance remains a multiplier that influences positively or negatively the value of agent activity adjusted by utilization. The A-UP model was designed to provide the possibility of evidence based decision making based on three easily defined elements that can be reliably reported on within any campaign initiative. Deriving the model requires working through the construction of context specific activity, utilization, and performance calculations based on the environment to produce the final A-UP model metrics. The model should always be presented as one ultimate number with three lagging indicators. Separate dashboards should be provided for the long-form calculations underpinning sub elements.

IV. REPORTING PHILOSOPHY

This model requires the leadership team and implementation team within the organization to adapt a reporting philosophy. A reporting philosophy can be designed to provide decision makers with the information they need to lead the organization. Informed evidence based decision making allows leaders to lead based on fact based key performance indicators. Facts are facts; everybody has a finite amount of time available to complete work related tasks. Agents, supervisors, managers, and leadership all have varying amounts of time available to complete a variety of tasks. They ultimately have an even more limited amount of time to spend evaluating reporting. The reporting framework has to be deployed in palatable stages to successfully transform the organization from current state to A-UP model future state. A-UP model deployment involves a project manager (or well informed operations employees that take on the project manager role) working with an executive sponsor to introduce three staged training deployments of activity, utilization, and performance reporting.

A. Generalized Research Framework

For the purposes of modeling political campaign contact performance within this research project a myriad of political campaigns have been rolled up into one generalizable political campaign without any specific campaign affiliations. The model itself should be considered apolitical. Political campaigns are a phenomenon that regularly occurs within discreet timelines.

Each instance of the phenomenon can be studied in detail or research can focus on the generalized aggregate of the phenomenon. The specific element of the phenomenon in question relates to modeling political campaign contact performance factors via the A-UP model.

B. Operationalizing Key Constructs

Three distinct themes or constructs emerge from analysis of the A-UP model related to activity, utilization, and performance. Each of these themes will be operationalized in greater detail throughout the paper. Each of the constructs can be defined down to the specific units of analysis used for discrete modeling.

V. ACTIVITY

A. Defining Activity

The duties and responsibilities of frontline employees can be translated to activity and modeled. During the course of modeling political campaign contact performance activity needs to be modeled at the agent level. Depending on the size of the political campaign the agent level of analysis can be simplified to describe the individuals engaging in contact efforts. Depending on the size of the campaign managers or supervisors are tasked with the daily responsibility of making sure that agents are doing what they are supposed to do when they are supposed to be doing it (Cleveland, 1997). Successful modeling of political campaign contact performance involves having the right people in the right places at the right times doing the right things. Without setting the right expectations agents will endeavor to succeed without knowing what activities are helpful and what activities are hurtful. Ultimately activity A can be reduced to a simplistic equation that compared the organizations payroll hours dedicated to the campaign H to the percentage of assumed shrinkage S:

$$A = H(S). \quad (3)$$

The shrinkage factor S can be defined as the total amount of time the organizations accounts compensate employees for during a given period without receiving any work. Shrinkage is normally expressed as a percentage of time lost. A shrinkage factor can include but is not expressly limited to break, training, meeting, coaching, paid time off (PTO), system time, work avoidance, vacation, sick time (assuming the organization pays for sick time), and potentially other items depending on the organization. Calculating an organizations shrinkage factor involves auditing the total amount of time devoted to the previously enumerated elements.

The activity equation can be calculated based on any unit of time depending on the business need. Agent time is finite and scarce. Within call centers worldwide supervisors or team coaches are given the responsibility of maximizing production quality and productivity from teams of agents. A supervisor's time is also finite and scarce. Both management and supervisors are interested in understanding what agents do with their time. Agent time can be reduced to a metric known as agent activity. Just like time activity is finite and scarce. It is a resource that needs to be managed to ensure the organization is successful. In the world of call centers agents are directly linked to some unit of production. The total space of time they have available can be

measured. Not every moment of an agent's day will be devoted to productive tasks. Breaks, paid sick time, vacation, log out time, technical issues, and work avoidance all represent agent activity that has to be tracked, but will never be productive. Even the most hardened and cynical workforce manager will admit that the best agents will waste five to ten minutes a day. Over the course of a campaign five or ten minutes a day really adds up.

Calculating agent activity involves deriving useful agent time in minutes. The following calculation assumes an agent level unit of analysis based on one month of production. Lunchtime happens every day, but most agents do not get paid for lunch. Companies that do pay for lunch will need to adjust the calculation. Each full time equivalent (FTE) worker has a set 40 hour workweek. Even the most productive agent cannot provide 40 hours of productivity within a 40 hour work week. Volunteer time can be even harder to track. If the flex time is employee drive, then that creates a unique set of tracking challenges. Volunteers sometimes work irregular schedules including some that come and go without warning. Workers that come and go without a defined schedule have to be scheduled after the fact. Shrinkage factors occur that limit the agents useful time:

BR = breaks
 TR = training
 ME = meeting
 CO = coaching
 PTO = paid time off (vacation)
 STO = paid sick time
 LE = paid leave (part time or full time)
 SYS = system log in and log out time
 WA = work avoidance
 OF = other factors

Some factors can limit an agent's useful time, but are not considered pure shrinkage:

AB = Absenteeism (unpaid sick without vacation)
 VTO = voluntary time off
 MTO = mandatory time off

Depending on how the contact campaign is managed the number of planned and unplanned events that effect the calculation for agent activity can vary greatly. Regardless of complexity agent activity can always be reduced to a single number. If an organization cannot derive activity based on current state, then a reason code (sometimes called AUX or auxiliary code) analysis should be performed followed by a series of agent time allocation stakeholder meetings. The executive sponsor can provide top down leadership if specific activity targets need to be defined based on the business need. As an alternative to the base shrinkage based equation for activity Agent activity can be represented as an equation:

$$A = (H - (S + AB + VTO + MTO)) \quad (4)$$

where activity A equals payroll hours H minus the sum of shrinkage (S), absenteeism (AB), voluntary time off (VTO), and mandatory time off (MTO). Shrinkage that occurs within a political campaign could cause undue stress and unexpected results. Any campaigns where shrinkage is not factored in

could mean no one attending activities to represent the candidate. Problems with campaign performance could cause breakdowns in key voting demographics.

B. Coaching to Activity

Within any call center environment or managed campaign an agent's ability to communicate with customers represents a commodity that has to be protected and ultimately refined through coaching. Supervisors coach agents on what is best for the organization with the finite amount of time that agents can devote to completing work.

VI. TWO UTILIZATION MODELS

After the executive sponsor believes that the organization has successfully defined expectations for agent activity the next step in the process involves implementing utilization reporting. After proper activity expectations have been set within the organization a certain amount of institutional knowledge will develop around activity coaching. Without the solid foundation that activity based reporting provides utilization metrics can be misleading.

A. Defining Utilization

Utilization can be somewhat mysterious for leaders who have not been initiated to the secret language of workforce management. Occupancy and utilization are two different concepts that are sometimes incorrectly used interchangeably. Depending on organizational needs these terms may have context specific definitions based on organization specific operational definitions. Thought leaders at the forefront of workforce management and operations research relay on various situational variables to modify the definitions (Cleveland, 1997; Kooles, 2007, 2013). The A-UP model utilization U can be easily derived by dividing the amount of time agents were engaged in productive activities expressed as a percentage of the total amount of time agents could have spent engaging in productive activities (Exony, 2012). Within that utilization definition nonproductive time would not be considered utilized time. Utilization can be expressed as

$$U = PR / (AT + PR + NP) \quad (5)$$

where AT equals available agent time during interval being evaluated, PR equals productive agent time, and NP equals nonproductive agent time for the same interval.

For the purposes of this discourse please consider occupancy to be operationally defined as both productive and nonproductive agent time expressed as a percentage of total logged on agent time (Exony, 2012). Occupancy would be expressed as

$$O = (PR + NP) / (AT + PR + NP) \quad (6)$$

where O represents occupancy, PR equals productive agent time, NP equals nonproductive agent time, and AT equals agent available time (sometimes called agent idle or not ready time). Within the A-UP Model utilization is being used instead of occupancy since utilization evaluates agent time in a variety of categories instead of just dividing idle time (sometimes called

available or ready time) by agent logged on time. For example, an organization could be fully utilizing a workforce of one agent who only logs into the system 10% of the agent's potentially productive time. In that scenario, the organization is suffering a 90% economic loss due to nonproductive time, but the agent is being highly occupied. Both real time and historical reporting would catch this example and allow for corrective action to reduce the work avoidance behavior. The moral of the story is that occupancy cannot be the only metric being considered for evidence based decision making.

B. Coaching to Utilization

Both utilization models are useful for coaching frontline staff and making strategic decisions. The primary utilization model within the A-UP equation can be fully expressed as

$$N = A(1 - ((PR / (AT + PR + NP)))P \quad (7)$$

where

$$PR / (AT + PR + NP) \quad (8)$$

has replaced U. Within that framework coaching could positive or negatively impact productive and nonproductive time. Utilization could also be expressly influenced by changes to the amount of allowed available time within the organization. If the organization is focused on reducing availability and increasing productive agent time then the utilization percentage will be much higher than if the converse was true.

C. Complete Form PR & NP Equations

Both productive PR and nonproductive NP elements can be broken down into more complex equations. This level of the equation tends to be very organization specific. The following complete form equations should be tailored to fit the organization implementing the A-UP model. Depending on the workforce system the organization uses and the best practices the leadership team follows a combination of read codes and not ready codes could be designated as productive or nonproductive. A general form of productive time could be modeled as

$$PR = (MC+T+H+W+TR+ME+CO) \quad (9)$$

where PR equals productive time and PR equals the sum of multi-channel (MC), talk (T), hold (H), wrap (W), training (TR), meeting (ME), and coaching (CO). A general form of the nonproductive time could be modeled as

$$NP = (B+PTO+STO+LE+SYS+WA+OF) \quad (10)$$

where NP equals nonproductive time and NP equals the sum of break (BR), paid time off (PTO), sick time off (STO), paid leave (PL), system time (SYS), work avoidance (WA), and other factors (OF). Both of the models should be customized to reflect what items are considered productive and nonproductive based on the organization. Break time has to be evaluate based on a case to case basis. While break time is non-productive it may be paid time for employees and volunteer time for volunteers.

VII. PERFORMANCE

A. Defining Performance

Performance modeling should always be outcomes based and clearly linked to quantifiable items. Performance has to be uniquely calculated and verified for each instance of the A-UP model. As a metric performance will not only vary by organization it could potentially vary based on organization department. In terms of complexity performance modeling is the most advanced part of the A-UP model. Within the context of the A-UP model performance can be defined as a factor that augments positively or negatively agent activity and agent utilization. Based on the relevant unit of production within the A-UP model P equals performance expressed as a percentage.

B. Performance Implementation

Not every key performance indicator used by the organization can accurately benchmark performance. Some performance indicators are going to have a stronger correlation and degree of causation. Nonaligned metrics may be perceived to be true KPIs, but that perception will have to be replaced by informed evidence based decisions related to what metrics move the needle in terms of performance. Implementing the performance component of the A-UP model will require testing and evaluation based on the specific organization. To ensure the implementation timeline is met various performance metrics should be tested in the background throughout the implementation of the activity and utilization components of the model. The executive project sponsor and key stakeholders have to be able to understand and implement intuitional controls based on the performance metric.

VIII. A-UP MODELING

A. Model Implementation

The organization leadership team will have to implement the model in three stages. Each stage will have to be modeled and benchmarked to ensure A-UP modeling can occur at the conclusion of the implementation process. The model has to be customized to the point that turn-key implementation should be attempted. The A-UP model can be implemented via the fast track approach or a paced reporting glide path for the complete model.

B. Applied Modeling

A multitude of statistical methods are available to describe relationships and begin to model theories (McNabb, 2002). When a statistical problem does not have a precise clear cut solution then the best approach is to begin modeling possible solutions. Applied modeling allows the implementation team to critically assess the model being built. Applied modeling can be conducted by using probability and statistical tools to devise the best chance of predicating future events (Silver, 2012).

C. Leading and Lagging Indicators

Beyond evaluation of key performance indicators various models will be filled with clear indicators. Some indicators within the models will be leading. They will begin to change or have changed before the rest of the indicators change. At the same time some indicators will be very slow to change within

the models. Those lagging indicators can be incredibly important depending on their significance within the model.

D. Optimization Modeling

The optimization form of the A-UP model can be expressed via a numerical optimization equation by modifying the traditional form of the equation

$$f(x^*) \leq f(x). \quad (11)$$

The optimization form of the A-UP model includes two different forms of the equation. The first variation includes the substitution of the primary A-UP model for x:

$$f(A_{t1}(1 - U_{t1}(P_{t1})^*)) \leq f(A_{t2}(1 - U_{t2}(P_{t2}))) \quad (12)$$

or the modification of x to include the loss A-UP model

$$f(A_{t1}(U_{t1}(P_{t1})^*)) \geq f(A_{t2}(U_{t2}(P_{t2}))). \quad (13)$$

The A-UP optimization model can be expanded to include a multi-objective optimization equation via expanding on the basic form:

$$\begin{aligned} & \min f_1(x) \\ & s. t. f_i(x) \leq y_i^*, i = 1, \dots, l - 1, \\ & x \in X, \end{aligned} \quad (14)$$

assuming that y_j^* provides the optimized solution to $l = i$. Each new constraint occurs as l expands from 1 to k . Based on the complexity of the model in question each objective can be modeled based on relative influence and significance.

IX. ALTERNATIVE INTERPRETATIONS

Due to the nature of modeling complex systems each special case or general case example is subject to alternative interpretations and potentially alternative formulaic expressions. That work may be expressly derivative of the base A-UP model or it could be exploratory toward the development of an alternative model. Any alternative interpretation should be formalized and tested against the base model to determine the optimal mathematical expression of the phenomenon in question.

X. FORMALIZED THEORY AND GENERALIZATIONS

The exploratory research methodology applied to the A-UP model represents the first step within research trajectory designed by the research team to build a theory that can predict events based on a series of testable causation driven event chains (McNabb, 2002). Applied modeling based on the A-UP model provides direct analysis of items that can be tested for correlation and degrees of causation based on traditional statistical tests. Beyond statistical evaluation the elements of the model can also be tested against past performance and within the framework of a longitudinal study evaluated against future performance. Several special case examples of the A-UP model will need to be evaluated before a generalized theory could be formally derived.

XI. FUTURE RESEARCH

The A-UP model is currently formatted as a special case model for call centers. The model needs to be generalized to be applicable to other management problems.

Using the case study approach complete a longitudinal study of the model to determine if the model increases executive sponsor confidence in reporting using a survey.

The addition of contact rates and how they influence idle time within the equation.

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