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Dr. Honeyman-Buck,

I have recently returned from the Society for Imaging Informatics in Medicine (SIIM) 2012 Annual Meeting and was reading Dr. Bruce Reiner and Matthew McKinley's ("Reiner and McKinley's") excellent paper on the plane ride home, entitled "Application of Innovation Economics to Medical Imaging and Information System Technologies", *JDI*, June 2012. The paper is courageous and shines the light on an incredibly important topic for SIIM, our industry and the healthcare system that we all collectively serve. I was struck by many statements in the paper, and would like to share my thoughts. First, these are the extracted areas that most resonated:

The practice of medicine has been incredibly technology dependent, and this is especially the case for radiology {1}. Advances in medical imaging and information systems technologies have transformed radiology practice through the creation of new medical imaging techniques (e.g., molecular imaging), data delivery and presentation [e.g., picture archival and communications system (PACS)], and clinical decision support (e.g., CAD). Yet despite the long-standing history of medical imaging and information technology (IT) innovation,

the past few years have been relatively barren. This recent lack of innovation has led to a trend of commoditization, which is particularly evident in information system technologies, such as PACS and RIS, which just a decade ago, were viewed as groundbreaking and innovative technologies [2].

With shrinking R&D budgets and focus on the near-term economic bottom line, this has led to an environment largely focused on incremental innovation [23]. The end result is that radical and disruptive innovations, which previously served to drive change and prosperity, have been relatively quiescent; contributing to the commoditization of medical imaging technologies and services [2].

There are many examples of medical imaging and IT companies, which adhere to this strategy; acquiring smaller and more innovative companies and then failing to assimilate the newly purchased knowledge and ideas into existing products and services. The end result is the stifling of the status quo, and lack of brand differentiation, which eventually can lead to commoditization.

Many of the themes argued in the paper, I relayed verbally to numerous customers, writers, media, and consultants at SIIM—prior to reading the paper, as my own personal industry observations. While not a radiologist, I have spent my entire career in medical imaging, working at many organizations and vendors that spanned the "types of innovation" discussed in the paper:

- *Military Health System—Disruptive Innovation.* I worked on the periphery of the DoD's MDIS program, as well as participated as a consultant involved in the original DIN-PACS initiative. This effort to bring PACS, and then RIS/PACS to veterans and the military health system was clearly disruptive. Commercial PACS companies initially resisted integrating RIS and PACS, but looking back, this was a brilliant move on the part of the

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government. These radiology leaders forced disruptive change, creating a foundational shift in imaging and the first big growth curve for PACS.

- *Web-Based PACS—Radical Innovation.* I worked for two web-based PACS vendors that initially developed viewers for enterprise distribution, but quickly expanded their products to complete web-based PACS. These companies signaled a new wave of adoption in the world of PACS, moving beyond the early client/server implementations. Each company was ultimately acquired: the first company was acquired by a vendor that today manages five different PACS that they are trying to support, and the second company was acquired by a vendor that drove the web-based PACS from first to last place in industry customer satisfaction rankings. Where radical innovation once ruled the day for these firms, today, incremental innovation occurs at best.

I am now the General Manager, North America for Visage Imaging, a company embodying the disruptive, innovative technology that Reiner and McKinley eloquently imply the industry is not only longing for, but requiring to stay off the threat of commoditization. Visage develops and markets server-side, thin-client enterprise viewing solutions for diagnostic, clinical, and mobile uses. Our product marries 2D and multi-dimensional imagery into a single customizable viewer that spans multiple displays powered by protocol-driven workflow. This is technology that transforms the way radiologists read, by taking technologies from the back room, into the reading room and beyond. Visage offers an incredibly fast, multi-dimensional viewer that provides radiologists the optimal reading experience, of all the multi-dimensional imagery, presented as they have always wanted but never could. My interest is not to market to you, but to ask for SIIM's help and also, to provide help where possible.

So how can SIIM (and the SIIM Annual Meeting) help get innovative products out from the fringe and more quickly into the mainstream? Here are some ideas for consideration:

- In addition to SIIM Innovation Theater/Vendor Tie-Ins, perhaps there could be part of the floor or session(s) dedicated to various categories of innovation—like enterprise viewers, VNA, mobile, dose, image sharing, analytics, and workflow tools (for example). Vendors could be chosen by SIIM members to participate—optimally by crowd sourcing—where vendors could demonstrate products outside of the “typical” booth environment with a focus on their “it” product. Attendees would go to a certain area, and only the top “X” technologies that get the most votes would be demonstrated. A “one-stop-shop” for innovation, that SIIM members want to see.
- Product showdowns—SIIM could promote and hold live product face-offs between vendors that want/desire/are invited to participate. This is a great way to

build exposure for the most innovative technologies, as long as the environment is fair and controlled. The multi-detector row CT conference has done this well in years past, to much fanfare from attendees.

- SIIM could have basic HL7 and DICOM datasets available, over-supplied/published network conditions, set a start time and time vendors performing the following, as quickly as possible. The results would be published / presented by SIIM at the show.
 - Test DICOM acquisition performance—For example, take 100 GB (?) of data and test/publish how long it takes for vendors (PACS, VNA, Viewers, etc.) to fully make all 100 GB available on their systems.
 - Using “raw” commercial off the shelf computers (Dell/HP and Apple could sponsor), test how long it takes to (down)load/display an image viewer client complete with a multi-slice CT study generating on-the-fly coronal/sagittal and volume reconstructions.
 - Have several VNA environments setup (by different vendors), and have multiple enterprise viewers connect to those environments. Test the performance of the VNA and viewers for speed and capabilities.
 - Using raw mobile devices (Tablets, iOS, Android), test access speed to sample studies.
 - Using the HL7 feeds demonstrate universal worklist capability, across a diverse set of data.
 - Test accuracy of voice recognition engines—have the same group of SIIM attendees test accuracy on a number of different speech platforms.
 - Test processing speed and results of business/practice analytic tools.
- Technology Areas—Perhaps an area could be dedicated to “extreme” use cases. I emphasize “extreme” in jest, not because of true extreme uses cases, but due to being falsely perceived as cutting edge. For example, it is absolutely shocking how many radiologists do not have (even poor) remote access to their PACS for diagnostic interpretation. Similarly, how many referring physician use web viewers that are so dated, slow, and poorly featured that they are unusable? Another use case is image access from Mac computers—Macs are very popular with consumers and radiologists, but how many PACS support Mac? Each of these are technology focus areas that could be explored to demonstrate innovative technology, available now.
- Perhaps rotate innovative technologies on the SIIM website that are investigated by SIIM leaders and reported on to membership.

These are just a handful of ideas that SIIM could pursue. Survey and query SIIM membership for what they would like to see, and I am certain they will come up with even better ideas. SIIM's sessions about next-generation technologies are

outstanding and equally important, but until providers see the technologies firsthand, they do not believe they are attainable (other than for the most advanced/privileged practices). We must work as an industry to convince radiologists at all levels that many technologies used in academic, sophisticated environments have similar (sometimes more) productivity and care benefits for radiologists working in environments with less resources. As Reiner and McKinley alluded to in their paper, we have an extremely risk-averse culture that has developed in Imaging. Sales cycles have always been and continue to be very long (e.g., average 1–2 years or longer for new technology). Also, buyers want to visit/experience the new technology in environments that look exactly like their own environments.

If SIIM can help to dispel some of these fears, and through efforts make new technology adoption easier and more attainable, we will slowly eliminate the perception of the “commodity” culture that is presently plaguing the industry. One could successfully argue that the drop in SIIM attendance over the years is because of the “been there, done that” mentality of institutions that have already gone to RIS/PACS. Whether true or not, there are many sessions at SIIM

year over year that are perceived as being repeats of similar topics, content, or speakers. Imagine if SIIM reinvented, innovated itself to disrupt the way SIIM (and the Annual Meeting) is perceived? That would be a refreshing change and could dramatically improve attendance. It is my belief that an innovative frame of mind must start with industry insiders before it propagates successfully to the masses.

I am confident we can transform the way imaging technologies are perceived, experienced, and implemented. Radiologists will be able to have the latest tools, improving their productivity, and providing the best possible patient care. We were the first healthcare discipline to significantly embrace technology, eliminating film, and going digital. We can continue that spirit of transformation. We owe it to the patients we all serve to do nothing short of this. Thank you to Reiner and McKinley for their outstanding paper and SIIM, for considering the above. I look forward to answering any questions you have and continuing to work with SIIM on these issues. We can do this. Yes we can.

Regards,
Brad Levin