Introduction to "The Impact of Digitization on Business Operations" Minitrack

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This year "The Impact of Digitization on Business Operations" minitrack at HICSS has accepted twelve papers, which explore the increasing complex roles that advanced information technologies such as Web 2.0 and mobile play in healthcare, business operations and strategies, and consumer decisions and activities. The twelve accepted papers are as follows:

• *Nutritional medical file in Hospital setting – a case for unification*: This paper identifies the right flowchart of nutritional treatment care to be used for making the best nutritional medical software to improve the nutritional treatment in hospitals. Food service and nutritional care in hospitals is often considered as the most complicated process in the hospitality sector. The initial study of computerized nutrition program has already shown positive results such as reducing calculation errors, improving safety in clinical practice, saving nutritionists' time, and improving patient outcomes.

• *A Randomized Trial of Telemedicine for Migraine Management*: This paper evaluates the outcomes of long-term follow-up care delivered to patients with chronic Migraine using telemedicine over a one-year period. It is the first study presenting evidence that telemedicine is a viable method of conducting follow-up visits for migraine patients having severe migraine-related disability, with no difference in clinical outcome (and satisfaction) at one year as compared to in-office visits.

• *Simulation Model to Study Provider Capacity Release Schedules under Time-Varying Demand Rate for Acute Appointments, Demand for Follow-Up Appointments, and Time-Dependent No Show Rate*: This paper investigates doctors' office capacity management issues using data collected from a family medicine clinic. The authors explore and compare different strategies based on utilization of appointments and unaccommodated acute care request. They show that careful capacity release management can help increase the utilization of healthcare providers' service. For example, gradual release of capacity can increase provider utilization whether the probability of a patient not showing up is high or low.

• *Economics of Information Processing in Operations Organizations*: This paper studies how information economics affect the organization of management. Management hierarchies is viewed as tree-like structures designed to minimize real and opportunity costs related to information processing and decision making. "Line" production activities stand at the end nodes of a hierarchy tree. Data from these bottom nodes is processed and distributed to higher-level nodes that combine information from the lower nodes. It solves for the optimal tree, which includes the links and capacity at each of the nodes. Models are formulated on two underlying premises: complexity costs arise due to processing different types of data, and capacity planning must consider queuing effects due to data arrival and processing uncertainties create opportunity costs.

• *Dynamics of assignee networks: a new approach for measuring the impact on patent value based on network analysis*: This paper examines new ways to quantify patent value and studies the related influence factors using the assignee network structure. This approach provides a reliable perspective of assessing the overall patent value of a firm by analyzing the topology of its citation activities. Results indicate that 'in-degree centrality' and 'betweenness centrality' significantly affect patent value, and forward citations of an assignee's patents build up its reputation, thus reflecting higher influence and value.

• *Reducing Costs of Managing Medication Inventory in Automated Dispensing System in Hospital Units*: Automated Dispensing Systems (ADS) is used to store and dispense medication in hospital wards. This study proposes a linear integer-programming algorithm to minimize the inventory management costs incurred in holding and refilling the medications stored in an ADS. The algorithm suggests how to allocate medications into capacity-

constrained containers. A numerical example with real hospital data demonstrates significant percentage savings relative to the status quo.

• *Organic Advertising? The Effect of Featured Review on Consumer Rating*: This paper investigates the effect of the Favorite Reviews (FR) feature on user behavior in an online user-generated content (UGC) platform. This new feature allows business owners to pin one selected review near the top of their property page, thereby serving as a new advertising tool for business owners to promote their businesses using select inputs from their most satisfied consumers. This field study shows that the amount of new five-bubble reviews increased significantly after the favorite review has been pinned for the hotels that have used this feature, relative to the control group, and the distribution of reviews posted later on tends to be distorted toward the more positive extreme.

• *Aggregation Bias*: This paper proposes an axiomatic approach about how a decision maker aggregates opinions from different sources into an overall assessment. A two-parameter family of functions is produced. The interpretations of the parameters were empirically verified and the axioms were confirmed with two applications: results from a supply chain contract experiment and consumer reviews from a popular consumer electronic review website.

• *Racial Discrimination in Social Media Customer Service: Evidence from a Popular Microblogging Platform*: This paper examines the existence and the extent of racial discrimination against African-Americans in social media customer service using all complaints to seven major U.S. airlines on Twitter for a period of nine months. The authors leverage machine-learning and deep learning techniques to investigate whether a customer's racial identity (i.e., whether African-American or not) has any effect on receiving a response from the airline. The empirical analysis results show very strong evidence that airlines are less likely to respond to complaints sent to it by African-American customers, than to the customers who are not African-American, suggesting potential racial discrimination in social media customer service.

• *Does Telemedicine Reduce ED Congestion? Evidence from New York State*: This research suggests that telemedicine can be a potential solution to alleviate ER overcrowding. Using several large datasets from multiple sources, it shows that ED telemedicine adoption significantly reduces patients' length of stay and waiting time without compromising care quality or patient cost, and the effect of telemedicine is stronger for less severe patients or when the ED is at higher occupancy level.

• *Operational Impact of mHealth Adoption in Clinical Practice*: This paper evaluates the trade-offs of implementing mHealth technology in a clinical practice. Through a numerical analysis, the authors identified conditions under which clinics can profitably adopt mHealth. This study provides valuable insight on the application of mHealth technology in managing chronic conditions.

• *The Smartphone as the Incumbent "Thing" among the Internet of Things*: This paper examines the impact of interoperable/compatible smart device on the compatible platform and competing platform while considering the case in which the smart device may transform from a networked complement into a networked substitute. The authors characterized market equilibria for various cases of product offerings and discussed the role of several market parameters on the market outcomes.