A Second Century Initiative – Cluster Hire Proposal

Health Information Technology

Abstract (300 words)

The Robinson College of Business (RCB) and the Andrew Young School of Policy Studies (AYSPS) propose an interdisciplinary cluster hire of three faculty around the research theme of health information technology (HIT). This initiative will build upon the existing strengths of the nationally ranked Computer Information Systems and Health Administration programs (and its new Health Informatics specializations), as well as Health Policy and research grants strengths. These new faculty will support a new innovative and collaborative research program focusing on information systems throughout the healthcare sector. The healthcare sector in the U.S. has been lamented for its endemic problems of costs, quality, and access, with many attributing these to the lack of effective information systems use among doctors, nurses, patients, laboratories and insurance companies. Electronic health records (EHR), personal health records (PHR), and computerized provider order entry systems (CPOE), provide unparalleled opportunities to transform the healthcare sector. Atlanta has recently been promoted as the HIT capital of the world.

The unique setting of the healthcare sector provides tremendous opportunities to conduct cross-campus, collaborative health informatics research that can enhance the academic reputation of GSU. Three GSU components are proposing this HIT cluster, and it is anticipated that this synergy will result in other collaborations across campus. Ephraim McLean, Regents’ Professor and Chair of RCB’s internationally renowned Computer Information Systems Department will be the point-of-contact for this proposal and lead faculty. RCB’s Institute of Health Administration is nationally ranked and together with CIS have recently established health informatics specializations at the bachelor’s, master’s, and doctoral levels. The Georgia Health Policy Center has demonstrated considerable success in acquiring grants and conducting research related to policy questions such as health informatics. These programs have significant demonstrated health informatics strengths including healthcare expertise, top-tier journal leadership, grants from prestigious organizations and prominent national reputation.
Proposal (1992 words)

National significance of Health Information Systems: In the United States, the beleaguered healthcare system is the subject of vociferous public discourse, and has frequently been criticized for a variety of deficiencies including rising costs, inefficiencies, unequal access to care, and medical errors that result in serious adverse consequences, including preventable deaths. Recently many, including President Obama, have contended that the adoption of health information technological innovations can ameliorate many problems in healthcare. The effective management of health data has emerged as a strategic imperative of vital importance for the healthcare sector in the United States. With the healthcare sector constituting 17 percent of the GDP and its likelihood to increase to 20 percent within five years, the need to transform the sector through information systems innovation is paramount.

The urgency to transform the healthcare sector is evident in the recent policies enacted by the federal government. Under the American Recovery and Reinvestment Act of 2009, an estimated impact of $40 billion will be expended for HIT, primarily to incentivize physicians, hospitals, and other providers that adopt and demonstrate “meaningful use” of HIT and electronic health records (EHRs). Furthermore, the Center for Medicare and Medicaid (CMS), the Department of Health and Human Services (HHS) and the Certification Commission for Health Information Technology (CCHIT) has been evolving interoperability and data exchange standards, as well as incentives for various stakeholders. These steps are geared toward deep and broad application of information systems among physician offices and hospitals and corresponding technological, strategic, organizational and clinical changes in a timely manner.

The dynamic changes projected for the healthcare sector over the next decade provide an exceptional opportunity to conduct collaborative and interdisciplinary research, and shape the national agenda on HIT. Furthermore, Atlanta has recently been promoted as the HIT capital of the world (AJC 11/7/2010), and HIT is expected to create a very large number of positions. We have a real opportunity to impact the economy and competitiveness of Atlanta and the state of Georgia, and position ourselves on the national map.

Potential to advance research and scholarship: Building upon the considerable grant success of the three proposing entities (CIS, IHA, GHPC), significant opportunities exist for discipline-specific and interdisciplinary research within the HIT cluster. For example, the dynamics between various stakeholders in the healthcare sector provide unique opportunities to examine the adoption and assimilation of HIT, the clinical, operational and administrative process changes necessary to integrate HIT into the business of healthcare, and measurement of clinical and financial outcomes. Privacy as a right of patients and confidentiality and security of patient data as a duty of institutions also present several interesting research questions. Finally, the development of text and data mining techniques to visualize information and to discover and
utilize valuable patterns and knowledge, the design of fault-tolerant and robust wireless networks for data transfer provide opportunities to extend the frontiers of knowledge.

Cluster faculty with expertise in information security and privacy may wish to investigate how patients decide to upload their information in PHRs and allow physicians and hospitals to link such information with their EHRs. Faculty with expertise in health systems might examine what motivations including incentives and punishments, abilities, cultural norms and political processes may determine the dynamics of technology adoption and implementation, the changes engendered by the technologies and the measurement of the multiple impacts resulting from such adoptions and changes. Cluster faculty with expertise in wireless networks and data mining techniques can investigate how text-mining algorithms can be used to extract knowledge from the vast amounts of information that will accumulate in EHRs; how sophisticated wireless devices and networks can be designed and used to provide care in post-acute settings; and how a large amount of health data can be presented in an understandable form by using image processing and data visualization algorithms.

Equally importantly, cluster hires can collaborate with one another and other members of RCB and AYSPS to understand what personalization and privacy safeguards could be implemented to enhance the likelihood that patients agree to use wireless networks and devices; how will the clinical, administrative and operational processes in hospitals and physician practices change once data mining and visualization tools are implemented; what economic incentives and organizational changes will enable the provision of technologically-enabled health services provision; and how fraud can be detected and prevented.

Benefits to Georgia State University: RCB and AYSPS are among the few universities in the country with business schools and policy centers with healthcare and IT experienced faculty and academic units in Computer Information Systems (CIS), Health Administration (IHA), and Health Policy (GHPC). This gives RCB and AYSPS a unique perspective and significant advantage in pursuing research opportunities related to the integration of information technologies in the business of healthcare. While the opportunities around HIT have been identified by institutions nationwide, our strengths – deep domain knowledge of the industry, expertise in IT and process innovation and extensive technological capabilities, including systems design, network optimization and algorithm development – provide us with a competitive edge that is difficult to replicate or surpass in the Southeast region of the U.S. Our unique capabilities and determination and the collaboration envisioned in this proposal will enable us to obtain national prominence in a rapidly emerging domain that is still early in the development process, provides a hotbed of research and entrepreneurial opportunities, and is likely to remain relevant for decades to come. This proposal’s collaborating faculty would be at the forefront of these changes, and hence it would raise GSU’s profile for innovative research in this highly consequential domain. The proposal would also enable collaboration between two of the largest colleges in GSU in an application area that has already acquired national attention.
The teaching programs facilitated by the new hires will enable us to impact the economy of Atlanta, Georgia and the country, and enhance the reputation of the University in the professional world.

**Goals of the proposal:** This proposal aims to create an internationally recognized research program in health information systems. Four specific goals of this proposal are to: (1) enhance RCB, AYSPS and GSU reputations for HIT research and grants excellence; (2) catalyze new interdisciplinary research and scholarship around the cluster theme; (3) strengthen current and develop new cross-disciplinary educational programs; and (4) engage industry and local community in practical application of new knowledge to real-world settings. The addition of new faculty will enable RCB and AYSPS to build on existing strengths and linkages and to extend them to achieve strategic priorities. The three cluster positions are: (1) a tenure-track RCB/CIS faculty member specializing in health information privacy, security, and IT innovation; (2) a tenure-track RCB/IHA faculty member specializing in health IT implementation and IT-enabled health services enhancement; and (3) a tenure-track AYSPS faculty member specializing in health informatics policy and economics.

**Fit with strategic priorities:** GSU’s strategic plan acknowledges the importance of interdisciplinary approaches to solving complex problems. Faculty in RCB and AYSPS bring their strengths in technology, organization theory, economics, policy, and algorithms to conduct interdisciplinary research. Faculty are well known to cross boundaries to reach out to other units within GSU and externally to collaborate. The strategic plans of CIS, IHA, and GHPC identify HIT as a growth area, and recognize the need to educate future healthcare leaders who will lead the healthcare sector toward sophisticated information integration. The proposed faculty positions are new and would fill long-standing priorities identified by the RCB and AYSPS. The RCB faculty positions fill a need identified by the IHA Advisory Board for faculty members specializing in health information technologies. The greater Atlanta area is a large healthcare market, and enjoys the presence of several prestigious health IT organizations such as McKesson and Greenway Medical, as well as nationally-recognized medical centers. The active engagement of industry participants in the academic programs is a prominent feature and goal of RCB and AYSPS. The AYSPS faculty position fills the need for a faculty who can focus on health informatics policy and economics issues.

**Existing strengths in research and leadership:** The RCB and AYSPS cluster team members are well-recognized for excellent interdisciplinary research and scholarship in fields related to the cluster research theme, as well as their healthcare knowledge and experience. Their national and international reputations are also reflected by their:

- Participation in external grant awards from federal and state agencies (e.g., NSF, HRSA, CDC, NIH, etc.) and private foundations (e.g., RWJ Foundation, Pfizer Health Informatics, etc.).
• National, state, and academic awards, including NSF CAREER awards and leadership positions in prestigious professional societies such as AIS, ACHE, AUPHA, etc.
• Selection as peer reviewers and editors of top-tier journals and conferences such as *Information Systems Research, MIS Quarterly, Management Science, Health Services Research, Academy of Management, INFORMS Journal on Computing, AUPHA, CAHME, AcademyHealth*, etc.
• Selection as peer reviewers for national and international agencies, including NSF, DCH, ACHE, etc.

Additionally, the cluster hiring committee and the proposing departments contain members with proven leadership and HIT background. Regents’ Professor Ephraim McLean, the lead faculty-team member, is well-known internationally in the IT field and his M.I.T. dissertation focused on HIT at the Lahey Clinic in Boston. The CIS Department consistently ranks among the most research productive information systems groups in the world. The Department attracts top doctoral students and places them in premier institutions. Andrew Sumner, Director of the Institute of Health Administration, has grown the educational programs on health management significantly, has obtained/managed extramural grants of exceeding $7 million, and his doctoral work at Johns Hopkins focused on HIT. Karen Minyard, Director of the Georgia Health Policy Center, has degrees in nursing and business and leads a group of several dynamic research associates providing evidence-based research, program development, and policy guidance locally, statewide, and nationally to improve community health. Over the last five years, the Center has brought in over $22 million in grants and contracts from several sources, including the Federal Government.

**Utilization of resources for high impact, timely and significant expansion:** The RCB and AYSPS have adequate office space, facilities, and administrative support staff to meet the needs of the proposed new hires. No new infrastructure will be needed for new hires. To support the increased interdisciplinary research and applications for external funding envisioned by this proposal, the RCB and AYSPS will provide appropriate administrative support and course releases during the pre-tenure phase. Additionally, as documented in Appendix 3, the participating Colleges will provide adequate bridge funding to supplement the $100,000 per position to be funded by the University.
Key metrics and evaluation of the goals of the proposal: This cluster hire’s success will be measured by the following outcomes within five years of hiring completion:

Reputation for excellence:
- Continuing advance in national recognition and “top 20” national ranking in Health Informatics by 2015.

Interdisciplinary research and scholarship:
- Involvement of cluster faculty and other related RCB and AYSPS faculty in applications for new external funding from relevant agencies with a goal to fund new faculty’s summer research and new research projects.
- Publications by cluster faculty in nationally-recognized scholarly journals sufficient to meet tenure requirements in their respective colleges.
- Annual presentations of research findings and scholarship in prestigious conferences.
- Expansion of collaborative linkages for interdisciplinary research with Georgia Health Policy Center, and the College of Health and Human Sciences at GSU.

Collaborative educational programs:
- Development of new cross-listed courses in the fields reflected by the cluster’s research theme, such as Health Data Mining, Health IT Implementation, Health IT Entrepreneurship and Health Services Innovations.
- Increase in number of business and computer sciences students enrolled in health IT courses.
- Expansion of Health Informatics concentration across different divisions of the University such as Georgia Health Policy Center, and the College of Health and Human Sciences.

Industry collaborations and community engagement:
- Development of revenue-generating professional education programs for healthcare executives.
- Hosting of at least one national interdisciplinary conference at GSU to present research findings and scholarship.
- Student placement in leading healthcare organizations.
Appendix 1
Cluster Hiring Team

Robinson College of Business: Department of Computer Information Systems

Ephraim McLean, Regents’ Professor, Smith Eminent Scholar, Department Chair and Director, Center for Research in Information Systems (expertise in health IT, IS planning and success, IT-driven changes)

Lars Mathiassen, Professor and GRA Eminent Scholar (expertise in IT-enabled process innovation, telehealth, organizational change processes)

Arun Rai, Regents’ Professor and Harkins Chair (expertise in process innovation, supply-chain management, governance, management of IT innovation)

Mark Keil, Board of Advisors Professor (expertise in HIT implementation, IT project management, IT risks)

Bala Ramesh, Board of Advisors Professor (expertise in business intelligence, knowledge management, requirements engineering)

Upkar Varshney, Associate Professor (expertise in wireless in healthcare, health monitoring, pervasive healthcare)

Health administration, health services, health IT and health operations management)

Robinson College of Business: Institute of Health Administration

Andrew T. Sumner, Director, Joe Taylor Chair, and Associate Professor (expertise in health administration, health services, health IT and health operations management)

William S. Custer, Associate Professor, and Director, Center for Health Services Research (expertise in healthcare financing, health insurance and data mining)

Patricia G. Ketsche, Associate Professor (expertise in health insurance, health policy, ethics and healthcare coordination IT)

Abhay N. Mishra, Assistant Professor (expertise in health information systems, IT value, health IT implementation, IT and process innovation, health supply chain)

Marie L. Cameron, FACHE, Lecturer (expertise in healthcare governance, leadership, financing,

Andrew Young School of Policy Studies: Georgia Health Policy Center

Karen J. Minyard, Director Georgia Health Policy Center and Associate Research Professor (expertise in health care markets and strategic organizational change)

Glenn M. Landers, Senior Research Associate (expertise in health policy and program evaluation)

Angela B. Snyder, Senior Research Associate (expertise in health policy, health care quality, public health data systems)
Appendix 2

Cluster Hiring Plan

Specific position and potential candidate profiles: The cluster hiring proposal envisions recruiting three tenure-track faculty who have exceptional potential for research and scholarly strength and demonstrated capabilities for top-tier journal publication: (1) a faculty member in the CIS department at RCB; (2) a faculty member in IHA at RCB; and (3) a faculty member in GHPC at AYSPS. In addition, candidates’ fit with the mission of the departments and the university as also their ability to attract prestigious external grants will be important factors in determining their suitability.

Search committee membership: The following members will constitute the search committee: Lars Mathiassen, Mark Keil, and Bala Ramesh from the CIS Department at RCB, Abhay Mishra, Patricia Ketsche, and Bill Custer from the IHA at RCB, and Karen Minyard, Glenn Landers, and Angela Snyder at AYSPS. These faculty members have expertise in healthcare, HIT and IS planning, IT-enabled process innovation, telehealth, organizational change processes, health services, health operations management, IT value, health IT implementation, IT and process innovation, mobile computing, artificial intelligence and data management for life science data. The wide variety of skills available at the disposal of the search committee will ensure that candidates are evaluated for both their depth and breadth of knowledge. Candidates will also need to successfully complete the internal recruitment processes for the respective Colleges.

Feasibility: All the traditional recruitment forums such as top-tier conferences, the Chronicle of Higher Education, respected on-line academic recruitment sites, blogs, e-mail lists, and solicitations to renowned scholars for their best doctoral candidates will be used to attract and identify suitable candidates. The search will be national in scope. Preliminary interviews will be conducted with shortlisted candidates either at conferences or on the phone. After assessing their fit with the position, approximately 15-20 candidates will be invited for campus visits for the entire cluster (i.e., 3-4 candidates for each position) upon the completion of the preliminary interviews.

Timeline: The search will begin immediately upon the award of 2CI approval by the Provost. Networking and early identification of potential candidates will begin in spring 2011, and formal advertising will be placed in summer 2011. For the RCB positions, the search committee will attend International Conference on Information Systems and INFORMS conferences, usually held in December and November, respectively. RCB aims to make offers by MidDecember - February, with hiring concluded by the end of the month. For the AYSPS position, a similar timeline will be followed.