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POMS President 2004

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POMS—A Vibrant Society

In my last message to you, as President of POMS, I would like to stress some of the progress that our Society has accomplished since its inception in 1989.

POMS continues to become bigger, stronger and more international in its scope and activities. POMS membership has grown to over a 1,000 from 45 countries. The non-USA members account for about 34%. POMS' webpage and chronicle continue to be the major sources of communication with our members and the POM community at large.

Recognizing the relevance of POMS, we are observing a significant increase in the number of applicants to the Wick Skinner awards, as well as the inclusion of POM Journal in the tenure list of some Schools.

POMS has created four colleges: Supply Chain Management, Service Operations, Product Innovation and Technology Management, and Sustainable Operations. The College on Service Operations had a very successful conference in New York in December 2004. The College on Supply Chain Management had its first annual and very successful conference in Chicago in May 2005.

We are making progress on developing a system to make job announcements available to the POM community. The system will also provide opportunities to recent graduates and more experienced POM professional members to post their resume and job interests on the web. A recent related suggestion under consideration is to create a directory of our members' skills.

Our Chicago conference was most likely the largest one to date for POMS. More than five hundred participants with a strong international component registered for the conference. This was a remarkable event that demonstrated the strength of the Society and the commitment of its members to advance the theory and practice of OM.

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Upcoming POMS Conferences

POMS College of Service Operations

December 2-3, 2005

Monterey, California

(details on page 17)

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news & announcements
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*Electronic copies of current and past issues of
POMS Chronicle are available at:*

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FROM THE EDITOR

It gives me great pleasure to launch the 1st issue of POMS Chronicle for 2005. On behalf of the editorial team I would like to thank the leadership and support of Professor Gabriel Bitran and 2004 POMS Board. We also welcome Professor Kasra Ferdows (POMS President 2005), Professor Hau Lee (POMS President-Elect 2005) and the new POMS board.

The current issue of POMS Chronicle includes a rich array of articles related to operations management research and practice:

- Deb Bishap and Brad Meyer describe how Florence Nightingale was truly an Operations Management pioneer;
- Lori Cook and Jim Belohlov discuss the challenges and opportunities of becoming a quality award examiner;
- Nitin Jogleker and Stephen Rosenthal discuss the evolving role of RFID;
- Nicole DeHoratius explores inventory inaccuracy within retail supply chains;
- and Neale Smith and Jorge Limon-Robles address strategic price optimization for manufacturing sector.

This issue also contains a number of conference reports including images from POMS annual meeting in Chicago (April–May 2005) and call for papers for various special issues and conferences. I hope that you'll find the content of this issue to be interesting.

As always, the editorial team is looking forward to receiving news items and discussion articles from POMS members.

...President's Message ... from page 1

The growth of POMS and its key role has facilitated the association with other international societies. We are planning an international conference in Shanghai, China in 2006 with China Europe International Business School (CEIBS) as a co-sponsor. This event is moving forward at a good pace. We have developed a formal relationship with EUROMA, in which the president of POMS will serve as an ex-officio member on EUROMA's board with reciprocal privilege in our Board.

In closing, I would like to thank all past administrations for creating the favorable conditions for POMS to flourish. I would also like to express my deepest gratitude to the following colleagues for their outstanding contributions to POMS during my tenure as President. They deserve all the credit:

- **Journal:** Paul Kleindorfer and Kal Singhal
- **Web Page:** Raju Balakrishnan
- **Chronicle:** Rohit Verma
- **Meetings:** Jim Gilbert
- **Chicago Meeting:** Suresh Chand and Asoo Vakharia
- **Operational Advantage Group:** Marty Starr
- **POMS Fellows:** Marty Starr
- **Executive Office:** Sushil Gupta
- **Associate Executive Director:** Chelliah Sriskandrajah
- **VP Education:** Ed Davis
- **Industry Job Placement System:** Ed Anderson
- **President Elect:** Kasra Ferdows

My special thanks to Aleda Roth, Marty Starr and Sushil Gupta, for being tireless contributors and whose support and dedication to POMS is priceless. Finally, I welcome our new President-to-be, Kasra Ferdows, who during this last year, as President Elect, has been quite active on behalf of the Society. I am confident that he will serve POMS with great distinction and excellence.

Thank you all.

Gabriel Bitran

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Kasra Ferdows received a Ph.D. from the University of Wisconsin, Madison. He specializes in management of operations in multinational manufacturing companies.

His publications include: Rapid-Fire Fulfillment, *Harvard Business Review*; Made in the World: The Global Spread of Production, Production and Operations Management; Making the Most of Foreign Factories, *Harvard Business Review*; Lasting Improvements in Manufacturing Performance, *Journal of Operations Management*; The Chief Technology Officer, *California Management Review*; Flexibility: The Next Competitive Battle, *Strategic Management Journal*. He has also written many cases, including Zara which won the 2003 POMS award and the 2005 *BusinessWeek*/ECCH award in POM category.

He is Co-Director of Georgetown Global Logistics Research Program. Prior to joining Georgetown, he was a professor at INSEAD and before that at the Iran Center for Management Studies. He has been a visiting faculty member at the Harvard Business School, the Stanford Business School, and last year the Melbourne Business School. He was the acting dean of the McDonough School of Business from July 1997 to July 1998.

**POMS President-Elect 2005****Hau Lee**Thoma Professor of Operations, Information,
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Hau Lee received a Ph.D. from the University of Pennsylvania. His research focuses on supply chain management, work that addresses how to get products or services to their destination by managing the flow of materials, information, and money. His research has resulted, among other things, in the building of computer models that support the concept of supply chain management based on the "value chain."

His publications include: Manufacturer Benefits from Information Integration with Retail Customers, *Management Science*; E-Fulfillment: Winning the Last Mile of E-Commerce, *Sloan Management Review*; Successful Strategies for Product Rollovers, *Sloan Management Review*; Variability Reduction Through Operations Reversal In Supply Chain Re-engineering, *Management Science*; Information distortion in a Supply Chain: The Bullwhip Effect, *Management Science*; Effective Inventory and Service Management Through Product and Process Redesign, *Operations Research*; Material Management in Decentralized Supply Chains, *Operations Research*; Supply Chain Inventory Management: Pitfalls and Opportunities, *Sloan Management Review*.

FLORENCE NIGHTINGALE: PIONEER OF OPERATIONS MANAGEMENT



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You know of Florence Nightingale, the famous nurse who took care of soldiers injured in battle. But do you know of Florence Nightingale, the operations management pioneer? Florence did practice as a nurse, but only a few years; most of her life's energy was given to the management of nurses and to the management of the healthcare service process. A brief listing of some of her operations accomplishments might be enough to convince you that she deserves a place in the annals of operations management history.

Perhaps the first recorded example of Florence's OM abilities was her experience as the superintendent of the Institution for the Care of Sick Gentlewoman in Distressed Circumstances in London. She was given this responsibility, her first formal management role, at the age of 33. Huxley (1975) describes her work this way.

"Florence's ideas were revolutionary. The comfort of the patients and the well being of the nurses were central to her plan. Unheard of devices were proposed: bells fitted with 'a valve which flies open when the bell rings, and remain open in order that the nurse may see who has rung'; a 'windlass installation' (i.e. a lift) to bring up the patients' meals from the kitchen. All her ideas were immensely practical. She instituted bulk-buying instead of deliveries of 'everything by the ounce', had jam made in the kitchen at a cost of 3 ½ d a pound instead of buying it for a shilling; got bits of spare material from Embley to cover chairs and 'contrived bed covers out of old curtain', brought about 'a complete revolution as to Diet, which is shamefully abused at present', and saved the committee £150 a year by combining the offices of House Surgeon and dispenser." (Huxley 1975, pg. 50)

Florence's work at the Institution was interrupted when the Crimean War broke out and she was asked to lead a team of nurses to assist in a military hospital in Scutari. The hospital was an operations nightmare and as such was immensely fertile ground for Florence to apply her knack for process improvement. As fate would have it, when Florence's team first arrived, the doctors did not trust the group to provide any

medical assistance, so Florence applied herself to the management of supplies, to the food delivery system, and to facility issues. The British wartime supply chain in the 1850s was beset with policies that prevented smooth even flow. For example, "the form for ordering a greatcoat contained two schedules with 24 blanks, to be filled out in duplicate; in addition, regulations specified that soldiers could order new coats only once every three years." (Hobbs, 1997, pg. 52) Florence was dismayed to find soldiers remaining in torn and blood-stained garments days and weeks after arriving at the hospital and in providing food for the patients she discovered that no inventory of eating utensils was to be found. After some research she discovered the reason. She writes:

...why should there have been so entire a deficiency of such common articles as shirts, stockings, shoes, towels, or knives and forks? Whose duty was it to supply these, and why was it not performed?

The answer is that it was not the duty of anyone. No one of the officials attached to the hospital was bound to supply them. The soldier himself was bound to bring them..." (Joint Commission, 1999, pg. 67)

Since the soldier was assigned clothing, personal grooming and eating articles as part of his kit, there was thought to be no reason for the hospital to have these articles. Florence recommended an alternate system,

"[t]hat the patient cease to be a soldier & become a patient from the moment he cross the Hospital doors.

that he leaves his clothes, blanket & kit behind in a store-room...

that, unless in exceptional or moribund cases, he have a warm bath after which he has a clean shirt & Hospital suit given him...

That, when the Patient leaves the Hospital, he leaves every article used in the Hospital behind & becomes a soldier again." (Goldie, 1987, pp. 74-75)

She addressed the distribution of meals as well. The timely delivery of food to patients was hampered by a poorly designed process. Diets were determined by a medical officer who visited each patient and selected appropriate meals for the subsequent day, writing them on a "diet-roll". At 6:30 in the morning, orderlies from every mess would arrive at the purveyor's store to individually obtain bread, according to the quantities recorded in the diet-roll book. But since the diet-roll book was needed by the officer later that morning, (to record the following day's diets) the purveyor would also record the number of full, half, low, spoon, and milk diets needed for that mess for the current day. This recording step slowed down the process

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of distributing bread and left many orderlies waiting in line for over an hour. After distributing the bread, the orderlies came back to obtain the meat needed for lunch, which they would tie to a skewer and plunge into a large copper boiling pot. While the meat was cooking, they would go back to the mess to get the diet-roll book again, after the medical officer was finished with it, and return to the purveyor for more supplies. After the distribution of those items, the orderly returned to the boiling pot and hopefully would find the correct skewer of meat (there was only one copper boiling pot for the entire hospital) for his patients. The meat would be taken to the messes, where the orderly cut it and distributed it to the patients.

Ms. Nightingale envisioned a system that ran more efficiently.

“Why should not the Commissariat send at once the amount of beef & mutton etc. etc. required, into the kitchens, without passing through this intermediate stage of drawing by orderlies?”

Let a Commissioned Officer reside here—let the Wardmaster make a total from the Diet rolls of the Medical Men – so many hundred full diets & give it over to the Commissariat Officer the day before. The next day, the whole quantity, the total of all Wardmaster’s totals, is given into the kitchens direct. It should be all carved in the kitchens on hot plates & at meal times the orderlies come to fetch it for the patients—carry it thro’ the wards, where an Officer tell it off to every bed, according to the Bed-ticket, on which he reads the Diet, hung up at every bed.” (Goldie, 1987, pg. 78)

The hospital at Scutari was housed in what was previously Turkish army barracks. The building was not at all designed to be a medical facility; what’s more, the epidemic of cholera filled the rooms far beyond capacity. If there was a bright side to the situation, it was the fact that such circumstances provoked the analytical mind of Nightingale and kindled in her an interest in hospital facility design. She was involved in several facility changes at Scutari and continued her interest after the war. Her Notes on Hospitals (Nightingale, 1859) was a treatise on facility design that dealt with sanitation, ergonomics, and efficiency of hospitals.

By now you might agree that Florence clearly had some operations management tendencies, but to be enthusiastically welcomed into the fold of OM pioneers, she must have a quantitative side, and better yet, an original mathematical model or technique to her credit. So be it. Three years after her death, Florence was labeled as “a passionate statistician” by her first biographer (Cook, 1913). She became a member of the Statistical Society of London in 1958 (most likely, the first

female member) and an honorary member of the American Statistical Association in 1874. She saw the use of statistics as critical to management, as she writes:

“The main end of statistics should not be to inform the Government as to how many men have died, but to enable immediate steps to be taken to prevent the extension of disease and mortality.” (Joint Commission, 1999, pg 169)

She was an early proponent of medical charting and when she found herself trying to convince the government that reform was needed in the military hospital system, she turned to statistical data (mortality rates) to argue her case. She devised a new kind of chart, which she called the bat's wing (roughly, a polar area chart), to graphically display change in mortality rate (Small 2003).

More could be said. We could tell of Nightingale’s quest for quality and her commitment to training. A collection of her management prescriptions has been published as Leadership and Management According to Florence Nightingale (Ulrich, 1992). We realize that Florence Nightingale will always be associated with nursing. But those of us in operations should feel free to claim her too. She was one of us.

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**TO BE OR NOT TO BE - THAT IS THE QUESTION...
THE CASE FOR SERVING AS A QUALITY AWARD EXAMINER**



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POSITION DESCRIPTION:

We are seeking self-motivated, highly qualified professionals desiring seasonal work. Requirements include being an expert in one or more of the following areas: leadership, customer service, strategic planning, human resource management, systems and processes, information systems and performance measurement and analysis. The ideal candidate will also have proven writing skills and be computer literate in most of the commonly used applications. The candidate should be prepared to attend up to 3 days of training that requires 20-40 hours of prework, spend an additional 20-40 hours to analyze and prepare an application report, and be available to accept a possible travel assignment that may require working around the clock for up to one week.

Compensation package: None at the current time, however, expenses will be reimbursed when travel is required.

Are you ready to send in your resume and sign up? The first question that comes to mind is why would anyone even consider applying for the preceding position? Well believe it or not, thousands of people eagerly apply for this and similar positions annually - and are disappointed if they are not selected! The position description describes the typical requirements and activities of an examiner in many of the international, national, and state award programs.

So why do countless professionals and academics annually sign up for this adventure? As two veteran examiners that have “reupped” for this intriguing offer multiple times, we can address the examiner’s role from a position of distinctive insight. We have both received extensive training and have served as examiners for either the Malcolm Baldrige National Quality Award or the Lincoln Foundation for Performance Excellence (the Illinois quality award). In addition, we both use the criteria for performance excellence and the core values in our classes to demonstrate their impact on creating and sustaining organizational capabilities that lead to marketplace success. In the following sections, our goal is to provide a compelling

case and perspective on the underlying motivation for countless individuals who agree to serve as examiners around the world.

Background on the Baldrige National Quality Program

One of the world’s most recognized award programs is the Malcolm Baldrige National Quality Award (MBNQA) which was created by Public Law 100-107 on August 20, 1987. The primary purpose of the program was to address the escalating requirements for success in both the U.S. marketplace and an ever demanding, highly competitive global market. With this focal point, the Baldrige National Quality Program (BNQP) was formed to carry out several purposes including:

- Raising awareness of performance excellence as a competitive edge
- Recognizing performance excellence and identifying role models
- Encouraging the sharing of best practices
- Establishing a standard criteria for assessment

The MBNQA can be described from several perspectives -- the criteria for performance excellence, the core values and concepts and as a process model that presents the interrelationships of the criteria. The criteria for performance excellence are the basis for organizational assessments, for making Awards, and for giving feedback to applicants. The criteria consists of seven distinct categories which are: 1) Leadership, 2) Strategic Planning, 3) Customer and Market Focus, 4) Measurement, Analysis, and Knowledge Management, 5) Human Resource Focus, 6) Process Management, and 7) Business Results. The Criteria’s principal focus is on promoting management practices that lead to customer satisfaction and high-performance results. The second component, the core values and concepts, represent underlying beliefs that are responsible for the creation of high performing

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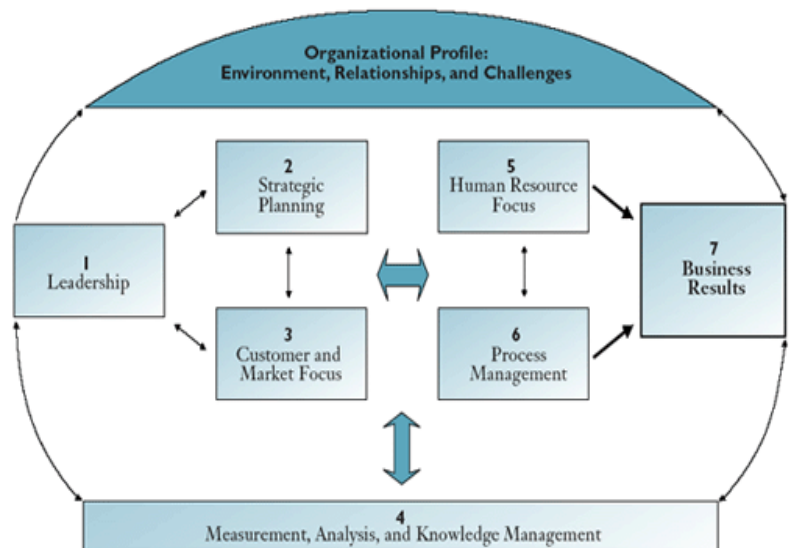


Figure 1

...To Be or Not To Be ... from page 7

organizations and are interwoven throughout the Criteria. The process and interrelationships among the criteria are presented in the MBNQA model as shown in figure 1 ((Source: 2005 BNQP - Business Criteria for Performance Excellence).

Since its inception, the BNQP has had wide-ranging impacts. For example, many organizations within a variety of economic sectors have adopted guidelines developed by the Baldrige Program for internal assessment. Baldrige-like award programs have been developed in the form of state, regional, and local award programs. As of June 2004, it is estimated that in the U.S. alone, there are 49 active state and local quality award programs in 41 states, which were modeled after the BNQP. Since 1991, it is estimated that more than 8,000 applications for state and local quality awards have been submitted. Finally, since the inception of the Baldrige Program more than 2,000 Baldrige examiners and more than 25,000 state and local examiners have been trained throughout the U.S. (Baldrige National Quality Program, 2005).

The impact of the program has in fact reached beyond the borders of the United States (U.S.) to become a worldwide standard for performance excellence. Many countries throughout the world have adopted some form of the Baldrige criteria for their own quality awards. Vokurka, Stading and Brazeal (2000) provide a comparison of five award programs: the Malcolm Baldrige National Quality Award (U.S.), the European Quality Award, the Deming Prize (Japan), the Canadian Quality Award and the Australian Quality Award. While each of the award programs have their own distinctive characteristics, they observe that all of the programs focus on strategic initiatives in the approach and deployment of key organizational practices.

The Role of the "Examiner"

The backbone of many of the quality awards programs is the examiner. Individuals which are selected to serve as examiners typically complete a pre-work assignment, attend a preparation course, conduct an individual review and evaluation, participate in a consensus process, and potentially take part in a site visit. The comprehensive preparation course usually covers the Criteria for Performance Excellence, the scoring system, and the evaluation process. The actual time commitment will depend on the level, nature of the application individually reviewed, the consensus review process, and if a site visit is conducted. For example in the state of Illinois award program, the minimum suggested time commitment for a first year examiner who participates in the process is 123 hours prior to participating in a site visit which could potentially add an additional 48 hours. Therefore, by agreeing to serve as an

The top 10 reasons (not necessarily in the order of importance) from an academic's perspective are:

Service Opportunities

From a faculty member perspective, we are constantly juggling the responsibilities associated with our classes, writing and service activities at our respective universities. We contend that through the process of serving as an examiner, the faculty mem-

1. It can provide an integrating focus for a faculty member's activities.
2. You can provide service to your community at the local, state or national level.
3. You can help improve the performance of organizations in your community.
4. You can develop analytical and consensus building skills that you can bring back to your own organization.
5. You can be a part of the annual ceremony where dignitaries like the President of the U.S. or the governor of your state presents the awards.
6. It can deepen your understanding of performance excellence.
7. You can obtain a "birds eye view" of best practices in "real" time.
8. You can receive the best training that you can get – generally for free!
9. It can create a network of speakers, research opportunities and consulting activities.
10. It helps you to practice what we preach to your students.

ber may actually have a framework upon which to integrate the three key components upon which many faculty members are evaluated: teaching, research and service. The first and most obvious aspect of serving as an examiner is that it can help satisfy external service requirements.

One can serve simply as a means to satisfy organizational requirements for tenure and promotion. One can also serve for more altruistic reasons, which many examiners do, such as improving the performance of organizations throughout the world. Even though each institution has a different perspective on the value and role of service, we would suggest that by serving as an examiner one more than fulfills any typical university definition of service.

Teaching Opportunities

One can also translate examiner experiences into classroom experiences. If one examines the seven distinct categories of the MBNQA criteria, we propose that almost any university course taught has either a direct or an indirect link to the foundation of the core concepts embedded within the criteria. Evans (1996) initially addressed the topic of curricular issues by identifying

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what higher education should be teaching based upon a survey of Baldrige Award winners. Building upon the findings of the Evans study, Weinstein, Petrick, and Saunders (1998) identified an apparent gap between the Baldrige Award winners' perceptions and the emphases in higher education. While developing a curriculum based upon Baldrige principles has received a noteworthy amount of attention, what is not apparent within the literature is the actual application of the MBNQA concepts as part of the educational delivery process.

For example, Belohlav, Cook & Heiser (2004) present the experiences of three faculty members who have used the criteria for performance excellence and the core values of the MBNQA to enhance the learning experiences of the students in their classes. The article describes the design, development, and delivery of course material using the MBNQA framework both as part of the structure and as a focal point in their individual classes for graduate and undergraduate level courses. It should also be noted that the BNQP provides a significant amount of material that can be used for a variety of educational purposes.

Research Opportunities

Serving as an examiner provides deeper insights into the relationships that exist within the MBNQA. A brief review of the literature demonstrates the potential that is available. Recent studies have shown the positive results that have been experienced by companies embracing the Baldrige type framework. For example, two empirical studies have shown the efficacy of the MBNQA criteria utilizing a structural equation modeling analytic approach. Curkovic et al (2000) empirically assessed the assumption that the MBNQA adequately captures the major dimensions of TQM. They conclude that the MBNQA is more than simply a framework; it is a process model and does indeed capture the concepts of TQM. Wilson & Collier's (2000) study tests the MBNQA performance relationships and causal model. Their research supports the general theory behind the MBNQA criteria. The often-cited Hendricks and Singhal (1997) study provides statistical evidence that firms that have won quality awards outperform the control firms on operating income-based measures. Hendricks and Singhal (2001a & b) continued their research by exploring the long-run stock and financial performance of firms with effective total quality management programs as defined by winning a quality award.

Their results indicate that effective implementation of TQM principles and philosophies leads to significant wealth creation. While continuing research has shown the overall value

of the MBNQA and various quality awards programs, many areas of the award programs still need to be investigated.

Downside of the Examiner Role

By now, you must be asking with this long list of benefits there must be a downside. From our perspective, the major downside is the TIME commitment. As we all know, time is a scarce resource and this commitment may be overwhelming for either a junior or senior faculty member. However, one must balance the positives against the negative. If one can integrate the three components of teaching, research and service, then one might conclude that it is time well spent.

Now we must ask again, "Are you ready to sign up?" We encourage you to seek out the opportunity and relish the potential rewards from serving in this capacity. Virtually all of the international, national and state award programs have a website with the information on becoming an examiner. We encourage you to apply -- you really can make a difference.

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EXPERIMENTATION WITH RFID USAGE IN SUPPLY CHAINS



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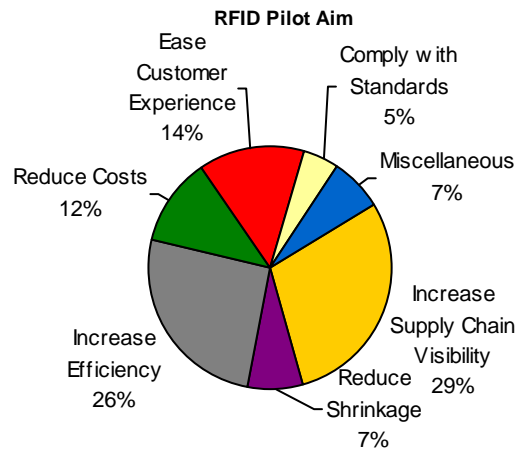
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Radio Frequency Identification (RFID) technology has come a long way since its initial development in 1948 for radar applications. RFID systems, which include the electronic tag containing stored data, a transponder that receives radio frequency waves from the tag and the management system that makes use of this received data, are now emerging as an important technology for the improvement of supply chain management. Following mandates that its top 100 suppliers implement RFID by January 1, 2005, Wal-Mart and the US Department of Defense have become a catalyst for increased early adoption by others as well.

Conventional wisdom had it that if the price of the tags fell below a 5 cent threshold, or if the giants of the retailing world mandated it, the suppliers of the world would rush to implement RFID. However, the business case for RFID usage seems to a little more vexing. We have conducted an in-depth search for every instance of RFID implementation either reported on the web or in the relevant trade journals since the beginning of 2000. This study has identified forty-six firms from a range of industries such as food and beverages, garments, household items, and prescription drugs. Reporting firms claim that they have either already implemented or begun to experiment with RFID applications. Aside from a several unique applications – such as the tagging of patients in hospitals, guests at theme parks, motorists at gasoline stations, or baggage at airports-- the others were all traditional suppliers of various products through normal supply chains. Our study provides a sense for the objectives of these supply chain applications, which we call experiments because they are for the most part limited implementation efforts designed to help the organization either take a baby step or to learn about the barriers in achieving a desired strategic objective. Interestingly, not a single firm in this sample reports a full-scale implementation of RFID in their supply chain.

As shown in the attached figure, we found that the most common objective (29%) is to improve inventory visibility in the supply chain through more extensive and lower cost data collection.

Some companies are attaching RFID tags to individual products, while others tag an entire pallet or tote box of items. Either way, the company knows where all items are after they leave the plant of origin. Increasing the efficiency of supply chain management by reducing inventory and manual labor costs or reducing stock outs, is the second most common stated objective (26%) of companies engaging in these RFID experiments. Here, presumably, the company intends to compare the cost and availability of inventory and the cost of monitoring this inventory before the use of RFID with the results from their experimental application of RFID. Some companies (14%) planned to judge the success of their experiments in terms of easing the customer experience in dealing with their product supply, either by providing on-board product information or simpler payment systems, and thereby generating increased sales dollars. Others (12%) were motivated primarily to achieve cost reductions associated with either direct or indirect labor. Only a few of



the forty-six companies identified shrinkage (inventory theft, loss, or damage) reduction or compliance with standards as their primary objective.

The rationale behind the crawl-before-run strategy opens up many interesting research questions. Instances of slow technology diffusion, and enormous hidden costs and risks, are all too familiar to supply chain and IT managers. There are many uncertainties inherent in large scale RFID usage. The supplier base and infrastructure is evolving. The price and cost fluctuations for high volume goods associated with RFID implementations might affect the firm's top and bottom line significantly. Given the potential impact of RFID usage on a firm's supply chain and competitive strategies, such a crawl seems to be perfectly rational. Perhaps such experimentation can raise and resolve many new kinds of issues unique to the context of the firm sponsoring the experiment: what is the appropriate level of the RFID usage -- items or pallets? Would supply chain strategies such as postponement evolve with the volume usage of RFID? Would display processes evolve to take advantage of these

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technologies? Should the packaging or even the product design be changed to take advantage of the trend? And, how extensive are the needed adjustments in infrastructure, organizational know how, and the core business processes?

The cost of these experiments, often in the range of 1-2 million dollars, is not trivial. However, our view is that, when these business case pilot experiments are designed appropriately, the learning opportunities may be even more significant. Strategic experiments of this type allow companies to test the cost and efficacy of changes in core business processes, prior to committing to full implementation of these changes. A well-designed strategic experiment is, therefore, an important step in managing the risk associated with technological and organizational changes. At present, most companies experimenting with RFID applications for their supply chain appear to be doing so to comply with their customer's mandates, namely Wal-Mart and the US Department of Defense. They seem to be limiting their investments to meet the minimum requirements of these mandates. Producers of high-margin goods (e.g pharmaceuticals) can justify RFID usage now but extensive voluntary RFID application for high volume low-margin goods will probably arise only when the tag cost drops to five cents or even lower, from its present level of about twenty cents. Finally, one might expect to see more widespread RFID application if senior management shifts from a cost-saving mentality to a broader strategy execution perspective with respect to their supply chains.

POMS COLLEGE OF PRODUCT INNOVATION AND TECHNOLOGY MANAGEMENT

Welcome to the POMS College of Product Innovation and Technology Management. The mission of the college is to create a closely-knit community of researchers, educators, and practitioners engaged in studying and disseminating issues that arise in the management of technology and new product innovation. Specifically, we are interested in examining the management of the creation and application of rapidly changing technologies as well as the development and launch of innovative new products.

As the global economy shifts to one driven by technology, innovation, and information, companies are confronted with new operational questions and issues. Through focused special events and journal special issues, the college seeks to unearth and highlight these issues and build a critical mass of researchers attempting to address these questions with new insights, concepts and methodologies. The college will also seek to engage practitioners and industry thinkers on these topics. In addition, we will also facilitate the exchange of ideas on an educational agenda with respect to product and technology management.

Like other POMS colleges, we will be actively involved in organizing sessions at the annual POMS conference. In addition, we shall periodically have special events and journal special issues. The college will use the web to foster rich conversations within the community. The college kicks off with a number of non-elected office bearers to the college board, whose role will be to get the college up and running and to establish a solid direction. We thank the members and office bearers of POMS for giving us the opportunity to start the College of Product Innovation and Technology Management.

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INVENTORY RECORD INACCURACY IN RETAIL SUPPLY CHAINS



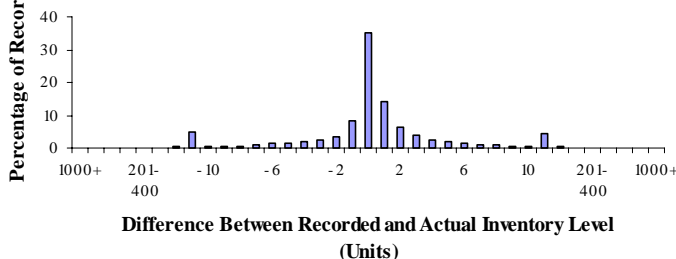
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Overview

Retailers have invested, and continue to invest, substantial amounts of money in information technology (IT) systems. However, too little attention is being paid to the quality of information these IT systems use. Research we conducted at Gamma (disguised company), a successful US-based retailer, demonstrates the magnitude of the data quality problem. We found inaccuracies in 65% of the inventory records supporting 37 Gamma stores (Raman et al., 2001; DeHoratius and Raman, 2004).

Our research shows that such inaccuracies are both pervasive and substantial in magnitude. Figure 1, a histogram of the difference between recorded and actual inventory quantity for each of the nearly 370,000 SKU-store combinations (SKU-store combination includes nearly 10,000 SKUs in 37 stores) observed at Gamma, highlights the extent of the record inaccuracy problem. This difference between an item’s recorded quantity and the actual quantity ranges from -6,988 to 4,702 units with only 38% of those records being off by fewer than three units.

Figure 1: Histogram of the Difference Between Recorded and Actual Inventory Level



Decision Support Systems

The lack of accurate inventory information is a major obstacle to the successful application of automated decision tools supporting retail operations. Automatic replenishment systems, for example, are designed to trigger an order when the on-shelf quantity of a particular product researches a certain level. This process works well when records accurately reflect what is physically present in

the store. An electronic point-of-sale system tracks daily sales and the recorded on-hand inventory amount is depleted for each item sold in that store. When the on-hand inventory quantity falls below a pre-set reorder level, the automatic replenishment system generates a store order for that item.

When, however, recorded inventory quantities diverge from actual inventory quantities, the system either orders when an order is unnecessary or fails to order when it should. The system is unable to distinguish between the true on-hand or shelf quantity and the quantity of each item that is supposed to be on the shelf. Consequently, retailers with high levels of record inaccuracy like Gamma incur additional inventory carrying costs or lost sales – something the system was implemented to prevent in the first place.

Demand forecasting systems also rely on the accuracy of inventory records. Gamma, for example, after receiving a letter of complaint from a customer about a product that was persistently out of stock, discovered that, although the product was out of stock at the store, inventory records showed 42 units on-hand. Further investigation revealed that this product had not sold a single unit in the past seven weeks even though it was a product that typically sold at least one unit per week. Not surprisingly given Gamma’s use of automated demand forecasting tools, the forecast of future demand for this item had been updated to reflect the recent low levels of sales, namely zero sold in seven weeks.

As these examples illustrate, customer service suffers when automated decision support tools use inaccurate records. Not only are customers unable to find the product on the shelf today but, even after re-stocking the shelf, demand is less likely to be met tomorrow since the product may not be replenished and the demand forecast has been improperly adjusted. It is not difficult to imagine how inventory record inaccuracy can also impact supply chain tools that facilitate the collaboration between retailers and manufacturers, including the sharing of sales data, forecasts, and inventory positions.

Mitigating the Impact of Record Inaccuracy

Inventory record inaccuracy is essentially a measure of process quality. Defects in organizational processes result in defects in the records, and defects in the records make it more difficult to execute future processes appropriately (DeHoratius, 2004). Most consumers have experienced the following two process failures in retail stores. A store employee exchanges merchandise without using the point-of-sale scanner to return one item back into inventory and deplete the record of another.

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This exchange is simple and gets the customer in and out of the store rapidly but also causes the quantity of inventory in the record to diverge from that found in the store. Similarly, suppose a customer purchases three different flavors of the same brand ice cream and the store employee scans the first item three times rather than each item separately. Since the products were all the same price, there is no material difference in the sale and the customer was served faster than she might have been had the employee handled each container of ice cream separately. However, after this sale, the recorded inventory is greater than the actual inventory by one unit for two SKUs and less than the actual by two units for the product that was scanned.

Seemingly innocuous actions such as these occur throughout the retail supply chain. Truck drivers, for example, mistakenly unload pallets destined for one store at another store, distribution center employees pick and pack the wrong quantity when filling a store order, or portions of a store's order fails to reach the delivery truck prior to the truck's departure. Each of these process failures need not result in inaccurate records. However, they often do because (a) individuals lack an understanding of how their actions impact overall retail supply chain performance (Rout, 1976), (b) quality control procedures are not in place to help employees identify and respond to such mistakes (Morey, 1985; Ernst et al, 1992), and (c) there is a lack of robust technological solutions.

Shared understanding

Retailers need to educate employees about the importance of maintaining record accuracy and show how record inaccuracy may sacrifice sales and customer service. They should highlight how individual actions influence record inaccuracy and make individuals accountable for the outcome of their actions as it relates to record inaccuracy. This means measuring accuracy at different points in the retail supply chain, establishing standards of accuracy, and providing feedback about performance relative to these standards.

The speed at which the retail supply chain operates is often measured and managed. Retailers monitor the speed with which check-out employees serve a customer or the number of picks per hour a distribution employee handles. Speed is understandably important but so is record inaccuracy. Whether or not an employee executes a transaction correctly, enabling systems and records to match, also impacts firm performance.

Quality control

Education alone is not sufficient. Instead, retailers should design organizational processes to be easy for employees to execute correctly. Moreover, retailers need to incorporate mechanisms so that individuals can both detect and respond to any failures in execution that may

arise. This requires the retailer to foster quality management discipline in its employees and train them in quality control techniques so that they can identify the root cause of any problems that arise. Employees should have the necessary training and authority to be able to evaluate and improve upon the processes in which they participate.

Inventory audits and cycle counting are two techniques currently used in practice to help identify when inventory records are inaccurate. While more frequent inventory audits can correct the immediate problem of a record inaccuracy (Iglehart and Morey 1972; Mosconi et al, 2001; Kok and Shang, 2004; Kang and Gershwin, 2004), additional measures are needed to prevent such inaccuracies from occurring in the first place. In manufacturing, firms have focused on continuous process improvement and have made numerous advances to product quality. Many firms have focused on standardizing work practices and developing techniques to both identify and prevent product design and manufacturing failures – the same needs to be done with process failures that arise in retail supply chains.

Technology

It is critical that retailers not only improve the quality of their processes but also recognize that measures can be taken to plan for the existence of record inaccuracy. Given that some human error will exist in any of the transactions that take place in retailing, it may be beneficial for retailers to use inventory planning and decision support tools robust enough to account for the presence of inventory record inaccuracy (see, for example, Kang and Gershwin, 2004; DeHoratius et al., 2005).

Conclusion

Maintaining perfect inventory records is difficult as many opportunities exist for the record to diverge from actual quantities. Regardless of the technology used to track items (e.g., barcodes, RFID), retail supply chains have to focus on ensuring that employees execute multiple tasks through the day and throughout the supply chain consistently and reliably, day-in and day-out.

The problem of inventory record inaccuracy is also difficult because it is a problem that cuts across organizational and functional boundaries, and fixing it requires senior management throughout the organization to answer difficult questions, such as: "Who owns the data? Do communication mechanisms exist to address problems that may emerge in one part of the organization but were initiated in another? Addressing such questions requires the involvement of boundary spanners, individuals willing to work at these functional and organizational interfaces.

And finally, it is worth noting that record inaccuracy is not restricted to retailing since evidence of record inaccuracy exists in investment banks and brokerage houses (Capital Markets Report, 2000), phone and utility companies (Redman, 1992; Woeller, 2004), government records (Laundon, 1986), and manufacturers (Sheppard and Brown, 1993). While the consequence of record inaccuracy may differ depending on the context, mitigating its impact might require similar actions.

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Call for Nominations

Editor in Chief, Manufacturing & Service Operations Management (M&SOM)

Deadline for Nominations: July 1, 2005

Garrett van Ryzin has decided to step down as editor in chief of *Manufacturing & Service Operations Management (M&SOM)* at the end of his three-year term on December 31, 2005. With the counsel of the Vice President of Publications and the Publications Committee, the President of INFORMS has appointed a committee to conduct a full search for a new editor in chief.

The members of the committee are Stephen C. Graves (Massachusetts Institute of Technology), Martin Lariviere (Northwestern University), Erica Plambeck (Stanford University), and Stephen Robinson (University of Wisconsin).

The committee intends to propose a candidate for approval by the INFORMS Board by September 6, 2005.

The committee seeks nominations for editor in chief. Qualifications for the editor in chief of *M&SOM* include:

- a demonstrated interest in a broad range of topics in the field
- a demonstrated record of research in the field
- dedication and enthusiasm for *M&SOM*
- previous editorial experience
- vision of the role of scholarly publications in the electronic age
- commitment to workload involved
- ability to effectively and efficiently manage the editorial process
- demonstrated support from the candidate's institution

Further information about the journal can be obtained at the *M&SOM* home page: <http://msom.pubs.informs.org>.

Nominations received by July 1, 2005, will be considered. Nominations received after that may be considered. When submitting a nomination, please include a resume and a brief statement of the candidate's qualifications for the position. Self nominations are most welcome. The information may be sent (preferably by e-mail) to the Chair of the *M&SOM* Editorial Search Committee:

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STRATEGIC PRICE OPTIMIZATION FOR THE MANUFACTURING SECTOR



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Price optimization in the service sector has received considerable attention. The most notable examples are the applications in the airline and hotel industries. Price optimization techniques have also been found useful in retail settings, with optimization of markdown prices being the most notable example. See Bitran et al. (1998), Lee (2001), and Mantrala and Rao (2001) in the literature. Despite its success in the service and retail sectors, relatively little can be found on the application of price optimization for the manufacturing sector. One reason may be that since the seminal work was done in the service sector, the applicability to the manufacturing sector is not completely clear, perhaps due to the reduced perishability of inventoried products. See Gallego and van Ryzin (1994), Feng and Gallego (1995), and Bitran and Mondschein (1997) for examples of the early work in pricing. Another reason is that the manufacturing sector has traditionally not been in close contact with the final customer, making it harder to predict behavior as a function of a change in price. This second limitation is currently dissolving for many firms due to the increase in direct sales through the internet and direct sales agents. Farnham (2004) recently reported that direct sales have grown 1% per year faster than traditional retail sales for the last ten years and that direct sales reached \$30 billion in 2003, making it a significant business sector. Manufacturing firms can now, due to direct sales and the internet, maintain close contact with their customers as is currently done by the airlines. One notable group of firms that may benefit is mass customizers who's business strategy is not based on market share maximization but rather on catering to a more demanding clientele willing to accept a price premium. In the remainder of this article we will first introduce the concept strategic price optimization (SPO) and show when it is most applicable. Then the results of computational testing under several market scenarios will be presented and discussed before concluding.

Price optimization has been addressed mainly within an operational control setting assuming a short time horizon and perishable goods or services such as are found in the airline and retail fashion industries (see Bitran and Caldentey [2003] for a good overview). SPO, in contrast, is concerned with the medium and long term. In order to better understand SPO, an analogy with the well known process of master planning will be drawn. The master planning problem consists of determining feasible aggregate production quantities, capacity requirements, and inventory levels over a medium to long term horizon with the objective of satisfying as completely as possible a forecasted demand. In some cases, the objective may also be to maximize profits by determining an optimal production mix. Due to the length of the planning horizon and the aggregate nature of the resulting plan, master planning is considered to be a strategic level process.

In SPO, as in traditional master planning, feasible production quantities, capacity requirements, and inventory levels must be determined. However, in SPO, the sales price must also be determined in order to maximize profits over the planning horizon. As in traditional master planning, a forecast is planned to be satisfied. However, the forecast for SPO is a sequence of demand curves that model demand as a function of price rather than a sequence of predicted demand quantities. Several forms of demand curves exist, with the constant elasticity and exponential demand curve models being among the most commonly used. In our study, the model of the demand curves is of the exponential form: $D(p) = M \exp(-p/k)$, where p is the price and $D(p)$ is the corresponding demand. The constants M and k are a market size scaling factor and a price scaling constant, respectively. These constants are estimated such that the demand function best approximates the behavior of the real market. In particular, M can be interpreted as the absolute upper bound on sales. The price elasticity at any given price is given by $-p/k$, commonly interpreted in absolute value. Price elasticity represents the percentage increase in demand given a one percentage decrease in price. Good results using this form of demand curve have been reported by Ladany (1996) and Smith and Achabal (1998).

SPO may be applied to any sequence of forecasted demand curves with M and price elasticity changing over the course of the product life cycle or the seasonal demand cycle. Both M and the price elasticity may affect the volume of demand at a given price level. Furthermore, it is these changes that make a static pricing policy suboptimal in terms of profit maximization. The magnitude of the forgone profits when using a fixed price varies greatly depending on the sequence of demand curves but in all cases, a variable pricing policy has the potential to increase profits.

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Given that the potential exists, what is keeping more manufacturing firms from employing such an approach? One reason may be the perceived difficulty of forecasting demand curves. It turns out though that economists have been estimating demand curves for a long time so the techniques (based on least squares or maximum likelihood estimators) already exist. Operationally, the main requirements are that the firm vary its prices and keep accurate records of demand and price over time. A firm that does not vary its prices will be blind to the profit opportunities lurking in the changing demand curves. Despite less than perfect forecasts, master planning has proved to be of great benefit to manufacturing firms and likewise SPO could also prove to be of great value.

Firms that sell through the internet are especially well positioned to take advantage of SPO for several reasons. First, they are able to collect more reliable demand information. For instance, using traditional sales channels it is often impossible to capture information about demand that is lost to the competition due to service level deficiencies. In contrast, a firm selling through the internet may be able to capture some information about lost sales in cases where the customer is quoted a delivery date and nevertheless decides not to buy. The sale is lost but the information about the inquiry is preserved. Second, the fact that all data is recorded in electronic form facilitates its availability. Third, the cost associated with a price change is greatly reduced. In traditional brick and mortar firms a price change may involve re-labeling or at least issuing new price lists to sales agents. An internet firm, on the other hand, can change its prices instantly by electronic means.

In order to study the effects of SPO, we used non-linear optimization to solve numerous problem instances. We focused on several scenarios that can arise over the course of a product's life cycle. The cases are:

- Demand is increasing,
- Demand is decreasing, and
- Demand is undergoing a seasonal cycle.

The three cases describe the demand behavior that would be observed at a fixed price. We will now discuss each case in more detail.

1) In the case of increasing demand, the behavior can be explained by an increase in the market size (an increase in M), an improvement in the consumers' preference for the specific product or brand (price elasticity reduced in absolute value), or both. One study found that price elasticity increases over the rising portion of the product life cycle while another found just the opposite behavior. In addition, increasing demand may be observed in a market with decreasing M as long as the price elasticity is decreasing sufficiently (competing firms are

leaving the market). The general behaviors with price optimization for profit maximization are summarized in the following table for the case of increasing demand.

Scaling factor, M (market size)	Sensitivity to price changes, $ -p/k $ (price elasticity)	Recommended Price Change with SPO	General Behavior using SPO
Increasing	Increasing	Decrease price	Faster increase in demand and greater profit vs. fixed price
Increasing	Decreasing	Increase price	Slower increase in demand and greater profit vs. fixed price
Decreasing	Decreasing	Increase price	Slower increase in demand and greater profit vs. fixed price

In the first row, profit maximization and market share maximization objectives improved by price optimization. In the second row, profit maximization (using price optimization) conflicts with market share maximization as is also the case in the third row.

2) In the case of decreasing demand, the behavior can be explained by a decrease in market size (decrease in M), a reduction in consumers' preference for the specific product or brand (price elasticity increased in absolute value), or both. We found two behaviors previously documented by economists. One is that the decrease may be accompanied by a decreasing M and an increasing price elasticity. The second is that M is increasing but decreasing demand is observed nevertheless due to an increasing price elasticity (the firm's product is perceived to be less attractive relative to the competition). Our study shows that with both types of behavior, price optimization recommends a price decrease that results in a slower decrease in sales. In this case, the objectives of profit maximization and market share maximization are both improved through price optimization.

3) In the case of seasonal demand, two realistic cases were investigated. The seasonal cycle may not correspond to the seasons of the year but we use these terms to ease understanding. The two cases are:

Nominal elasticity in spring and summer and increased elasticity in fall and winter. Demand remaining near a base level in spring, fall and winter and rising in the summer.

Nominal elasticity in spring and fall, with decreased elasticity in summer and increased elasticity in winter. Demand near a base level in spring and fall, rising in the summer, and decreasing in the winter.

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The first case describes the behavior for electric power in a temperate climate and the second describes the behavior for a product like beer. In the first case SPO would recommend a decrease in price during the fall and winter. In the second case SPO would recommend increasing the price in the summer and decreasing it in the winter. In both cases, the general effect of price optimization for profit maximization is to smooth the seasonal variations of demand. This is clearly advantageous to a firm wishing to smooth its production and distribution requirements throughout the year. In all the cases the profit-maximizing price changes can be obtained using the demand curves either by trial-and-error searching or by using non-linear programming techniques. The solution techniques are not presented here, their being beyond the scope of this article.

In conclusion, our preliminary findings indicate that an understanding of the demand curves that describe a firm's market can be exploited advantageously. The findings presented here are for a simplified case. The problem becomes more complex when capacity constraints, inventory requirements, demand priorities, and multiple products are considered. Nevertheless, even the simplified case provides useful insight. Depending on the specific objectives of the firm, profit maximization may not be the best practice. However, having a tool that can model the effects of price changes under various scenarios can provide a significant advantage for a firm over the course of its products' life cycles.

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CONFERENCE ANNOUNCEMENT
COLLEGE OF SERVICE OPERATIONS
HILTON HOTEL
MONTEREY, CALIFORNIA
DECEMBER 2-3, 2005

SERVICES IN THE HIGH-TECH ERA

POM-CSO 2005 is the second conference of the College of Service Operations. The theme of the conference is *Services in the High-Tech Era*. This theme reflects the location of the conference and the prevalence of the high-tech service sector in Northern California. The activities on December 2 are planned to focus on practitioner presentations, with academic talks on December 3.

CONTRIBUTED PAPERS: Further details will be provided later. A competition for the IBM best paper award for innovation in service operations will be held. A special issue of POM may also be edited from papers presented at the conference.

CONFERENCE VENUE: The conference will be held at the Sheraton Hotel in Monterey California. Monterey is on the Pacific Coast 115 miles south of San Francisco. Visit <http://www.monterey.org> for additional information about the region.

POM-CSO 2005 Conference Committee

Chair:

Madeleine Pullman (Cornell University)

Members:

Ram Akella (University of California, Santa Cruz)

Uday Apte (Southern Methodist University)

Sriram Dasu (University of Southern California)

John Goodale (University of Oregon)

Rich Metters (Emory University)

Rhonda Righter (University of California, Berkeley)

Jim Spohrer (IBM)

2005 POM-Chicago OM Frontiers: Winds of Change

16th Annual Conference of the
Production and Operations Management Society
InterContinental Chicago Hotel, 505 N. Michigan, Chicago IL
April 29 to May 2, 2005

The program for the conference included:

- 556 paper and panel presentations/discussions – 239 invited and 317 contributed.
- Substantial industry participation.
- Beyond covering the traditional areas of Operations, Planning and Control, Product Design and Development, Quality and Six Sigma, and Manufacturing Operations, the invited and contributed papers covered a number of emerging topics such as *Reverse Logistics*, *Modular Product Design*, *Secure Supply Chains*, *RFID Technologies*, *Strategic Sourcing*, *myOM-Getting Real with OM in Classrooms*, *New Frontiers in Service Supply Chains*, *Health-Care Operations*, and *Advanced Access Scheduling*.
- Six invited tutorials
 - *From Models to Decision Support Systems*, by Ravi Ahuja
 - *Six Sigma: An Animated Computer Simulation, Case-Based, Active Learning Approach for Improving & Optimizing Processes*, by Herb Moskowitz
 - *Teaching the Costs of Uncoordinated Supply Chains*, by Charles L. Munson and Jianli Hu
 - *Beyond Lean: Reducing Lead Time for Low-Volume and Custom-Engineered Products Using Quick Response Manufacturing (QRM) and POLCA*, by Rajan Suri
 - *Creating Competitive Advantage through Operations: Teaching Lessons from Toyota, Aloc, and other High Performing Organizations*, by Steve Spear
 - *How to Build and Manage the Lean Supply Chain*, by Mandyam M. Srinivasan
- Two Plenary Speakers
 - **High Performance Supply Chain**, by Dr. Narendra Mulani, Partner responsible for Accenture's North American Supply Chain Management practice and for the global Consumer and Industrial Supply Chain Management practice
 - **What Can We Learn About Research Style From Physics, Medicine, and Finance?** by Marshall Fisher, UPS Professor, The Wharton School, University of Pennsylvania



Asoo J. Vakharia and Suresh Chand
Program Chair and General Chair

Other aspects worth noting are:

- Four POMS Colleges (College of New Product Design and Development, College of Service Operations Management, College of Supply Chain Management, and College of Sustainable Operations) with Special Sessions and Activities
- Best Paper Awards, Emerging Scholars' Program, Doctoral Consortium, Operational Advantage Group, and the President's Reception.

IMAGES FROM POMS 2005 CONFERENCE



IMAGES FROM POMS 2005 CONFERENCE



IMAGES FROM POMS COLLEGE OF SUPPLY CHAIN MANAGEMENT CONFERENCE

The first conference of the POMS College of Supply Chain Management took place on May 3, 2005 at the University of Chicago.

The conference focused on the interface between academia and practice.

Conference Organizing Committee

Marshall Fisher, University of Pennsylvania, POMS Supply Chain College Co-president

Ananth Raman, Harvard University, POMS Supply Chain College Co-president

Daniel Corsten, University of St. Gallen

Karen Donohue, University of Minnesota

Ram Ganeshan, College of William & Mary

M. Eric Johnson, Dartmouth College

Katariina Kemppainen, Helsinki School of Economics

Jayashankar Swaminathan, University of North Carolina

Nicole DeHoratius, University of Chicago

Don Eisenstein, University of Chicago

Wally Hopp, Northwestern University

Michael Magazine, University of Cincinnati

Aleda Roth, University of North Carolina



CONFERENCE REPORT: FIRST CONFERENCE OF THE COLLEGE OF SERVICE OPERATIONS: "OPERATIONS MANAGEMENT IN SERVICES: THEORY AND PRACTICE"

Melissa Raz

Coordinator, Deming Center
Columbia University
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The first conference of the POMS College of Service Operations, "Operations Management in Services: Theory and Practice," was held at Columbia University on December 3 & 4, 2004. The conference was a cumulative effort of Columbia Business School, NYU Stern School of Business, The Wharton School, and Yale School of Management. Professors and College of Service Operations board members Nelson Fraiman (Columbia Business School) and Michael Pinedo (NYU Stern School of Business) spearheaded the conference organization and logistics. The response to the call for papers was overwhelming, and the program committee selected 44 speakers, representing 12 countries, to present in three parallel tracks. Approximately 120 practitioners and academics from around the world registered and attended the conference.

The first day began with a welcome from Columbia Business School's Senior Vice Dean, Paul Glasserman, followed by a single track and then a double track of talks. The three parallel tracks began after lunch on Friday. The first single-track session was chaired by Russ Winer, Deputy Dean of NYU's Stern School of Business. Gabriel Bitran (Sloan School of Management and POMS President) opened the conference with his talk on "The Future of Supply Networks," in which he discussed the need for "an extended enterprise," where a company's operations must be coordinated with its suppliers and distributors. Manos Hatzakis (Vice President of the Management Science Group) and Russ Labe (Director of the Management Science Group) from Merrill Lynch, followed with a presentation examining two case studies on "Management Science at Merrill Lynch." A double track consisting of four speakers followed the single track. Jim Spohrer (Director of the IBM Almaden Research Lab), a major corporate sponsor of the conference, addressed the "Emergence of Service Science." IBM is looking for university partners to define a curriculum for "service science," a critical area of service study and implementation that affects many disciplines (service currently comprises more than 50% of IBM's revenues). Morris Cohen (The Wharton School) spoke on "Supply Chain Performance Based Strategies for Customer Value Delivery," Uday Karmarkar (Anderson School of Management at UCLA) addressed "Service Industrialization and Globalization," and Awi Federgruen (Columbia Business School) presented "The Capacity-Service Tradeoff: A Journey through History."

Tom Cole, Vice Chairman of Federated Department Stores, Inc., was the key-note luncheon speaker on Friday. Under the auspices of Six-sigma he described the process improvement that Federated has

deployed to reinvent its stores. Federated has improved operations by streamlining its processes in an effort to change a customer's shopping experience. More and more Federated stores are beginning to implement this program.

On Friday afternoon and Saturday morning, parallel sessions were held on Planning and Scheduling, Healthcare, Public Service, Financial Services, Manufacturing and Services Interfaces, Revenue Management and Call Centers, amongst other disciplines. International speakers included Wieslaw Kubiak (Memorial University of Newfoundland), Antti Peltokorpi (Helsinki University), Philippe Chevalier (Catholic University of Louvain), Chris Voss (London Business School), Victor Giménez and José Luis Martínez (Universitat Autònoma de Barcelona), Norman Faul (University of Cape Town), Ignacio Tamayo Torres (Universidad de Granada), Nico van Dijk (University of Amsterdam), Larry Menor (University of Western Ontario), and Sergio Cavalieri and Robert Pinto (Università di Bergamo). The first day ended with a cocktail hour and a meeting of the College of Service Operations Board.

On Saturday morning, following breakfast, parallel sessions ran until lunch. Pat Harker, Dean of The Wharton School, was the keynote speaker at the luncheon sponsored by IBM. He stressed the importance of Customer Relationship Management – learning to hire, as well as to fire, the customer. He and Mei Xue (formerly a Wharton Ph.D. student under Harker, who now teaches at Boston College) developed the concept of Customer Efficiency: "a customer who uses less of their resources while accomplishing more for themselves." This concept helps companies to save time and money by tailoring their services to fit the needs of the self-service customer. Harker went on to stress that higher education should take a hint from Customer Efficiency and tailor their teaching methods to serve many types of students, all of whom learn differently.

The conference ended with enthusiastic nods towards a next conference. Many thanks to all those who contributed to making the first conference of the POMS College of Service Operations a great success!

For more conference details (abstracts, pictures and agenda), please visit http://www.demingcenter.com/html_files/retailing/retailing_pastactivities.htm



CONFERENCE REPORT: PRODUCT AND SERVICE INNOVATION CONFERENCE 2005 PARK CITY, UTAH



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The second Annual Product and Service Innovation Conference, hosted by the David Eccles School of Business at the University of Utah, met this February in Park City. Over 40 distinguished scholars from the areas of Operations and Marketing commenced this year to discuss their current research and also to partake in the winter fun.

The conference is strategically designed to keep conference participants both active and efficient. The morning hours are filled with speakers and discussions of current research topics while the afternoons are reserved for winter activities like skiing and snowshoeing. Some of the conference goers have attempted to multitask by taking care of business while participating in the fun. For example, one of the hosts, Rohit Verma was caught talking on his cell phone about research ideas as he was skiing down the slopes.



The laidback atmosphere of the conference allows participants to really get to know one another as they are bonding on the ski lift or trekking through the snow. Participants attribute the conference's success to both the intimate setting and planned winter activities. At dinner one evening, participants noted how happy they were to have an opportunity to meet with other people who have similar research interests and to be able to interact with them on both a professional and personal level.

The winter activities are one of the obvious incentives for attending the conference, but academically speaking, the conference provides an open forum where Operations and Marketing can interface and research ideas can be created and discussed. This year's topics of research ranged from modifications of traditional queuing models, presented by John Goodale, to exploring the open source software phenomenon, presented by Barry Bayus. Here is a small taste of what the conference has to offer scholars interested in operations and marketing research:

- Geoff Parker presented, "Managing Outsourced Product Design: The Effectiveness of Alternative Integration Mechanisms" a research topic which relies heavily on accepted organizational behavior methods for studying outsourcing management while, Ely Dahan offered an alternate approach to traditional conjoint estimation by combining traditional cognitive psychology with greedy algorithms, used in operations literature.

- A paper presented by Glen Schmidt, "Low-End Encroachment: A Framework to Help Recognize Disruptive Technologies" can be viewed as a stepping stone in building a paradigm of disruptive technology. Glenn was happy to be able to share his ideas indoors this year rather than the outdoor tent he presented in at last year's conference.
- Operations management has a long history of gravitating toward certain industries and products while marketing tends to include less traditional settings such as the service environment and innovative processes. Olivier Toubia leveraged the use of those non-traditional settings for research in his presentation of, "Idea Generation, Creativity, and Incentives."
- Cross cultural studies widely accepted in marketing and consumer behavior are in their infancy when it comes to product innovation and Gerard Tellis filled the gap in this area with his presentation of "Innovation of Firms across Nations."
- Advances in traditional marketing techniques such as conjoint estimation were also presented during the conference. The advances proposed concentrated around the simplification of respondent burden given the increasingly complex profiles of new products. In "Integrating Bundled Features and Meta-Attributes: A Choice Model for Product Design" presentation, Vithala Rao proposed a meta-attribute method to combat the increased number of features and levels.

The concluding panel discussion conjured up an interesting session about the future directions and opportunities in cross-disciplinary research. Participants addressed the need to generate critical mass around researching new product innovation. To generate the needed momentum for such research, participants recommended fostering collaboration through forums similar to the one in Park City.



POMS MEMBERS IN NEWS



Aleda Roth, past POMS President, will assume the W. P. Carey Chair of Supply Chain Management at Arizona State University in July 2005. Aleda will leave UNC, where she is the Distinguished Mary Farley Ames Lee Professor of Operations, Technology and Innovation Management and Chair of the Global Supply Chain Management Concentration. She also served as OTIM Area Chair. She held faculty positions in Computer Science at Ohio State University, the Faculty of Management at Boston University and the Fuqua School of Business at Duke University. She is a visiting Research Scholar at London Business School, and was a visiting Professor at WHU, Otto Beisheim Graduate School of Management in Vallendar, Germany and at IESA in Caracas, Venezuela.

Aleda is an internationally recognized empirical scholar in service and manufacturing operations strategy. Her research is motivated by theoretical and practical explanations of how firms can best deploy their operations, global supply chains and technology strategies for competitive advantage. She has over 125 published articles, including in Management Science, Manufacturing and Service Operations (M&SOM), Production and Operations Management (POM), Journal of Operations Management (JOM), Decision Science (DS), Journal of Service Research (JSR) and others. Her work was distinguished with 38 research awards since earning her doctorate in 1986. Most recently, Aleda's co-authored paper will appear in Best Paper Proceedings of the 2005 Academy of Management and another was named as a 2004 Academy of Management Carolyn Dexter Award Nominee for Best International. She received the 2004 Stan Hardy Award for the Best Published Paper in Operations Management in 2003. Her co-authored 1994 paper, entitled "A Taxonomy of Manufacturing Strategies," was listed on the 2004 Commemorative CD to be among the top 10% of all Management Science articles published in the past 50 years according to citations.

Last year she was elected as a Fellow of the Production and Operations Management Society (POMS); was named an AIM (Advance Institute of Management Research) International Fellow; and received the Weatherspoon Award for Excellence in Ph.D. Teaching. Also in 2004, three of her doctoral students won prestigious Juran Center research fellowships; and one was also awarded an International Society of Logistics and the Logistics Education Foundation dissertation fellowship.

Over her career, she received over \$2.75 million in external research funding. Aleda has served on the Board of Directors for POMS, DSI, and Operations Management Association (OMA). She is a Department Editor for Production and Operations Management; a Sr. Associate Editor for Manufacturing and Service Operations Management; an Associate Editor for Management Science, Journal of Operations Management; and Decision Sciences; and serves in editorial advisory roles on others. She received the 2004 M&SOM Meritorious Service Award for outstanding contributions to the journal. Aleda maintains professional affiliations with senior industry executives and been an industry sponsored member of The Conference Board's Global Center for Performance Excellence since 1989.



Chris Voss will take over the role of president of **POMS College of Service Operations** in 2006. Chris is Foundation Chair in Technology, Management and Learning; Professor of Operations and Technology Management; Senior Fellow, Advanced Institute of Management Research; Director, Centre for Research in Operations and Technology Management; Chair, Operations and Technology Management Faculty at the London Business School. His publications include: Case Research in Operations Management (with M Frohlich and N Tsirikrisis), *International Journal of Operations and Production Management* (2002); Quality Management Re-Visited: A Reflective Review and Agenda for Future Research (with R Sousa), *Journal of Operations Management* (2002); Quality Management: Universal or Context Dependent (with R Sousa), *Production and Operations Management* (2001); A Path Analytic Model of Quality Practices, Quality Performance and Business Performance (with B Fynes), *Production and Operations Management* (2001); Antecedents of New Service Development Effectiveness: an Exploratory Examination of Strategic Operations Choices, *Journal Of Service Research* (2000); Developing an eService Strategy, *Business Strategy Review* (2000).

POM JOURNAL: CALL FOR PAPERS

Special Issue of Production and Operations Management

*Theory in Operations Management*Special Issue Editors

Roger G. Schroeder, University of Minnesota

Kalyan Singhal, University of Baltimore

Submission Deadline: Manuscripts must be submitted on or before November 1, 2005 to the editor of POM: Ksinghal@ubalt.edu

The editors invite manuscripts that address theory in Operations Management for the special issue of Production and Operations Management.

Development of new theories in Operations Management or application of theories from other fields has been lacking. Therefore, this special issue is devoted to theories that are developed either from empirical case data or from logical arguments. These can be largely new theories developed specifically for operations or theories borrowed from the fields of economics, sociology, psychology, management or other fields and applied to operations situations. Generally speaking, theories that are borrowed will require refinement or interpretation to make them useful in an operations context. Both explanatory and normative theories are encouraged.

Theories and topics suitable for this special issue include, but are not limited to:

- Applications of transaction cost economics to operations
- Development of performance frontier theory from economics
- Use of institutional theory to address operations problems
- Contingency and configuration theory for decisions in operations
- Application of evolutionary theory to operations
- Use of complementary theory or “bundling of practices”
- The behavioral theory of the firm applied to operations
- Organizational change theory for innovations in operations
- Development of original theories for operations such as the theory of swift and even flow by Schmenner and Swink (1998)
- Mathematical models based theories such as that developed by Wacker (1987)

Special Issue of Production and Operations Management

*RFID Applications in Private and Public Sector Operations*Special Issue Editors

Amitava Dutta, George Mason University

Seungjin Whang, Stanford University

Submission Deadline: Manuscripts must be emailed on or before September 30, 2005 to either editor of this special issue at adutta@gmu.edu or Whang_jin@gsb.stanford.edu

Radio Frequency Identification (RFID) technology is building momentum as costs come down, progress is made on standards and major businesses announce adoption plans. The European parliament has announced legislation requiring goods to be traceable through the supply chain by 2005 and recent US-DOD announcements have added to the international momentum for deploying this technology. RFID tags attached to products have the potential to revolutionize the efficiency, accuracy, and security of manufacturing and service operations with dramatic effects on both top and bottom-line business results. Significant applications of RFID technology in the public sector, such as customs processing, also are being considered. We are interested in attracting a broad range of papers including theoretical analyses, laboratory experiments, simulations and field studies, addressing management issues associated with the deployment of RFID technologies in private and public sector settings. Topics suitable for the Special Issue include, but are not limited to, the following:

- Drivers of RFID adoption by business
- RFID applications in warehouse/logistics management
- Models of RFID value
- RFID-based real time demand signaling models
- Economic feasibility field trials of RFID technology
- Extracting business intelligence from RFID data
- RFID-based order fulfillment process redesign
- Quality management using RFID
- Public sector applications of RFID (e.g. customs, security)
- Impact of RFID on supply chain performance
- RFID privacy issues
- Impact of RFID on service operations
- RFID standards.

CALL FOR PAPERS

International Journal of Production Economics

Special Issue: Meta-Standards in Operations Management: Cross-disciplinary Perspectives

Special Issue Editors

Andy C. L. Yeung, The Hong Kong Polytechnic University
lgtandy@polyu.edu.hk

Charles J. Corbett, UCLA Anderson School of Management
charles.corbett@anderson.ucla.edu

Submission Deadline: 31 August, 2005.

Journal of Operations Management

Special Issue: Research in Supply Chain Quality

Special Issue Editor:

S. Thomas Foster, Jr., Brigham Young University
tom_foster@byu.edu

Submission Deadline: August 2006.

International Journal of Manufacturing Technology and Management

Special Issue: The Interface Between Manufacturing and Other Fields

Special Issue Editor:

Timothy L. Urban, The University of Tulsa
urbantl@utulsa.edu

Submission Deadline: 30 November 2005.

International Journal of Operations and Production Management

Special issue: Recent Developments in Operations and Supply Chain Management in Latin America

Special issue editor:

Henrique Luiz Correa, FGV Sao Paulo Business School
hcorrea@fgvsp.br

Submission Deadline: 30 November 2005

Additional information:

<http://puck.emeraldinsight.com/vl=1521978/cl=45/nw=1/rpsv/journals/ijopm/call3.htm>

European Journal of Operational Research

Special Issue: Economics of Operations and Information Management

Special Issue Editors

Subhajyoti Bandyopadhyay, shubho.bandyopadhyay@cba.ufl.edu
Anand Paul, paulaa@ufl.edu
Asoo J. Vakharia, asoov@ufl.edu

Submission Deadline: 31 August, 2005.

For more information:

<http://www.poms.org/POMSWebsite/CallForPapers/EJOR-EconomicsOIM.doc>

Quality in Services Conference, QUIS 10

(The 10th International Research Symposium on Service Quality)
New Orleans, Louisiana, U.S.A.
June 13-16, 2006

Additional information: <http://www.unobusiness.com/quis10/>

Sixth International Conference on Operations and Quantitative Management (ICOQM-6)

Indian Institute of Management, Indore, India
August 9–11, 2005

Additional information:

<http://www.aims-international.org/icoqm6>
email: icoqm6@aims-international.org

International Conference on Innovation: Engineering Meets Marketing

IIT Madras, India
December 21–23, 2005

Additional information: <http://www.inpdem.com>

IXth Annual Conference Society of Operations Management

Pondicherry University, Pondicherry, India
December 16-18, 2005

Additional Information: <http://www.som9pondy.org>

First International Conference on Operations and Supply Chain Management

International Convention Centre (Westin Resort), Bali
December 15–17, 2005.

Additional information: <http://www.oscm2005.org>