

## *Call Center Management to Create Performance Advantage*

**A Research Program and Industry Forum**

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### **Introduction**

The spring meeting of the Call Center Forum of the Wharton Financial Institutions Center was held May 24-25, 2001. The meeting opened with a summary of the meeting agenda and a discussion of future research directions. In particular, Carol Leisenring, Co-Director of the Center, proposed inviting as guests call center experts who study other industries, such as the telecommunications or airline industries. As an example, the invited dinner speaker for this meeting has extensively studied the telecommunications industry. Participants generally agreed that representatives from other industries, some with a longer history of experience managing call centers than financial institutions, would provide a useful, new perspective on the issues.

The May meeting benefitted from active participation from the Forum's industry participants, as well as a number of invited guests. Meeting participants represented a variety of financial services organizations and sectors; a list of participating organizations is on the back page.

What follows is a brief "snapshot" summary of the meeting's agenda. "Snapshots" of previous meetings are available on the Center's website at:

***[fic.wharton.upenn.edu/fic](http://fic.wharton.upenn.edu/fic)***

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## The Influence of Personal Characteristics and Values on Call Center Representative Information Search Behavior

Lorna Doucet of the University of Illinois at Urbana-Champaign presented preliminary findings of a study that examines how personality characteristics and service values affect information search behaviors among call center representatives. Focusing on 300 service representatives at one retail bank call center, this study also investigates the link between information search behaviors and individual performance.

During her presentation, Lorna described the various personality characteristics and service values that were used in the study. Personality characteristics studied included individualism and collectivism. Individualists are people who like to live independently and do their own thing. Collectivists are people who prefer to cooperate with others.

This study also examined positive affect (the tendency to experience good moods) and negative affect (the tendency to experience negative moods) as well as customer service values such as comprehensiveness (“I enjoy going the extra mile for my customers”); accuracy (“I think it’s important to

make sure my answers to customers’ questions are completely accurate”); and speed (“I think it’s important to be quick on the phone”). The goal of the study was to examine the effect of these individual characteristics on call center representatives’ information search behaviors and performance. Results were presented for three different types of call center representatives –general service, online banking, and special services.

Preliminary findings indicate that the personality characteristics of the online bankers in the study have a significant impact on

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their search behavior and productivity. Online bankers who are more collectivistic, have higher positive affect, have higher value for comprehensiveness and higher value for accuracy are more likely to search for information from a variety of sources (e.g. personal notes, job coaches, other departments, etc.). Surprisingly, these same representatives also scored lower on performance measures of productivity (talk time)

and quality (internal quality scores). On the other hand, these representatives reported higher job satisfaction and higher intentions to remain in their jobs. These results highlight the importance of understanding the links between personalities, behaviors and job performance. Results for general service and special services representatives are still being analyzed.

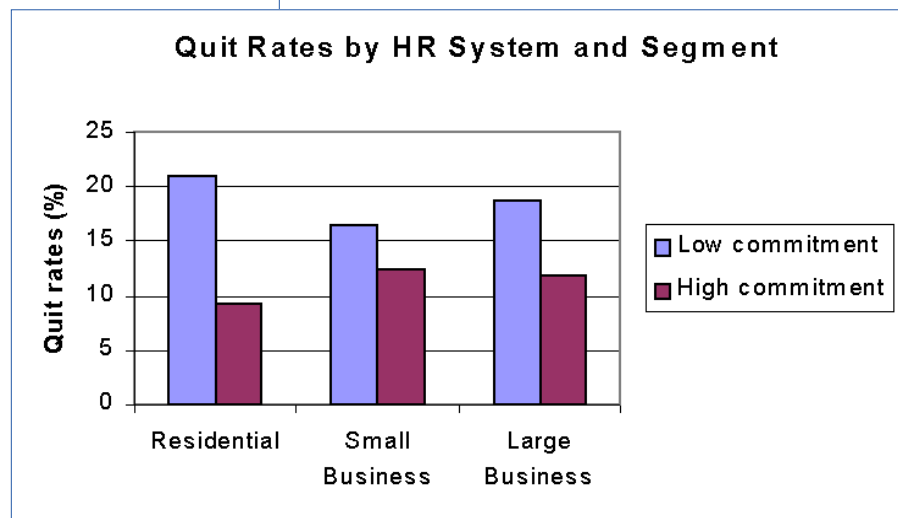
## Predicting Better Performance in Customer Service and Sales

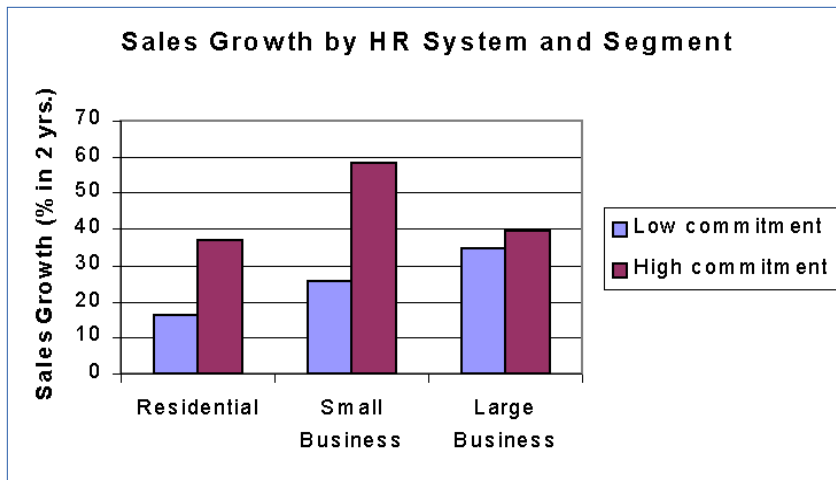
Rosemary Batt, Associate Professor of Human Resource Studies at Cornell University, presented the results of her on-going research on organizational performance in call centers. The central focus of her work is to identify the key management practices that lead to better performance on a range of outcomes in service and sales centers, including absenteeism, turnover, sales, and service quality. What management practices can simultaneously maximize performance along this range of outcomes?

Batt's model of performance includes three dimensions of the HR system: the skills and

knowledge of the workforce, the design of work, and the use of intrinsic and extrinsic incentives. Batt defines a "high commitment" or professional model of service as one in which firms invest in the skills of the workforce, design work to provide opportunities to use those skills (through greater discretion, problem-solving groups, or teams), and provide incentives to induce effort (training, promotion, pay, security).

Batt has tested this model in several studies, with consistently positive results. In one study of a nationally representative sample of 354 call centers in the telecommunications services industry, she found that those call centers that adopted the high commitment model had significantly lower quit rates and higher sales growth. For example, in the residential or mass market, centers that adopted a high commitment approach had a 9 percent annual quit rate and 38-percent sales growth over two years. Their counterparts who adopted a low commitment approach, by contrast, experienced a





22 percent annual quit rate and only 16 percent sales growth over 2 years. (See charts).

The results were similar for centers serving small and large business customers. Quit rates not only increase labor costs associated with recruitment, selection, and training, but also negatively affect sales growth because it takes time for new employees to learn how to serve customers and sell.

To understand the HR practices- performance link, Batt has conducted additional research at a more micro level to understand how management practices influence employee behaviors, which in turn shape performance outcomes. “The link to employee behaviors has remained a ‘black box,’ according to Batt.

Of central concern in call centers is the organization of work. Typically, call centers organize work around the individual-customer interface as the critical unit of analysis. In this setting, the goal is typically to

maximize employee call handling efficiency and adherence to schedules. However, this approach assumes that organizational performance is based on simply aggregating the results of individual interactions.

An alternative approach is to organize individual workers as part of groups or teams of workers. With this approach, the tasks of individual employees do not change—they still interact with customers to do their job—but their resources for information, problem solving, and knowledge sharing multiply. “Performance improves because employees are working smarter,” according to Batt.

In one study, for example, Batt examined the monthly sales of 225 customer service representatives in two environments: self directed work groups and traditionally-supervised groups. She found that the self-directed groups had 9.2 percent higher sales over an 18-month period. Moreover, when combined with the use of new technology, the self-directed groups had an added 17 percent higher sales because members helped each other learn how to use the new technology. In another similar study, Batt examined the use of group-based work in an HR benefits administration company. Service representatives in work groups with stronger group-based goals, incentives, and rewards showed significantly

higher knowledge sharing and problem solving and significantly higher group cohesion and cooperation. These behaviors, in turn, led to higher employee commitment, higher customer satisfaction rates, and lower call abandon rates.

Batt is continuing this line of research in a new study with Wharton faculty, Steffanie Wilk and Chip Hunter. Their new study examines the outcomes of the HR system model in the telecommunications and financial services industries, and compares the results across a range of customer segments—from the mass market to more highly value-added business clients.

## Dimensioning of Large Call Centers

Avi Mandelbaum, Professor of Operations Research and Service-Engineering at TECHNION in Israel, presented ongoing research on the central problem of staffing large call centers. The research has been jointly with his colleagues: S. Borst (CWI and Bell Labs), O. Garnet (Technion), O. Jennings (Stanford), W. Massey (Bell Labs), M. Reiman (Bell Labs), W. Whitt (AT&T), S. Zeltyn (Technion).

Theoretical results, for the classical Erlang-C model, have given rise to a surprisingly simple, accurate and robust rule of thumb for staffing: the square-root safety staffing rule. Under the square-root safety

staffing rule, if  $R$  is the offered load to the call center (measured in Erlangs), then the optimal staffing level is of the form  $R + B \times \sqrt{R}$ , where  $B$  is a positive constant that corresponds to service-grade. For example, if the center responds to 100 calls per minute on average, and the duration of an average call is 4 minutes, then Erlang-C dictates more than 400 agents, and the square-root rule quantifies this "more" to be  $B \times 20$  agents [20 being the square root of 400] for some  $B > 0$  that depends on management strategy. Small values of  $B$  correspond to an efficiently-driven call center, where the focus is on high agent utilization; large values correspond to a quality-driven operation, where high service-level is the goal. Moderate values correspond to a rationalized trade-off between efficiency and service-quality, and this is the recommended domain of operation for well-managed, large call centers.

The square-root safety staffing rule has a conceptual dimension that clearly manifests the economies of scales in running a large call center. It also has an economic dimension, which allows one to determine actual values for the constant  $B$  by trading off service level and agent costs. For example,  $B = 0.5$ , if customers' waiting cost per unit of time are estimated as equal to agents' staffing costs per that unit of time;  $B = 1.5$  if customers' cost are 10 times that of agents' cost. It is thus noticeable, and very significant, that the range of reasonable values for  $B$  is surprisingly narrow ( $B=3$  is already very large!). This underscores the importance of

accurately forecasting the offered load. Particularly where there are high occupancy levels (prevalent in well-managed large call centers), performance is extremely sensitive to staffing levels; small variations in the latter (say by 1 or 2 agents) would give rise to large variations in the former (eg. orders of magnitude changes in ASA or TSF).

The Erlang-C model does not acknowledge abandonment, or time-varying circumstances, or skills-based routing. Yet, such features typically have significant effects on call center performance. These added features are then natural extensions of the model. The first such extension is Erlang-A (“A” for abandonment, but also for the fact that the model interpolates between Erlang-B and Erlang-C). Here theory re-establishes the conceptual dimension of the square-rule safety staffing rule, but now the constant B can also take negative values; the economic implications of this case of the model is a subject of ongoing research. Empirical evidence suggests that again the range of B-values is narrow. Indeed, for large call centers, B = 1 or larger would give rise to negligible abandonment (quality-driven); B = -1 or lower to around 8-12% abandonment (efficiency-driven); and B around 0, preferably positive, would result in about 2-3% abandonment.

For time-varying scenarios, the validity of the square-root safety staffing rule has been demonstrated by simulation, but a theoretical framework is only now being developed. As for skills-based routing, research has just

started, but it is already clear that the road to a solution is long and challenging.

The above theory has been incorporated in the classroom, within a course on “Service Engineering and Management.” Course material is available for downloading on the following website:

**<http://ie.technion.ac.il/Academ/Course/096324>**

Of special relevance to this talk is the course assignment on “Staffing Call Centers: small (Israeli), medium (Italian) and large (American).”

## **Human Resource Issues: Two Different Routes to Employee Retention**

Chip Hunter, Assistant Professor of Management at Wharton, reported on the status of an ongoing research effort on employee retention and performance. This research project has entered a key phase. The researchers have completed a set of investigative site visits to call centers in financial services, telecommunications, and outbound telemarketing, and are now moving forward with a detailed survey questionnaire. The survey method will enable them to explore their research questions with more precision, and to build on the interviews and focus groups that were the subject of the site visits.

The project is focused on employee development, mobility patterns, and careers. The researchers are studying the connections between these aspects of employees' working lives, and outcomes that matter to managers: absenteeism, turnover, and individual job performance.

Site visits continue to suggest that employee retention is a challenge for many call centers, particularly those serving relatively undifferentiated markets, which feature pressures to keep wages low. Among the costs of high turnover include direct costs associated with recruiting, selection, and training of replacement workers. Indirect costs include the gaps in performance between workers who leave and their eventual replacements, and lower levels of learning and group cohesion on the floor (see Rosemary Batt's earlier presentation). In fact, high turnover can create a vicious cycle: as adequate staffing becomes the focus of all human resource management efforts, existing employees are overworked, their training is neglected, and they themselves become more likely to quit.

Conventional routes to improving retention include increased wages and benefits, strategic location of call centers, and better employee-supervisor relations. The presentation suggested two other approaches: job ladders and a "stepping stone" model.

Job ladders require linking call center entry-level jobs to other jobs inside and outside the call center. Job ladders may aid in the

recruitment of higher quality employees. Ladders also provide employees with incentives to perform well in their current jobs in order to achieve promotions. An added benefit of effective ladder systems is that they can help managers to plan flows in and out of particular job categories, and even, to some extent, to control those flows more carefully.

Job ladders have advantages, but they are not always easy to implement in the call center environment. The site visits suggested a number of obstacles:

- Call center jobs may not lend themselves to easy or economical division into separate categories that can define rungs of a ladder;
- Staffing call centers with employees with the skills and abilities required for ascending a ladder can be more expensive than focusing on the minimum required to attract entry-level employees;
- Effective job ladders for call center employees require geographic co-location since employees are not, typically, willing to move for promotions;
- Implementation requires careful and consistent attention to promotion criteria.

A job ladder that is poorly implemented, unable to overcome these kinds of obstacles, may be worse than no ladder at all. Employees whose expectations for promotion are not met are especially likely to perform poorly, to be absent from work, and, eventually, to quit.

The "stepping stone" model is an alternative to job ladders internal to the organization. Establishing call center jobs as stepping stones in employees' careers requires that managers become comfortable with employee turnover, and to see turnover in a new light. Stepping stone jobs provide employees with valuable skills to improve themselves. Such jobs are especially popular with younger workers, particularly those who are pursuing higher education or who have just finished college. If such workers can be convinced that call center jobs are part of a successful career, they may be attracted to work at these jobs for a period of 1 to 3 years, which may be an improvement over existing situations.

Managers can use the stepping stone concept to improve employee performance and to make turnover more predictable if certain conditions are met. Foremost, employees must believe that call center jobs are truly connected to other jobs, and that their performance as call center workers will affect their chances of landing a better position. Thus managers need to look for such connections and to develop them, and to ensure that the best performing employees have every advantage in landing such jobs. In short, performance of individual employees provides incentives when such performance is put into the public domain.

The ongoing research project, which is part of the "Future of Work" program funded by

the Russell Sage and Rockefeller Foundations, will continue to investigate workers' attitudes and employers' strategies with respect to these issues. A survey of call center workers is currently being fielded,

### **2000-2001 Call Center Forum Participants**

- Banca Mediolanum, SpA
- Bank of Montreal
- CIGNA Corp.
- DIME
- Fidelity Investments
- FleetBoston
- InsWeb Corporation
- J.P. Morgan Chase & Co.
- Juniper Bank
- Merrill Lynch

and the researchers are interested in adding further organizations to the project.

Participation in the project has a number of benefits: swift feedback, benchmarking opportunities, and in-depth analysis of individual and group performance in participating call centers. Members who are interested in learning more should contact Chip Hunter or Steffanie Wilk, both of the Management Department, the Wharton School.