Winter 2014 Newsletter

INFORMS Behavioral Operations Management Section

If you have any information for the next issue of this semiannual newsletter please forward an announcement to kschultz@afit.edu.

Old copies of the newsletter can be found at the Section Website
https://www.informs.org/Community/BOM

General topics include:
A. People
B. Places (Meetings)
C. Things (Research)
D. My Favorite Paper

Notes:
1. In order to increase the item count I have added appropriate items selected from the twitter news feed of the DPRK, https://twitter.com/DPRK_News. You should have no trouble telling which items are from this source and which are from our more traditional contributors.
2. I have added a new column to the newsletter “My Favorite Paper” as section D.

A. People:

1. Mirko Kremer, Asst. Prof of SCM at Penn State and Selin Atalay, Assoc. Prof of Marketing at HEC, Paris are proud to announce the arrival of their daughter, Sophie, not yet a professor but running the household anyway.

2. Congratulations to Robert Batt and Christian Terviesch for winning the INFORMS BOps Section Best Worker Paper Award for their paper Waiting Patiently: An empirical Study of Queue Abandonment in an Emergency Department. The runner Up was Trust, Trustworthiness and Information Sharing in Supply Chains Bridging China and the U.S. by Ozalp Ozer, Yufei Ren, & Yanchong Zheng. Honorable Mention goes to The Design of Experiential Services: Optimal Sequence and Duration of Service Activities by Aparupa Das Gupta, Uday Karmarkar, & Guillaume Roels

3. Please enter 2014 INFORMS BOM Section Best Working Paper Award. This award highlights the best working paper, and first prize will include $500.00. This year's awards committee is Brent Moritz (chair), Anton Ovchinnikov (previous chair) and Ozalp Ozer (honorary member). Submissions and further information about the Award are available at http://tinyurl.com/BOMAward2014 and are due by July 15, 2014. The finalists will be invited to present their papers at a special session at INFORMS 2014. If you have questions, please contact the Awards Committee Chair at BOMAward@smeal.psu.edu

4. Kudos to Valery Pavlov for promotion to Senior Lecturer, equivalent to Associate Professor, at the University of Auckland.
5. If you see Enno Siemsen, ask him to sing the Star Spangled Banner and congratulate him one becoming a US citizen.

Oskar Siemsen cheering new American citizenship

6. Michael Becker-Peth, Asst. Prof of SCM at the University of Cologne and his wife, Frauke, are happy to announce both the birth of their daughter, Antonia, on September 19th and that their son, Luis, has entered, we assume the Behavioral Operations Management track, at the local elementary school. The editors, after careful deliberation, have awarded Marie, age 4, the prize for best pigtails in the family.

B. Places

1. The 2013 INFORMS Annual Meeting was held this past year in Minneapolis, Minnesota from October 6-9. The Behavioral Operations Track was chaired by Andrew Davis of Cornell University, which included 14 sessions, plus 2 joint sessions in the MSOM and DAS tracks. Topics ranged from behavioral work in healthcare to forecasting to consumer behavior. The track also included a special session on “Opportunities in Behavioral Operations,” which included Gad Allon, Anita Tucker, and Gerard Cachon as speakers.

Thank you to all of the session chairs: Tony Cui, Diana Wu, Robert Batt, Stephen Leider, Jordan Tong, Wedad Elmaghraby, Anna Devlin, Karen Donohue, Mirko Kremer, Jan Fransoo, and Julie Niederhoof. Also, special thanks to Elena Katok and Anton Ovchinnikov, who handled two sessions each.

2. The 2014 INFORMS Annual Meeting is in San Francisco, CA from November 9-12. There will be a Behavioral Operations Track chaired by Stephen Leider (University of Michigan), leider@umich.edu.

We invite papers investigating operations management topics through human-subject experiments, behavioral modeling, or empirical studies on human behavior. The track is open to studies of all aspects of behavior and decision making, such as social preferences, bounded rationality, risk preferences, cultural differences, and prospect theory. The track also welcomes papers
that aim at validating models of rationality in the laboratory. All talks should have an operations management context, such as (but not limited to) inventory, revenue management, procurement, supply chain coordination, sustainability, or healthcare operations.

3. 9th ANNUAL BEHAVIORAL OPERATIONS CONFERENCE

The DFG Research Unit "Design and Behavior - Economic Engineering of Firms and Markets" (FOR 1371) is proud to host the 9th Behavioral Operations Conference at the University of Cologne, Germany, on June 12 - 14, 2014. The goal of this conference is to bring together researchers with a common interest in the operations interface between human behavior studies and analytical modeling, with the aim of sharing current work, identifying new research problems, and developing relationships between scholars in the field.

The conference will start with a one day "Young Scholars Workshop" (Thursday, June 12, 2014). The main conference will be held on Friday, June 13, 2014 and Saturday, June 14, 2014. Key note speakers of the conference will be: Jacob Goeree of the University of Zurich, Wilhelm Hofmann of the University of Cologne and Michael H. Kramarsch of Hostettler, Kramarsch & Partner. We welcome submissions of papers for the Behavioral Operations Conference and the Young Scholars Workshop until March 15, 2014 Information is available at http://www.behavioraloperations2014.uni-koeln.de/ We look forward to seeing you in Cologne.

5. The Behavior in OM track for POMS 2014 is almost complete. We are planning 19 sessions, 66 talks in total, with topics such as behavioral queueing, human behavior and processing times, pricing and negotiation in B2B interactions, bounded rationality, fairness and reciprocity, project management, behavioral ops in humanitarian contexts, teaching behavioral phenomena in OM, strategic behavior in OM, etc. We would like to thank all of the individuals who agreed to chair sessions: Gad Allon, Elliot Bendoly, Kay-Yut Chen, Anna Devlin, Erica Gralla, Nikolay Osadichy, Ken Schultz, Masha Shunko and Enno Siemsen. We look forward to an exciting conference and seeing many of you in Atlanta in May. -- Mirko and Karen

6. The College of Behavior in Operations Management will be hosting their second POMS Mini-Conference on Thursday May 8, 2014 in Atlanta, Georgia, one day prior to the POMS 25th anniversary conference. Join us to explore pricing and revenue management at the interface of human behavior and operations management. We will feature speakers from academics and practice, including Robert Phillips (Nomis Solutions and Columbia University) and Loren Williams (EY). This is a great opportunity to meet with experts in this area that may inform and inspire your research! Additional conference details, as well as a conference agenda, will be posted on the college web page in the coming months. In the meantime, please make plans to join us on May 8th in Atlanta. http://www.poms.org/colleges/chbom/

7. The Supply Chain Management (SCM) Special Interest Group (SIG) Conference is scheduled for Thursday June 19, 2014 at the University of Washington, Seattle, Washington, preceding the MSOM 2014 Conference (June 20-21). While high quality papers on a full range of topics relating to supply chain management are welcome, the chairs hope to identify and showcase papers from centralized planning, decentralized planning, and behavioral operations management. The submission deadline is Feb 14th, where acceptance decisions will be based on full paper submissions, and presentations will be scheduled in a single track. For additional details please use the following link for the formal announcement, https://courses.cit.cornell.edu/amd365/SCM_SIG_2014_Call_for_Papers.pdf
C. Things:
We will use this forum to keep members updated on papers published in the area of Behavioral Operations Management. This is a great opportunity for you to get the word out on your research. Papers qualify if they are aimed principally for an Operations Management audience and if they explicitly include consideration of behavioral factors other than then strict profit maximizing, of if they empirically test that assumption. Normally we include papers on individual, not organizational behavior but for the purposes of this newsletter we will accept both. Papers do NOT have to be empirical.

All photographs in this section are puns on the title of the paper, some of them at multiple levels.

Please send citations and abstracts of any paper accepted for publication to KSchultz@afit.edu

We are happy to announce the publication of the Production and Operations Management Journal Special Issue on Behavioral Mechanism Design, edited by Elena Katok and Christoph Loch. Volume 23 • Number 2 • February 2014. When we test analytical models in the laboratory we often discover systematic behavioral regularities. Understanding these systematic behavioral regularities helps to design mechanisms that are behaviorally robust—perform well given known deviations from the narrow notion of full rationality. This special issue published papers that test models and that develop new models that incorporate behavioral regularities.

1. Teck-Hua Ho, Xuanming Su and Yaozhong Wu. Distributional and Peer-Induced Fairness in Supply Chain Contract Design

Abstract: Members of a supply chain often make profit comparisons. A retailer exhibits peer-induced fairness concerns when his own profit is behind that of a peer retailer interacting with the same supplier. In addition, a retailer exhibits distributional fairness when his supplier’s share of total profit is larger than his own. While existing research focuses exclusively on distributional fairness concerns, this study investigates how both types of fairness might interact and influence economic outcomes in a supply chain. We consider a one-supplier and two-retailer supply chain setting, and we show that (i) in the presence of distributional fairness alone, the wholesale price offer is lower than the standard wholesale price offer; (ii) in the presence of both types of fairness, the second wholesale price is higher than the first wholesale price; and (iii) in the presence of both types of fairness, the second retailer makes a lower profit and has a lower share of the total supply chain profit than the first retailer. We run controlled experiments with subjects motivated by substantial monetary incentives and show that subject behaviors are consistent with the model predictions. Structural estimation on the data suggests that peer-induced fairness is more salient than distributional fairness.

2. Rachel Croson, Karen Donohue, Elena Katok and John Sterman. Order Stability in Supply Chains: Coordination Risk and the Role of Coordination Stock

Abstract: The bullwhip effect describes the tendency for the variance of orders in supply chains to increase as one moves upstream from consumer demand. We report on a set of laboratory experiments with a serial supply chain that tests behavioral causes of this phenomenon, in particular the possible influence of coordination risk. Coordination risk exists when individuals’ decisions contribute to a collective outcome and the decision rules followed by each individual are not known with certainty, for example, where managers cannot be sure how their supply chain partners will behave. We conjecture that the existence of coordination risk may contribute to bullwhip behavior. We test this conjecture
by controlling for environmental factors that lead to coordination risk and find these controls lead to a significant reduction in order oscillations and amplification. Next, we investigate a managerial intervention to reduce the bullwhip effect, inspired by our conjecture that coordination risk contributes to bullwhip behavior. Although the intervention, holding additional on-hand inventory, does not change the existence of coordination risk, it reduces order oscillation and amplification by providing a buffer against the endogenous risk of coordination failure. We conclude that the magnitude of the bullwhip can be mitigated, but that its behavioral causes appear robust.


Abstract: In a controlled field experiment, we examine pairs of auctions for identical items under different conditions. We find that auction design features that are under the control of the auctioneer—including information transparency, number of simultaneous auctions, and the degree of overlap between simultaneous auctions—affect bidder search and choice. Clickstream data show that a significant relationship between information transparency and price dispersion can be linked to search. Specifically, the effect of information transparency on price dispersion is fully mediated by lookup behavior. Combining these findings, we make auction design recommendations regarding the provision of product and value information.


Abstract: We experimentally study the role of reputation in procurement using two common mechanisms: price-based and buyer-determined auctions. While buyers are bound to buy from the lowest bidder in price-based auctions, they can choose between bidders in buyer-determined auctions. Only the latter buyers can consider the reputation of bidders. We find that bidders supply higher quality in buyer-determined auctions leading to higher market efficiencies in these auctions. Accordingly, buyers prefer the buyer-determined auction over the price-based auction, while only half of the bidders do so. A more detailed analysis of buyers’ and bidders’ behavior and profits provides insights into their mechanism choice.

5. Kyle Hyndman, Santiago Kraiselburd and Noel Watson. Coordination in Games with Strategic Complementarities: An Experiment on Fixed vs. Random Matching

Abstract: In this article, we study behavior in a series of two-player supply chain game experiments. Each player simultaneously chooses a capacity before demand is realized, and sales are given by the minimum of realized demand and chosen capacities. We focus on the differences in behavior under fixed pairs and random rematching. Intuition suggests that long-run relations should lead to more profitable outcomes. However, our results go against this intuition. While subjects’ capacity choices are better aligned (i.e., closer together) under fixed pairs, average profits are more variable. Moreover, learning is slower under fixed pairs—so much so that over the last five periods, average profits are actually higher under random rematching. The underlying cause for this finding appears to be a “first-impressions” bias, present only under fixed matching, in which the greater the misalignment in initial choices, the lower are average profits.

6. Mirko Kremer and Luk N. Van Wassenhove. Willingness to Pay for Shifting Inventory Risk: The Role of Contractual Form

Abstract: In order to reduce their inventory risk, firms can attempt to contract with their suppliers for shorter supply lead-times, with their buyers for longer demand lead-times, or both. We designed a controlled laboratory experiment to study contracts that shift a focal firm’s inventory risk to its supply chain partners and address two questions. First, is it more effective if the cost of shifting inventory risk is framed as a fixed fee or in per-unit
cost terms? We find that, generally, our participants are willing to pay more to avoid supply–demand mismatches than the expected costs from such mismatches. This tendency to overpay is mitigated under fixed fee schemes. Second, does it matter whether the option to reduce inventory risk is the outcome of either increased responsiveness from the upstream supplier or advanced demand information from the downstream buyer? Our results suggest that this difference, when only a matter of framing, has no significant effect on willingness-to-pay.


Abstract: In this article, we model various forms of non-optimizing behavior in a newsvendor setting, including biases such as recency, reinforcement, demand chasing, and anchoring, as well as unsystematic decision errors. We assume that a newsvendor may evaluate decisions by examining both past outcomes and future expected payoffs. Our model is motivated by laboratory observations under several types of supply chain contracts. Ordering decisions are found to follow multi-modal distributions that are dependent on contract structures and incentives. We differ from previous research by using statistics to determine which behavioral factors are applicable to each decision maker. A great deal of heterogeneity was discovered, indicating the importance of calibrating a contract to the individual. Our analysis also shows that the profit performance and the effectiveness of co-ordinating contracts can be affected by non-optimizing behaviors significantly. We conclude that, in addition to the aggregate order quantities, the decision distributions should be considered in designing contracts.


Abstract: Despite being theoretically suboptimal, simpler contracts (such as price-only contracts and quantity discount contracts with limited number of price blocks) are commonly preferred in practice. Thus, exploring the tension between theory and practice regarding complexity and performance in contract design is especially relevant. Using human subject experiments, Kalkancı et al. (2011) showed that such simpler contracts perform effectively for a supplier interacting with a computerized buyer under asymmetric demand information. We use a similar set of experiments with the modification that a human supplier interacts with a human buyer. We show that human interactions strengthen the supplier’s preference for simpler contracts. We find that suppliers have fairness concerns even when they interact with computer-ized buyers. These fairness concerns tend to be even stronger when suppliers interact with human buyers, particularly when the complexity of the contract is low. We also find that suppliers are more prone to random decision errors (i.e., bounded rationality) when interacting with human buyers. In the absence of social preferences, Kalkancı et al. identified reinforcement and bounded rationality as key biases that impact suppliers’ decisions. In human-to-human experiments, we find evidence for social preference effects. However, these effects may be secondary to bounded rationality.

9. Elena Katok, Tava Olsen and Valery Pavlov. Wholesale Pricing under Mild and Privately Known Concerns for Fairness

Abstract: This article studies the performance of wholesale pricing when the supply chain partners’ fairness concerns are private information. We find that some properties of wholesale pricing established under complete information hold under incomplete information as well. First, wholesale pricing can coordinate the supply chain, despite the information asymmetry, when fairness concerns are strong enough. Second, in the case when an equitable profit split does not imply that the retailers profit must be higher than that of the supplier, the suppliers’
equilibrium offer is never rejected. Overall, the study makes two primary contributions. First, it provides a partial characterization of the equilibrium when the conditions required for coordination do not hold, that is, when fairness concerns are mild. In this case, the model predicts that the expected market price must be exactly the same as under complete information. The channel efficiency, nevertheless, is strictly lower than under complete information. The distribution-free lower bound on channel efficiency suggests that this efficiency loss should be quite small, though. Second, it provides an experimental test of the models’ predictions as well as a direct validation of the assumptions of preferences heterogeneity and mildness by obtaining the empirical distribution of the preferences.


Abstract: Explicit formal mechanisms dominate the discussion about incentives in Operations Management, yet many other mechanisms exist. Social comparison between peers may provide strong implicit incentives for individuals. Social comparison arises naturally in all social settings and may thus be unintended; however, many companies deliberately use it to motivate employees. In this study, we model a social context in which purchasers evaluate their performance relative to their peers; a feeling of inferiority results in a negative contribution to utility, whereas a feeling of superiority results in a positive contribution. We find that social comparison induces characteristic deviations from the newsvendor optimum ordering decision: if fear of inferiority outweighs anticipation of superiority, then purchasers herd together; the converse scenario incites actors to polarize away from each other. In both cases, actors will deviate from ordering the newsvendor optimum in order to satisfy social goals. Demand correlation and profit margins moderate the extent of the deviation.

11. Amnon Rapoport, Eyran J. Gisches and Vincent Mak. **Distributed Decisions in Networks: Laboratory Study of Routing Splittable Flow**

Abstract: We study network games in which users choose routes in computerized networks susceptible to congestion. In the “unsplittable” condition, route choices are completely unregulated, players are symmetric, each player controls a single unit of flow and chooses a single origin–destination (O–D) path. In the “splittable” condition, which is the main focus of this study, route choices are partly regulated, players are asymmetric, each player controls multiple units of flow and chooses multiple O–D paths to distribute her fleet. In each condition, users choose routes in two types of network: a basic network with three parallel routes and an augmented network with five routes sharing joint links. We construct and subsequently test equilibrium solutions for each combination of condition and network type, and then propose a Markov revision protocol to account for the dynamics of play. In both conditions, route choice behavior approaches equilibrium and the Braess Paradox is clearly manifested.

We are also pleased to see the acceptance for publication of the following work:


Abstract: Project switching occurs when a multi-project worker shifts his/her attention from one project to another before completing the first project. In this study, we study the effects of two areas of management policy on project switching behavior, project prioritization, and work monitoring. We conduct a controlled experiment to evaluate direct and combined effects of prioritization, scheduled progress checks, and managerial progress checks on project switching behavior in a distributed, multi-project work environment. We use computerized tasks constituting multiple projects as a means of efficiently simulating a project work setting. Working professionals served as subjects for the experiment, thereby enabling us to control for experience and other individual differences that may vary across workers in real-world projects.
find that clarifying priorities has little overall effect on the prevalence of switching in our multi-project setting, while the presence of managerial progress checks has significant and distinct impacts driving up switch tendencies. Interestingly, various attributes of the timing of these monitoring events also significantly impact the likelihood that workers will switch in response to these event triggers. We discuss the implications of these findings for managerial practice and for future research.


Abstract: We investigate inventory ordering decisions when decision makers anticipated a demand shock. Decision makers anticipating an event have been shown to brace for an uncertain negative outcome by overestimating the likelihood of that event. Decision makers faced with a spike in demand may incur increased holding costs because they may brace, exhibiting a judgment bias, and consequently a decision bias by over-ordering inventory. Three studies span conditions of uncertainty regarding the timing and magnitude of a demand shock: Employing three between-subjects experiments, Study 1 investigates behavior when decision makers were faced with uncertainty in timing and in magnitude of demand at the most elemental level, manipulating holding and stock out costs. The three experimental tasks feature uncertainty about the magnitude of demand (Experiment 1.1), uncertainty about the timing of demand (Experiment 1.2), and uncertainty about both the magnitude and timing of demand (Experiment 1.3). Study 2 uses a dynamic, multi-period replenishment task and a between-subjects manipulation regarding the uncertainty of timing and magnitude of a demand shock. Study 3 also employs a multi-period decision environment, but compares behavior under a demand shock condition with that in a condition featuring only random variability. The collective results from the three studies identify a bias toward over-ordering in response to a demand shock, relative to the optimal orders. The between-subjects manipulations in Study 2 points toward a possible remedy as we found that providing information concerning the timing and magnitude of a shock ameliorated the bias. The primary revelation was that decision makers had more difficulty dealing with uncertain timing than with uncertain magnitude of demand. One implication is that it is particularly critical for retailers to carefully plan and manage how they share information with upstream supply chain partners regarding when they plan to introduce store-level promotions.


Abstract: Whether and how trust and trustworthiness differ between a collectivist society, e.g., China, and an individualistic one, e.g., the U.S., generate much ongoing scientific debate and bear significant practical values for managing cross-country transactions. We experimentally investigate how supply chain members' countries of origin -- China versus the U.S. -- affect trust, trustworthiness, and strategic information sharing behavior in a cross-country supply chain. We consider a two-tier supply chain in which the upstream supplier solicits demand forecast information from the retailer to plan production; but the retailer has an incentive to manipulate her forecast to ensure abundant supply. The levels of trust and trustworthiness in the supply chain and supplier's capability to determine the optimal production quantity affect the efficacy of forecast sharing and the resulting profits. We develop an experimental design to disentangle these three aspects and to allow for real-time interactions between geographically distant and culturally heterogeneous participants. We observe that, when there is no prospect for long-term interactions, our Chinese participants consistently exhibit lower spontaneous trust and trustworthiness than their U.S. counterparts do. We quantify the differences in trust and trustworthiness
between the two countries, and the resulting impact on supply chain efficiency. We also show that Chinese individuals exhibit higher spontaneous trust towards U.S. partners than Chinese ones, primarily because they perceive that individuals from the U.S. are more trusting and trustworthy in general. This positive perception towards U.S. people is indeed consistent with the U.S. participants' behavior in forecast sharing. In addition, we quantify that a Chinese supply chain enjoys a larger efficiency gain from repeated interactions than a U.S. one does, as the prospect of building a long-term relationship successfully sustains trust and trustworthiness by Chinese partners. We advocate that companies can reinforce the positive perception of Westerners held by the Chinese population and commit to long-term relationships to encourage trust by Chinese partners. Finally, we also demonstrate that both populations exhibit similar pull-to-center bias when solving a decision problem under uncertainty (i.e., the newsvendor problem).


Abstract: Using a mathematical model, we consider how objectives other than profit-maximization influence the trade efficiency in a two-party supply chain with uncertain demand. Specifically, when the supplier or buyer of the good are concerned about the fairness of profits for the other party and themselves—for example in Fair Trade agreements—the system develops prices and order quantities that are often more—but sometimes less!—efficient (higher volumes and higher total profits) than would be predicted if all parties were strictly maximizing expected profits. We find that fairness concerns are most influential in a supply chain with high demand risk.


Abstract: In a repeat business context, past experiences with a service provider affect customers' decisions to renew their contract. How should a strategic firm manage customized service over time to maximize the long-term value from each customer relationship? We propose a dynamic model that relies on behavioral theories and empirical evidence to capture the effect of past service experiences on service quality expectations, customer satisfaction, and retention. Although firms can benefit from managing service expectations at the beginning of a relationship, we find that varying service in the long run is not optimal. Behavioral regularities explain the structure of optimal service policies and limit the value of responsive service. Loss aversion expands the range of optimal constant policies; however, if satisfying experiences are more salient, then firms should constantly vary service levels. Loyal or high-margin customers need not warrant better service; those who anchor less on past service experiences do-provided that retention is improved by better past experiences. The effect of customer memory on service levels is determined by whether habituation or rather goodwill drives defection decisions.


Abstract: This paper discusses the interaction between revenue management (RM) and customer relationship management (CRM) for a firm that operates in a customer retention situation but faces limited capacity. We present a dynamic programming model for how the firm balances investments in customer acquisition and retention, as well as retention across multiple customer types. We characterize the optimal policy and discuss how the policy changes depending on capacity limitations. We then contrast the modeling results with those of a behavioral experiment in which subjects acted as managers making acquisition and retention decisions.


Abstract: This paper studies the effect of limited information in a sequential search setting where a single selection is to be made from a set of random potential options. We consider both a full-information problem,
where the decision maker observes the exact value of each option as she searches, and a partial-information problem, in which the decision maker only learns the rank of the current option relative to the options that have already been observed. We develop a model which allows for a sharp contrast between search behavior in the two information settings, both theoretically and empirically. We present the results of an experiment that tests, and supports, the key prediction of our model analysis—limited information induces longer search. Our data further suggest systematic deviations from the theoretical benchmarks in both informational settings. Importantly, subjects in our partial-information conditions are prone to stop prematurely during early stages of the search process and to sub-optimally continue the search during late stages. We propose a simple model that succinctly captures the interplay of two symmetric choice and judgment biases that have asymmetric (but opposing) effects on the length of search.


Abstract: Buyers often make supplier selection decisions under conditions of uncertainty. While the analytical aspects of supplier selection are well developed, the psychological aspects are less so. This paper uses supply chain management and behavioral decision theories to propose that attributes of the purchasing situation (category difficulty, category importance, and contingent pay) affect cognition that, in turn, affects a supply manager’s choice. We conducted a supplier selection behavioral experiment with practicing managers to test the model’s hypotheses. When the context involves an important or difficult sourcing category, higher risk perceptions exist that increase preference for a supplier with more certain outcomes, even when that choice has a lower expected payoff. However, the presence of contingent pay decreases risk perceptions through higher perceived supplier control. We also find that a manager’s risk propensity increases preferences for a supplier with less certain outcomes regardless of perceived risk. Our model and results provide a theoretical framework for further study into the cognitive aspects of supplier selection behavior and provide insight into biases that influence practicing supply chain managers.

D. My Favorite Paper

I have added a new column to the newsletter “My Favorite Paper.” For each newsletter I will ask an accomplished researcher in our field to present one of their favorite works, one they think is worth taking a look at. This may be a paper, chapter or book and may be their ‘favorite’ in any way they wish to define it. It should be loosely related to behavioral operations and not written by them. The column will include a short introduction to the guest editor, a citation to the paper and abstract and a description by the guest editor of why the paper is his or her favorite. I hope you enjoy the feature. I encourage nominations for future guest editors for this column.

In a gross display of nepotism I have selected myself as our first ‘accomplished researcher’. I have chosen as my paper, a book, Blackett’s War by Stephen Budiansky.

Dr. Schultz is an Associate Professor at the Air Force Institute of Technology at Wright Patterson Air Force Base outside Dayton, Ohio. He teaches in a Master’s Degree program in logistics mostly for officers in the USAF. He began work in Behavioral Operations Management in the late 90s while a Ph.D. student at Cornell. His dissertation work looked at the assumption of independence of processing times in queues and was published in Management Science in December, 1998 and 1999. He is currently working on a theory of the response of processing times to load.

In March 1941, after a year of devastating U-boat attacks, the British War Cabinet turned to an intensely private, bohemian physicist named Patrick Blackett to turn the tide of the naval campaign. Though he is little remembered today, Blackett did as much as anyone to defeat Nazi Germany, by revolutionizing the Allied anti-submarine effort through the disciplined, systematic implementation of simple mathematics and probability theory. This is the story of how British and American civilian intellectuals helped change the nature of twentieth-century warfare, by convincing disbelieving military brass to trust the new field of operational research.

Stephen Budiansky has a degree in chemistry from Yale and a master’s in applied mathematics from Harvard. He has written for the American Chemical Society, Nature and U.S. News and World Report. He has written books on history, Air Power, Cryptography, Cats, Dogs, Horses and the Evolution of Consciousness.

Review: This is a great book. It’s much more than what the blurb says. The book is about the birth of OR during WWII. It is very well written and, after the background chapters on pre-war scientists and the early history of the submarines, it moves along at a great clip. We learn about the early application of radar during the Battle of Britain to track incoming raids and then to aim anti aircraft artillery. Most of the book however is dedicated to how OR was applied to win the war against U-Boats in the North Atlantic. It’s about the application of science to figure out how to search, where to search, when to search and what to do if you find something.

However, all of that is just the example he uses. The book is really about the birth of OR. It’s about how Britain mobilized scientists during the war not just to develop new technology but to develop the methods to use technology. One example is the use of radar for early warning on incoming air raids, warning that would become crucial in winning the Battle of Britain in 1940. By 1936 the equipment was ready but the system as a whole was unworkable. It was an information and communication systems problem in the end solved by a cooperative effort of scientists and the military.

Chart from http://www.ssarkansan.com/home/perspective

It is interesting how much of the work was outside the area of traditional math and mathematical modeling. Math, statistics and probability was important. But it was clearly a multidisciplinary effort. The Operational Research group in Coastal Command would employ eight physiologists and biologists, a classical archaeologist several economists and statisticians, a botanist, three communications experts as well as a range of physicists, mathematicians and astronomers. The book points out that biologists seemed to work well because they were used to working with horrible and incomplete data. In 1941, relatively simple statistics led the team to realize that they weren’t spotting nearly as many submarines as they should have been. Non-mathematical investigation led to changing the paint on the underside of the search aircraft. If you are ever in London area take the chance to visit Bletchley Park where the British broke the German Enigma codes during the war (with some
help from NCR here in Dayton, Ohio). They talk about it in the book. In the end, what allowed them to read the German messages was the combination of math and human nature. It was about knowing how the codes were used and how the operators set the machines. If you look between the lines the book makes it clear that the practice of OR is not about solution tools. It’s about how to think.