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Reflections on Engaging the Business Community to Support Academic Research

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Abstract:

In this historical perspective, I share my thoughts and experiences working with companies to engage and support academic research. I show the process from finding the right topic to deciding when it is time to move on to something new. As I go through my experiences, I will introduce 10 lessons learned to help in your research efforts. I also introduce three example professors who operate in different academic environments, have different academic and personal goals, and take different paths in working with the business community. I close by exploring the four evolutionary stages of academic IS research. The latest stage, big data/machine learning/artificial intelligence, offers new opportunities for engaging the business community, as well as impacting what academic IS research is and how it is conducted.

Keywords: Historical Perspective, Academic Research, IS Research, Support for Research, Research Stages, Business Community.

[Department statements, if appropriate, will be added by the editors. Teaching cases and panel reports will have a statement, which is also added by the editors.]

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1 Introduction

CAIS Editor-in-Chief Fred Niederman contacted me and asked if I would author an article on my experiences and recommendations for faculty who want to conduct practice-oriented research. He explained that he wants to capture the early academic history of IS and the people who shaped it before this knowledge is lost. I liked the idea but had a concern that such an article might be perceived as self-serving. Hopefully, this is not the case and my experiences and recommendations will be helpful to you.

It is beneficial for faculty to have a personal model for conducting academic research. The model should reflect what topic(s) interest you, your skills and expertise, the desired target audience(s) for your research, learning from others, assembling the necessary research resources, having a program of research, and publishing your research in appropriate outlets. A good model can make research more enjoyable, facilitate your ability to conduct research, and lead to a more successful career.

I did not start my academic career with a personal research model; I only knew that I enjoyed practice-oriented research. My research had to meet my university's academic expectations, and if satisfied, would lead to promotion, tenure, professional recognition, and salary increases. Research interesting to practitioners could lead to travel to interesting places, speaking and consulting opportunities, interactions with knowledgeable people, and materials to use in classes. Practitioners might also support my research, both financially and with their active involvement.

My personal research model has evolved through experiences and new opportunities. It has benefited from conversations with luminaries such as Paul Gray, Jack Rockart, Jay Nunamaker, Gordon Davis, Gary Dickson, Gerry DeSantis, and others who described their research approaches, experiences, and practices. One model does not fit all; you need to find one that is best for you and it may change throughout your career as your interests, skills, knowledge, opportunities, and personal life change.

You do not need a research model at the beginning of your career, but after experimentation and several publications, you should start formulating one. The model should include: (1) what area and specific topics to research; (2) the target audience(s) for the research; (3) what practitioner contacts and organizations are beneficial; (4) how to gather needed resources; (5) how to disseminate the findings; and (6) how to leverage the research to support additional opportunities.

Because people have differing interests, situations, and goals, not everything I suggest will be fully applicable to all professors. Hopefully, however, there will be takeaways that anyone doing research will find interesting and helpful. I've written before about connecting IS programs to the business community but this paper is more personal and focuses on research (Watson and Huber, 2000).

To begin, I introduce three example professors who have different research environments and professional and personal goals. My personal research model most closely aligns with Professor Y, but you will find useful ideas even if you identify more with Professor X or Z. Next, I discuss the evolution of my research model, giving examples and lessons learned that have emerged from my various experiences. Finally, I share my thoughts on meeting the expectations for high-level academic research and how research is changing as we move into the big data/machine learning/artificial intelligence research generation.

2 Three Professors

Let's introduce three example professors who work in varying research environments and have different career and personal goals. Each enjoys a satisfying academic career.

Professor X is at a research-oriented university and truly enjoys conducting traditional academic research. She reads the leading journals and keeps her research skills current. She is well known for her contributions to the further development and testing of a particular theory, but occasionally researches other topics of interest. She regularly presents at conferences and actively participates in departmental research workshops. She teaches undergraduate and graduate classes but especially enjoys doctoral research seminars. She has no interest in textbook writing and does not seek consulting or speaking opportunities.

Professor Y is also at a research-oriented university but is interested in research that not only furthers his academic career but also provides opportunities in the business community. He keeps up with academic

research in his areas of interest and enjoys tracking new and emerging topics. He seeks teaching in professional and executive MBA programs because of the interactions with working professionals, the exchange of knowledge, and the consulting and speaking opportunities created.

Professor Z is at a university with a balance of teaching, research, and service. He enjoys research but became a professor primarily because of his desire to teach and help students. His university has research expectations, and promotion and tenure can be realized through good teaching, service, and publications in practitioner and mid-tier academic journals and conference proceedings. He enjoys interacting with the business community and takes advantage of opportunities that come along with it. He does not seek academic fame; but rather, to have a successful career and personal life doing the things he enjoys.

Later, I refer back to these three professors and show how the opportunities for engaging with the business community vary with each and are consistent with their personal models for conducting research.

3 The Start of Your Research Career

Most new PhDs are opportunistic in their research. They publish an article or two from their dissertation and collaborate on articles with new faculty colleagues. This approach is fine in that it helps develop research and publishing skills and shows their universities they have potential as researchers. Like many, this was my initial approach to research.

This scattershot approach to research is not a good long-term strategy, however. When you go up for promotion at a research-oriented university, P&T committee members ask, "What is this person nationally or internationally known for?" Even if your publication list is relatively long, committee members may consider the research to be "cherry picking" or not demonstrating the ability to conduct long term, in-depth research that impacts the field. This leads to the first lesson.

Lesson #1. *Find a single topic that you like and will happily spend a significant amount of your career researching.*

Focusing on one topic is also economical. You become familiar with the relevant literature, learn who the major researchers are, know the gaps in knowledge, and understand the possible publication outlets for your research.

4 Find the Right Topic

In Fall 1973, I accepted a visiting professor position at the University of Hawaii. Ralph Sprague recruited me and introduced me to decision support systems (DSS) (Watson, 2018). This was a perfect opportunity for new research as I was disenchanted with management science and its growing emphasis on increasingly specialized algorithms for narrower problems. The idea of developing systems (not just models) to support decision-making was appealing.

After I returned to the University of Georgia, Ralph and I continued to collaborate on DSS books and articles over the next 15 years (Sprague and Watson, 1986). DSS as a research topic was an outstanding choice. It was interesting and innovative, the business community wanted to learn about it, and there were consulting and speaking opportunities. This leads to Lesson #2.

Lesson #2. *Select a cutting-edge topic that you can become an expert on.*

You want a topic where you will be in on the "ground floor" with your research, a topic that is in the Innovation Trigger phase of Gartner's Hype Cycle. According to Gartner, in this phase,

"[a] potential technological breakthrough kicks things off. Early proof-of-concept stories and media interest trigger significant publicity. Often no usable products exist and commercial viability is unproven." (Gartner, 2023).

If you choose your topic well, awareness and opportunities will often seek you out. For example, after Ralph and I published our first DSS research (Sprague and Watson, 1975a; Sprague and Watson, 1975b), a software vendor hired us for a 10-city speaking tour on the topic of DSS. The program agenda at each stop was (1) breakfast, (2) Hugh or Ralph speaking on DSS, (3) the company discussing how their products can do the wonderful things Hugh/Ralph discussed, and (4) a case study of how a client

company built a DSS using the company's products. (This model has been largely replaced by vendor-sponsored web seminars, now an hour long but still featuring a well-known speaker to attract attendees.) New York was my first stop. I was picked up by a limo at the airport, taken to the Plaza Hotel, did a dry run of my presentation, went to dinner and a Broadway show, and gave my presentation the next morning to a crowd of over 200 people. Pretty heady for a young professor.

5 Be Relevant

Your research should be relevant to your target audience(s). For practitioners, it should be interesting, informative, accessible, and helpful. With apologies to Alan Turing, I propose Watson's Test for Relevancy:

*Place the researcher and a CIO in a room. The researcher presents research findings for 15 minutes. If the CIO is bored or walks out, the research is **not** relevant.*

In fairness, it should be pointed out that Watson's test assumes the research is targeted at the IS function; this is why a CIO is in the room. I believe that the core mission of IS is to build systems, and that is where IS research should focus. Others believe the field is much broader and potentially includes any topic that involves information. If the latter is your perspective, replace the CIO with an appropriate member of your target audience. This leads to Lesson #3.

Lesson #3. *Make sure your topic is relevant to your target audience(s).*

To determine if your research topic is relevant, talk to people who are professionals in the field. They will quickly let you know whether the research interests them.

I've chaired 30 doctoral dissertations and there is a practice I follow that helps ensure relevancy. After an initial conversation with a student about a possible topic, I tell the student to meet with people who do it for a living. The student always returns with better-informed thoughts about the research topic. If a person relies exclusively on literature for their research model, they are likely to miss important nuances related to the phenomenon being studied.

6 Stay Focused

Though Ralph and I continued our DSS research and writings, I became involved in other, non-DSS-related projects. This led to the worst professional decision of my career. Ralph asked if I would like to collaborate with him on a DSS book (we later wrote several together), but I declined because I had two other books under contract and publishing deadlines to meet. Both of these books sold well and generated income but I missed a greater opportunity. The book I passed on became Sprague and Carlson, *Building Effective Decision Support Systems*—an instant classic. This leads to Lesson #4.

Lesson #4. *Stay laser-focused on your chosen research topic; do not get distracted by other projects.*

After the success of Ralph's (and Eric's) book, I vowed to always stay focused on my current research topic.

7 Learn from the Best

Several factors affect the ease of interaction with the business community, such as the location of your university relative to a large city and whether you teach in MBA or executive education programs. UGA is about 60 miles from Atlanta, and at the time, our MBA program was offered only on campus. While Athens is not too far from Atlanta, a trip normally consumes the entire day.

Despite the distance, I wanted to stay connected with the business community. On one eventful trip in 1983, I went to the SIM Atlanta Chapter meeting and met George Houdeshel who was the project manager for the Management Information and Decision Support (MIDS) system at Lockheed-Georgia. George and I hit it off and, though he described MIDS to me, I was not sure what kind of system it was. It had decision support in its name but it clearly was more than that.

George invited me to see MIDS and tour the Lockheed-Georgia (now Lockheed-Martin) production facility, which is fascinating in its own right. For its time, MIDS was incredible. Though the software was homegrown and ran on clunky technology (e.g., command-driven interface, no mouse), the richness of information it provided and how it was organized and displayed were amazing. MIDS was one of the first

executive information systems. As I talked more with George, I realized he was a savant in terms of understanding and meeting executives' information needs and how to best display information (he always said EIS should be an acronym for "executive information service," not system). For the next year I traveled to Lockheed-Georgia several times a month to talk to George and learn from the best. That leads to Lesson #5.

Lesson #5. *Make connections that will enable you to interact with the smartest people and the best companies.*

Later, I'll explore how to become affiliated with leading professional organizations and the possible benefits.

8 Gain Recognition Quickly

When I met George, DSS was becoming the "old news." It was time to find something new and EIS provided the opportunity. To put a stake in the ground and gain recognition for George's work, we entered the 1986 SIM Paper Competition and won second place. The paper was published in *MIS Quarterly* (Houdeshel and Watson, 1987). Later, George received more recognition, speaking at the Harvard Business School, and Lynda Applegate wrote a HBS case on MIDS (Applegate, 1987).

Paul Gray always stressed the value of having the first publication on a topic. He said, "You want to publish the 1st paper, not the nth." Even if the first paper is conceptual, only provides frameworks and useful insights, it has the potential for influencing research and being frequently cited.

Gerry DeSanctis provides a great example of the benefits of being first. Gerry talked with me about her research on group decision support systems (GDSS). In order to garner attention, she and Brent Gallupe published a foundational article, "Group Decision Support Systems: A New Frontier," in *Data Base*, a good, second-tier journal (DeSanctis and Gallupe, 1985). This article was helpful in receiving NSF funding for their GDSS research and getting vendors to contribute technology for their GDSS experiments. Gerry and Brent later published a more substantial GDSS article in *Management Science* but their first article continues to be heavily cited (DeSanctis and Gallupe, 1987).

This leads to Lesson #6.

Lesson #6. *Gain recognition for your research as quickly as possible.*

After research is completed, it can take years to work its way through the "submit, revise, resubmit, and publish" process of academic journals. By the time it is published, its interest and value in the world of practice is likely reduced. A strategy I use is to carve out findings for practitioners and quickly publish them in a practitioner publication, such as *Computerworld*. Rather than in years, the value of your research findings are recognized and realized in weeks. Obviously, you should not self-plagiarize or take too much of the findings from the academic version of the research.

9 Affiliate with Leading Practitioner Organizations and Conferences

If you teach professional and executive MBA classes, you may have students who are doing innovative work related to your research interests. Or their work might lead to your next research topic. Let your students know you are interested in learning about any innovative things they do.

You can connect with people in the business community by attending the meetings of special interest groups, such as ISACA (if you are interested in IT audit, risk, control, and security) or PMI (to connect with people in project management). Not only are the meetings and events informative, but you also meet smart people who may be able to help with your research.

I've especially benefited from involvement with organizations that put on conferences. Soon after my research on EIS gained attention, I received a call from Alan Paller, founder of the EIS Institute, who wanted me to speak at one of his EIS conferences. This provided a great opportunity to meet other faculty who were EIS experts and gain exposure with attendees who were charged with building EIS in their organizations. This relationship continued for 10 years and I became Alan's in-house academic.

The affiliation with the EIS Institute had many benefits. I learned from interacting with the faculty and attendees. I also learned from other faculty members' presentations. There were lunches just for faculty that led to friendships and professional connections.

Llyod Belcher, the EIS project manager at Conoco, was also a faculty member for the EIS Institute and became a close friend that I would visit in Houston to see and discuss his company's EIS. At one point, there was a need to assess the value of Conoco's EIS. The evaluation methodology we developed won first place in the 1992 SIM Paper Competition (Belcher and Watson, 1993).

In my EIS Institute classes, I would include findings from my EIS research. At the end of each class, I'd pass around a sheet of paper and tell the class, "If you want to collaborate with me to learn more about EIS, please provide your name, company, email address, and phone number." At one point, I had a database with 450 EIS managers and professionals, all with an interest in participating in my EIS research.

The exposure from being on the EIS Institute's faculty also led to consulting opportunities. The most notable was a summer engagement with the World Bank to build its first EIS. It provided the opportunity to be on a project from its inception through successful completion. I was later able to share my experiences and learnings in books and articles (Watson, Houdeshel, and Rainer, 1997).

All of this provides an excellent example of Lesson #7.

Lesson #7. *Seek opportunities to meet people who may be able to help you with your research.*

Alan Paller was a serial entrepreneur who, after interest in EIS waned, started The Data Warehousing Institute (TDWI) to capitalize on the excitement about data warehousing. Over the years, TDWI has expanded its scope to include business intelligence and analytics. TDWI provided even more opportunities for me. Alan invited me to be the senior editor of the *Journal of Data Warehousing* (later renamed the *Business Intelligence Journal*), a role I filled for 25 years (the *Journal* ceased publication in 2022). *BIJ* was a practitioner-focused, editor-reviewed journal, published quarterly, with a very different publication process and cycle from academic journals. For each issue, manuscripts came in, were reviewed by the editor(s), and accepted articles were published in the next issue. Reviewing these manuscripts helped keep me abreast of the latest developments in the field. I also authored an article for each issue.

TDWI runs best practices competitions every year in categories such as analytics and data management strategies. I serve as one of the judges, which allows me to learn about some of the most innovative work being done. Sometimes a company is doing something truly exceptional. If this is the case, I may approach the lead person and ask if they are interested in collaborating with me to get even greater recognition. The answer is always affirmative. The person would not have entered the competition unless they wanted recognition. Also, they have also gotten permission to talk about their work, which overcomes a potentially significant publishing barrier. The next step is to get financial support for travel and related expenses and this is easily done. Vendors are eager to have case studies written about award-winning companies who are using their technologies. For example, Teradata supported the best practices case study about real-time business intelligence at Continental Airlines that won first place in the 2004 SIM Paper Competition (Anderson-Lehman, et al., 2005).

This visibility also led to another great opportunity with Teradata. Even though Teradata had great technology, students were not as familiar with the company as they were with IBM, Oracle, or Microsoft. Teradata wanted to increase its presence on campus so I collaborated with Jeff Hoffer, Barb Wixom, and Teradata to create the Teradata University Network (TUN), a free portal for faculty and students interested in data warehousing, business intelligence, and analytics (Watson and Hoffer, 2003). Over the 15 years TUN was available, it was used by over 1,000 faculty and 100,000 students. Teradata also sponsored several case studies that Jeff, Barb, and I conducted and invited us to numerous events, such as their annual users' conference.

10 Create a Program of Research

In 1985, UGA and 12 other schools received multimillion dollar grants from IBM for research and teaching the management of information systems (MoIS). As part of the grant program, leaders from the grant schools met with senior IBM managers annually to discuss grant-related activities. Because IS was still a fledgling field, it gave many of us the opportunity to meet for the first time.

In talking with people, I was interested in the various models used to support research. From Jack Rockart I learned about the Center for Information Systems Research (CISR) at MIT. He told me how the companies' membership dues supported research on topics important to the companies. I received similar

information from Gordon Davis about the Center for Information Systems Research (CISR). Gary Dickson and Gerry DeSanctis told me how they obtained NSF and vendor funding to support their research on GDSS at the University of Minnesota. At the University of Arizona, Jay Nunamaker's GDSS software development and research were supported by research grants from the military and technology grants from vendors. I still remember Jay saying one should "always have at least three grant proposals in your attaché case at all times."

These conversations helped shape our program of research on EIS (Watson, et. al., 1994). The goals were to:

- Focus on EIS, a topic of emerging interest
- Actively involve the business community in the research
- Receive outside research support
- Actively promote the research in the trade and business press
- Generate a stream of EIS research
- Involve senior leadership, faculty, and doctoral students in the research
- Gain recognition for the faculty, doctoral students, program of research, and the school

A program of research offers considerable benefits, which leads to Lesson #8.

Lesson #8. *Create a program of research around your research topic.*

At one of the first EIS Institute conferences, attendees were asked to identify their top concerns about developing an EIS. This exercise resulted in a top 10 list that was useful in identifying specific EIS research projects, such as how to determine information requirements (Watson and Frolick, 1992). We knew those topics at the top of the list would be of interest to EIS managers and professionals.

Here's an example of how the EIS program of research generated funding from the business community. From the IBM grant, we created the "Smart Office." This office was a physical facility created from a converted classroom that we loaded with IBM's latest office technology. We used the Smart Office to demonstrate what the office of the future might be like. I went to the leading software vendors (e.g., Comshare, Pilot Software) and got them to donate their EIS software, which we loaded onto the PCs and servers in the Smart Office. In my classes at the EIS Institute, I told attendees they could come to UGA and see, discuss, and evaluate the leading software in a vendor-free environment (for a fee). This consulting service generated funding for the EIS program of research.

11 Assemble Resources

Resources are needed to support a successful program of research. Your university will probably support travel to conferences to present your research. There are other sources of support:

- Funding from companies interested in your research
- Research center funding
- Research grants from companies, NSF, or the military
- Software and hardware from technology vendors
- Funding from providing consulting services

This leads to Lesson #9.

Lesson #9. *Assemble resources from a variety of sources to support the research.*

It is difficult to make an impact working alone. You need a team of people who are interested in the research topic. Without a team, it is hard to generate sufficient research to garner attention.

For the EIS research, it was relatively easy to attract team members. I had assembled the domain knowledge, possible research topics, potential external funding, software and hardware technology, a database of EIS managers and professionals, and the prospects of publications. Not surprisingly, faculty and doctoral students found the prospect of conducting EIS research appealing.

Those at research-oriented universities know that doctoral students are important to having a good environment for research and generating a high volume of top-tier journal publications. At the time of the EIS program of research, Bob Bostrom and I supervised nearly all the doctoral dissertations. While I focused on EIS, Bob was heavily into GDSS research, having the Smart Office, IBM technologies, and GDSS software from Nunamaker at Arizona as resources.

There are valid reasons for giving students free rein in the selection of their doctoral dissertation topic but there is also merit in having them focus on an existing program of research. When we interviewed prospective students for the doctoral program, we told them they would be strongly encouraged to have either an EIS or a GDSS dissertation topic. This strategy was highly successful. Students found it helpful to have an initial direction for their dissertations and the resources to support the research. This approach helped lead to a steady stream of academic publications.

I remember my advisor telling me, “Hugh, pick a topic your advisor knows about and is interested in. It’s much easier that way. You don’t have to educate him about the topic. In about two months you will know more about the topic than he does.” He was right.

12 Know When to Declare Victory

At some point, a research topic is well researched, business interest wanes, and companies move on to the next hot technology or application. This was first true with DSS and later EIS. Every 10 years there is something new: DSS, EIS, data warehousing/business intelligence, big data, and now machine learning/artificial intelligence (Watson, 2017).

As interest in a topic declines, there is a decision to make. Should I continue researching the same topic or declare victory and move on to something new? This leads to Lesson #10.

Lesson #10. *Know the right time to move on to a new research topic.*

It can be difficult to leave a topic you have been researching. You like the topic, you know a lot about it, and you are known for your research. On the other hand, your interest in the topic may have decreased, you may have conducted all the research that interests you, and practitioner interest and support may have declined.

Several factors may influence your decision-making, including: (1) you no longer have the support needed to conduct research (e.g., a lab); (2) there isn’t a new topic that captures your interest; (3) you are in a new academic position where your research is less important (e.g., associate dean); or (4) you are near the end of your academic career and do not have the interest or energy to take on something new.

I’ve always been ready to move on when interest in a topic declines. I like the excitement and benefits that go with something new. My move to new topics has been relatively easy because some of the knowledge and professional contacts have been transferable. What I learned about DSS helped in moving to EIS and then on to data warehousing, big data, and analytics. My involvement with the EIS Institute moved to The Data Warehousing Institute.

It is worth mentioning that research on new technologies and applications normally has a shorter half-life than organizational topics. Technology changes rapidly, while organizational issues change relatively slowly. If you research an organizational topic, you may be able to research it essentially your whole career, especially if your focus is on theory building and testing. There is always room to put another “brick in the wall” of a theory.

13 Revisiting the Three Professors

For Professor Y, all of the lessons are applicable. They will help him conduct research that is well received and supported by the business world. People and organizations will be willing to collaborate and exciting opportunities will emerge. This will lead to success both inside and outside academia.

Professor X has different academic goals. She wants recognition for her research within the academic community, and of course, will be pleased if her research impacts practice. She enjoys theory building and testing that create understandings that are not transitory and pass the test of time. While some of the lessons do not apply to her, others are very applicable, including staying focused on a single topic, learning from the best (in terms of research skills and domain knowledge), being actively involved in professional organizations and conferences, developing a program of research, and assembling

resources. She may become an academic leader in the field, or at the least, be recognized as a serious scholar.

Professor Z needs to select research topics that interest him. He can benefit from being active in local professional organizations and attending regional academic conferences. He should generate a steady stream of articles and conference papers to ensure promotion and tenure. If he does these things, he should meet their school's research requirements and be able to enjoy teaching and helping students.

14 Closing Thoughts

IS academic research has evolved over the years and the changes have impacted the ability to conduct research that interests and is supported by the business community and also meets the research expectations of research-oriented universities.

In the 1950s, case study research prevailed. Harvard Business School-type cases either (1) explored best practices or (2) presented students with real-real life scenarios to analyze. With case study research, engagement with the business community is mandatory. Case studies are based on actual company experiences, problems, and opportunities. The primary challenge is finding companies willing to participate and that will provide access to people and information related to the focus of the case study, whether it is best practices or a situation to analyze.

Case study research continues today as exemplified by the SIM Paper Competition or case studies developed at leading business schools, such as the Harvard Business School, the Darden School at the University of Virginia, INSEAD, and the London Business School. While case study research has great value, it is not normally publishable in our leading academic journals. Young researchers should be careful about conducting case study research because it may not align with their universities' research expectations.

In 1959, Gordon and Howell published a scathing report on business school education that lamented the emphasis on descriptive teaching materials and criticized a lack of analytical rigor in the curriculum. This report led to significant changes in curriculum and academic research. What emerged was problem-driven research that identifies a business problem and then applies rigorous research and statistical methods to analyze it and find a possible solution. This was the emerging research norm when I entered the academic profession (circa 1970).

Because problem-driven research is motivated by business problems, the research findings are directly relevant and interesting to the business community. A challenge is finding the right people and companies to participate in the research. For my research on EIS, I was able to create a database of people who volunteered to participate because they thought the research findings might help them in their jobs.

The purpose of theory-based research is to advance our understanding of a particular phenomenon or topic by developing or testing theoretical frameworks or models. While a theory may be developed for a particular phenomenon, it might also be used to help understand and explain other phenomena. My former colleague Dale Goodhue provides a good analogy: "A good theory is like a kitchen step ladder in that it provides instant elevation for your research." A good theory passes the test of time and is further developed and used with new phenomenon.

A problem I've sometimes encountered with incorporating theory in my practice-oriented research is an incongruence between the lens provided by theory and the understandings wanted by practitioners. In other words, existing theories for academic research may not frame an issue in a way that interests a practitioner. From a practitioner's point of view, it may seem too abstract, and consequently, getting their participation in research can be challenging. I've had the most success using multiple theories to frame the research for academic purposes and also collecting data to fully answer the questions that practitioners have about the topic.

We are now entering a new generation of IS research that is based on big data, machine learning, and artificial intelligence. It does not eliminate the previous generations, but rather, contributes to and expands upon the previous ones.

We have discussed various ways to engage practitioners in IS research and all of them are applicable with big data/ML/AI. In fact, the business community may be more ready for involvement than ever before given the importance of big data/ML/AI. Companies (and individuals and society) are struggling to

determine where it can be used, how to build systems using this technology, and what the impacts are going to be.

Big data/ML/AI is opening up new research opportunities. A few members of our community may want to further develop algorithms, including those that are explainable, since that capability is important to many business applications. Others may want to develop ML/AI applications or study the use of specific applications in various industries, such as healthcare. As humans interact more with AI systems, there is need for research on interface design, user experiences, human-AI collaboration, and trust in AI systems.

Big data/ML/AI is also affecting research. The availability of data has increased; tools and platforms are automating data analyses; there are more opportunities for collaboration across academic disciplines; and there are new frontiers (e.g., smart cities) to investigate.

Consider several examples of how big data/ML/AI is impacting IS research. Given carefully curated research articles, generative AI can synthesize existing research on a topic. Related to this, another natural use is for a metadata analysis of a topic. Big data/ML/AI is also potentially impacting theory building and testing. It is possible to build models (i.e., theories) using many variables and large data sets, which provides another approach to theory building. A current problem with many ML models is they are inexplicable (i.e., “black boxes”) but machine learning algorithms are being created that generate explainable models (Watson, 2020). However, it will still be up to researchers to fully understand, interpret, and explain these algorithm-generated models. In regard to theory testing, the same big data/ML/AI technologies can be employed to test theories using large data sets and additional variables.

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