Snapshot

The Changing Financial Services Landscape: Call Center Forum Snapshot

Financial Institutions Center

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Introduction

On June 12-13, the Wharton Financial Institutions Center held its spring meeting at the Inn at Penn on the University of Pennsylvania campus.

We attempt to structure these meetings to provide updates on at least several current research initiatives but also add emphasis to a particular project or theme. In the December meeting, attention was focused on e-commerce strategies and the integration of web and telephone channels. In the June meeting we allocated a major portion of the meeting to a discussion of service engineering, introducing a new research partner, Avi Mandelbaum, and including a review of skill-based routing models by Noah Gans.

Other research topics included a follow-up on the recent e-mail management survey by Peter Burns, an update on the jobs and careers research initiative being led by Chip Hunter and Lorna Doucet?s discussion of the survey instrument related to her study of call center representatives' information search strategies.

Our dinner discussion featured a presentation by the Center?s director, Tony Santomero, on the implications of the recent U.S. financial modernization act. Our practice is to use the evening dinner to address a topic of general interest to the group, but not specifically related to the Call Center research agenda. The presentation was drawn from his recent paper discussed at a New York Federal Reserve Bank conference held just days prior to our meeting. The paper, subtitled "Now That Firms Can Do Everything, What Should They Do and Why Should Regulators Care? explored a range of issues facing financial service firms as the new industry structure evolves. In addressing the current wave of consolidations he argued that there are limits posed by the challenges of managing diverse businesses in different markets and different geographies. At the same time, his analysis suggests that the balance of costs and benefits associated with a broader product array favor the more universal financial franchise, but not necessarily at the expense of specialized firms. The innovation that has traditionally come from small firms, incentive compatibility, and the ability to find a niche as more focused competitors, will speak to a future industry structure with a mix of specialized and universal firms.

The meeting closed with a discussion of where we should be

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directing our collective attention in this research program and industry forum. It was broadly agreed that the scope of critical issues extends beyond the limited definition of call centers. A number of suggestions for future research were offered and a "feed-back" form was distributed to solicit other ideas which will be considered over the summer months in preparation for the coming program year. Lastly, it was further agreed that combining one of our meetings each year with a visit to a member site would be productive and members were asked to consider their individual interest in co-hosting one of these sessions.

What follows is a brief snapshot summary of the June meeting, highlighting individual presentations. Academic working papers and other materials related to the Call Center Forum and other Financial Institutions Center initiatives are available at the Center?s web site:

http://fic.wharton.upenn.edu/fic

N.B.: On June 29th Tony Santomero was appointed President of the Philadelphia Federal Reserve Bank. His extensive background and important scholarly contributions and insights in the field of financial services were decisive factors in his selection to this influential public policy position.

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The Financial Institutions Center & Its Call Center Forum

Anthony M. Santomero, Director
Peter P. Burns, Managing Director Financial Institutions Center
The Wharton School

As the director of the Financial Institutions Center, Tony Santomero opened the meeting with an overview of the Center's activities. The Call Center Forum is but one of a number of initiatives within an agenda that spans the three research themes of productivity and performance, financial risk management and the competitive structure of markets and firms. A common thread that links these activities is the emphasis on a close partnership with the industry and executive management.

Peter Burns followed with a brief summary on the evolution of the Call Center Forum and a discussion of dominant research themes. These remarks were drawn in part from a recent *American Banker* article on service consistency in financial institutions, which was distributed with the other meeting materials.

The evolution of the Call Center Forum, now in its fourth year, has closely followed developments within the industry. The initial bank-centric perspective focused on fundamental phone-related productivity issues, but has since developed into a broader view of financial service delivery. Industry partners now include not only banks but brokerage, insurance and specialty finance companies as well. In identifying the critical themes that have emerged from this and other Center related research, Burns focused on the importance of consistency across HR management practices, process engineering and the application of information technologies. Earlier Center research in retail branch delivery demonstrated that consistency throughout a transaction process was a more definitive predictor of improved performance than excellence in any particular step within the process. More recent research has emphasized the need for a similar view of consistency not only within channels but increasingly across channels as well.

Burns discussed the challenges observed in field research around building consistency among people, process and technology. In most financial service firms studied, these factors are separately managed with no structural linkage. Pat Harker and other Wharton researchers have argued for - and an increasing number of firms are now investing in - organizational architects to insure effective integration of these elements and to work towards consistency across channels. In some sense these new managers, often with IT systems backgrounds, are playing a role in service businesses similar to that of industrial engineers in manufacturing environments.

Gans and Zhou have developed a method for efficiently determining effective routing schemes and resulting performance measures. The schemes would be used to do skills-based routing, and the performance statistics would be used in the solution of the related skills-based staffing problem.

Skills-Based Routing

Noah F. Gans, Assistant Professor of Operations and Information Management
The Wharton School
Yong-Pin Zhou, Ph.D. Candidate
The Wharton School

Noah Gans presented a progress report on research that he has been conducting with Yong-Pin Zhou, a Ph.D. student at Wharton, on skills-based routing. The research seeks to develop simple, manageable schemes for handling a common special case of the skills-based routing problem.

To introduce the problem, Gans reviewed a common method that call centers without skills-based routing use to determine staffing levels and work schedules. First, call arrival rates and handle times are forecast for half-hour intervals. Second, in each half hour the "Erlang-C" formula, a longstanding model from queuing theory, is used to translate volume forecasts into minimum staffing levels that meet the call center's service-level targets. Finally, work schedules are constructed to provide that minimum numbers of staff are available in each half-hour. With skills-based routing, the problem of translating volume forecasts into minimum numbers of staff becomes much more difficult at two levels.

First, to determine whether any particular set of CSRs with various skills can meet a service-level constraint one needs to know how the calls will be routed during the half-hour. While some current software provides simulation add-ons that evaluate user-supplied routing schemes, these add-ons do not appear to be equipped to find good routing schemes.

Second, with multiple skills, there are many different combinations of CSRs that might meet service level requirements, and in the course of finding a good set of schedules for CSRs work-force scheduling the program may need to consider several different combinations of CSRs in each half-hour slot. Multiple skills not only make this scheduling task more complex, but also require that many CSR-routing schemes be evaluated.

Gans pointed out that a common case of the skills-based routing problem has a structure that can be handled effectively using their modeling technique. In this structure there are two types of calls, "basic" and "advanced," as well as two types of CSRs, also "basic" and "advanced." While basic CSRs can only handle basic calls, advanced CSRs can handle advanced and basic calls.

In this structure, Gans and Zhou have developed a method for efficiently determining effective routing schemes and resulting performance measures. The schemes would be used to do skills-based routing, and the performance statistics would be used in the solution of the related skills-based staffing problem.

Gans and his colleagues would be anxious to discuss application of these theoretical models in member call center environments. *If you would like to pursue these discussions please contact Noah directly at 215-573-7673 or via e-mail at* gans@wharton.upenn.edu.

Service Engineering in Call Centers

Avishai Mandelbaum
Professor of Operations Research & Service Engineering, Technion

Continuing the theme of service management in call centers, Avi Mandelbaum from the Israel Institute of Technology, Technion, provided an extended presentation on the subject. Combining the relevant parts of service management and industrial engineering, Mandelbaum has coined the term service engineering, defining its goal as the creation of scientifically based tools, often culminating in software, to support design and control: in short, the management of service operations.

> Mandelbaum argues that understanding customer behavior in queues is a pre-condition for improving efficiency and service quality. Indeed, queues provide unbiased quantifiable measures that are relatively easy to monitor and from which goals (both tactical and strategic) can be formulated.

Mandelbaum is a leading expert in the field of stochastic networks and has had a particular research focus on call centers. Working with colleagues from Wharton, he is developing a research initiative aimed at gaining new insights into customer behavior (and effective management interventions) as customers proceed through a call center service network.

In large part it is the network nature of the call center, as opposed to a one-step service environment, that generates the complexity in service engineering. Call centers are by definition congestion-prone networks with particular measurement characteristics, time varying dynamics, and controllable drivers of delay in queues. Beyond the technical structure of these networks lies an equally complex set of problems that arise from customer behavior. In particular, the content of and the means by which customers receive communication in the network will influence their behavior. In Mandelbaum's view, an especially critical behavioral dimension is understanding customer impatience and related abandonment decisions while waiting in queues.

In fact, Mandelbaum argues that understanding customer behavior in queues is a pre-condition for improving efficiency and service quality. This is the arena where customers, servers and managers establish contact to collectively create the service experience. Customers treat the queuing experience as a window to the service provider. In addition to performing transactions, they express preferences, complain, abandon and ultimately make institutional inferences based on the experience. Agents and managers use the queue as a clearly visible proxy for the state of the system, seeing its relative congestion and perhaps recurring operating problems or the impact from marketing programs. Specifically, managers use queues as the means for control and process improvement. Indeed, queues provide unique opportunities in call center environments, not available in many other service settings. They provide unbiased quantifiable measures that are relatively easy to monitor and from which goals (both tactical and strategic) can be naturally formulated.

The presentation included a series of examples from theory based on Laws of Congestion and practical examples from Mandelbaum and others' empirical research. While the lessons learned were many, a common theme emphasized the importance of understanding the high levels of variability throughout the network process and the nature of possible tradeoffs. For example, not only is there a trade-off between utilization rates and service levels but the variability of calls within any utilization range was demonstrated to also have a significant impact on congestion and service levels.

In many of the cases described, understanding the dynamics of customer (and provider) actions on a call-by-call basis was shown as a necessary condition for gaining the insights required to improve performance. In interpreting abandonment rates, for example, Mandelbaum provided data that proved the danger of relying on averages. In one case study he described how researchers determined that a banks high-end customers proved more persistent and less likely to abandon than less profitable customers (for management, a counter-intuitive finding only revealed by the call-by-call analysis).

A Proposal to Collect Call-by-call Data

Following the discussion on service dynamics and the potential for process improvement through service engineering, Mandelbaum re-introduced Noah Gans, who outlined the research teams plans. In addition to Mandelbaum and Gans, the research team will include two members of the Wharton's Statistics Department, Larry Brown and Linda Zhao. Brown and Zhao bring leading edge expertise in statistical analytical techniques that will be a critical element of the resulting data analysis.

The database we intend to create will include the full set of call-by-call network statistics, in particular: date, time of day, time in VRU, time in queue, call time, etc. Data on exogenous factors such as type of call, caller customer segment, CSR skills/training/history, etc. will also be pursued.

The call-by-call data will enable the researchers to analyze behavior of individual customers and CSRs and develop the insights required to address limitations in current industry network models. For participants, tactical benefits will include:

- Understanding their customer wait behavior, which will enable priority setting based on patience, management of call-waiting information and other operational enhancements to customer interactions.

- Understanding CSR service characteristics, i.e. effects of fatigue, learning, tracing top and bottom outliers (i.e. going beyond the averages).

- Understanding relationships among customer, calls and CSRs. How do these relationships and routing strategies impact waiting times and service quality across customer segments.

- Understanding the reasons for and patterns of repeat calls, giving rise to perhaps a more efficient problem resolution process.

(Note: A more detailed project and data description was included in the meeting materials.)

Next Steps:

The researchers will be visiting selected sites over the coming weeks to better define the data capture requirements. Noah Gans will serve as the Wharton contact point on the project. Please call him directly to discuss potential participation in this initiative.
Noah can be reached at (215) 573-7673, or via e-mail at gans@wharton.upenn.edu.

Customer Service Representatives & Information Search Strategies

Lorna Doucet, Assistant Professor, Department of Business Administration
University of Illinois at Urbana?Champaign and Financial Institutions Center Fellow

Lorna Doucet provided a detailed outline of a survey instrument she will be implementing in the coming months to develop additional data for her study of information search behaviors across call center service representatives. This new study is an extension of her previous research into call center rep behaviors, which revealed that improving information search capabilities can have a significant impact on service quality.

In the current study she will be surveying individual service representatives regarding their search strategies and relating these differences to performance. The research is also intended to develop insights into the causes of different search strategies. Her work to date suggests that individual differences in time urgency and preference for independence may play a critical role in helping to explain the variation in search strategies observed in the field. She expects that these differences may affect the degree to which service representatives choose between inanimate (on-line) and social sources in gaining necessary information. These differences may then also affect the time spent using different information sources and improving technical search skills. Lastly, the surveys are intended to develop insights into how these different information search choices impact service representatives? attitudes towards their jobs, turnover tendency, and organizational commitment.

> Doucet's work to date suggests that individual differences in time urgency and preference for independence may play a critical role in helping to explain the variation in search strategies observed in the field.

Next Steps:

Included in the meeting materials was a detailed description of the project and a preliminary survey document. Participating organizations will have an opportunity to customize the survey to reflect the specifics of individual businesses. In addition to access to the general research findings, participating institutions will have an opportunity to assess their own data against the combined sample. The research should not only allow them to gain new insights into current rep behaviors, but should also lead to potential performance improvements.

The surveys will require about forty-five minutes per representative and organizations will need to supply relevant performance data on each representative. Individual identities will be masked and other appropriate measures will be taken to insure confidential treatment of the data.

Forum members are invited to contact Lorna Doucet directly at lmdoucet@cba.uiuc.edu or 217-244-9333 to discuss participation in this project.

Jobs & Careers in Call Center

Larry "Chip" Hunter, Associate Professor of Management
The Wharton School

Chip Hunter described the ongoing research project into "The Quality of Jobs and Mobility Opportunities in Call Centers." The research will be examining call center jobs not only in the financial services sector but, in collaboration with colleagues at Cornell, similar positions within the telecommunications industry as well. A third setting, that of an outsourcing firm with a high concentration of financial service and telecom clients, will round out the range of research sites. As the research develops, the intention is to include representatives from these other environments in one of our future Forum meetings. It is expected that there will be interesting learning opportunities in comparing and contrasting the respective business practices.

> Hunter's research will investigate the current skill levels and mixes in call center jobs, and ask whether these levels and mixes are appropriate for achieving service quality and efficiency. His research will also look at the way in which appropriate skill levels differ across distinct customer segments, jobs and tasks

Hunter and his research team will be addressing a number of questions debated over the years in our Forum dialogues, including:

- What are the current skill levels and mixes in call center jobs?
- Are there levels and mixes appropriate for achieving service quality and efficiency?
- How do appropriate levels differ across distinct customer segments, jobs, tasks?
- Can employees develop careers in customer service and sales?
- Can skill-based job ladders be effective?

Hunter shared data from a telecom example on the correspondence between market segments and job quality. In short, workers serving higher value customer segments have better jobs, more training, lower turnover, etc. than those in lower value segments. While there are particular management challenges in all segments, the economics associated with servicing low value segments puts real pressure on job design. Hunter outlined four options a firm has when planning the job design (noting of course that there may often be overlap between these choices). The firm can (1) take turnover into account in the design, through scripting, technology and monitoring; (2) design the jobs so that they are intrinsically motivating; (3) link these jobs to better jobs as part of an internal career path; and (4) explicitly recognize that these jobs may not have a meaningful institutional context but may rather be seen as one step in a broader career trajectory for workers. This latter choice would then have employers adding differentiated value to workers by the way in which they supported and helped prepare the employee to leave the job, and often the company itself. As the research continues, these and other management strategies will be evaluated and examined in terms of costs and benefits to the firm.

Management of e-mail

Peter Burns, Managing Director
Financial Institutions Center
The Wharton School

As discussed in the December 1999 Forum meeting, call centers in financial service firms struggle with e-mail. Surveys continually reveal poor response quality. In one study, over one half of FI's surveyed failed to respond to customer e-mails. The record for adequately informative responses is even worse. This and other data motivated a group of Wharton students to examine the root causes of the problem. With support from the Financial Institutions Center, Forum members and other financial institutions were surveyed on their e-mail processes. The results of the survey were shared with participants and a short report on their analysis was distributed to those at the meeting. Peter Burns briefly outlined their key findings.

Despite experience to the contrary, a process model developed by the students suggests that responses to e-mail inquiries should be made within hours, not days. Data from their sample, albeit limited, places the blame on capacity overload. Nearly all the respondents reported operating at near 100% capacity resulting in backlog and serious system instability.

As the students examined alternatives beyond increasing capacity with higher staffing levels, they identified four areas where productivity gains could be attained.

- Improve routing methodologies. Too often they found that e-mail messages were being re-routed several times after arrival. Wingspan's providing customers with menus and directions on how to identify the query area was cited as one example of re-engineering the front-end of the routing process to improve quality.

- Improve people skills. As noted in the December meeting, skills required to effectively respond in writing prove to be quite different from those in the phone channel. Particular selection criteria and training vehicles are needed to address these skill issues.

- Examine editing standards. While recognizing concerns for accuracy, the students pointed to the data that suggests that those banks that edited a lower percentage of outgoing e-mail, did not sacrifice accuracy. Editing less, however, did improve response times.

- Integrate with Phone. Log customer e-mails with account history so that phone representatives can reference recent inquiries on subsequent calls. As appropriate, encourage calls to avoid the multiple e-mail trap resulting from complicated or unclear messages.

Meeting Participants

Banca Mediolanum SpA

Bank of Montreal

The Chase Manhattan Bank, N.A.

CIGNA Corp.

Dime Savings Bank

Fidelity Investments

FleetBoston

Huntington National Bank

Merrill Lynch