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Rob Kling Remembered: The Early Beginnings of Social Analysis of Computing in the URBIS Project¹

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Rob joined the Department of Information and Computer Science at the University of California, Irvine (UCI), in 1973. He was at UCI for 23 years of his life, until he left for Indiana University in 1996. We first met, and collaborated most intensively during those years, in the URBIS (Urban Information Systems) Project at the very beginning of his tenure at UCI.

I came to UCI in 1967 and joined the faculty of the new Graduate School of Administration, which was in its second year of existence. In 1975, I became the director of the Public Policy Research Organization (PPRO), which is where the URBIS (Urban Information Systems) Project took place. The project had its roots in a consulting experience with the Department of Housing and Urban Development on a \$30 million program aimed at helping cities to computerize. The idea was to use a systems approach and a multidisciplinary team comprised of aerospace/systems companies, research institutes, and city governments to develop prototype systems that could be transferred to other cities. The program, called USAC (Urban Systems Advisory Committee)² for the federal interagency committee that created it, made awards to six cities to build integrated municipal information systems (IMIS).³ To maintain good will with the losing cities, a group of us were sent to all cities that competed for the awards to explain the selection process to city officials and to let them know that, in time, there would be a technology transfer program from which they could benefit. During these visits, we discovered that some of the losing cities were doing better with their computerization efforts than the chosen cities. I suggested that USAC support a research project to try to understand why this was the case, but it went nowhere because such an analysis could be a threat to the program.

I visited the National Science Foundation (NSF) seeking funds to do an evaluation of the USAC cities and to compare their performance with that of other highly successful non-USAC cities. I was told that NSF could not support evaluation of mission agency programs, but could support a broader survey-based study of computerization in many U.S. cities that might include some of the USAC cities. Vaughn Blankenship, who was on assignment to NSF from SUNY Buffalo (now at the University of Illinois, Chicago Circle), was a RANN program officer and advised me on how to prepare a proposal for a planning grant that would provide funds to put together a research team that could develop a competitive proposal.

THE URBIS PROJECT

The USAC background formed the basis of our—Rob, Jim Danziger, and myself—early discussions during the planning grant, but we quickly moved to discussion of the academic literature as we looked at some of the early empirical work on computerization in business for models of what we might do in cities.⁴ Most of this research was descriptive or prescriptive. We looked at research in organizational behavior, as Rob was especially interested in the impact of computers on work life and there was a strong research tradition. We also looked at decision science, where people like George Huber had studied the early job bank experience of the Department of Labor. None of these avenues provided what we needed, so we brought in other academics as consultants, hoping to find research instruments that we could adapt. Eventually, we decided that there was nothing we could adapt to our purposes, and developed our own approach.

Basic to our approach was to bring together perspectives from computer science, social science, and management. Our conceptual framework was simple at the time; we felt that we needed to look at features of the environment, policy, the technology, and its use and impact in order

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to understand government computerization. We thought that city environments influenced the nature of adoption; government policy influenced how information technology (IT) was implemented and used; and the nature and extent of the technology's use together with these other factors somehow influenced impacts. Because we wanted to produce policy advice for cities in the end, much of our discussion was driven by what we considered to be key policies that might influence computerization success. I was concerned with policy variables like centralization versus decentralization of computing; charging for information systems (IS) services, top management support, and impacts on efficiency and effectiveness—"Biz school variables," as Rob always called them. Rob was concerned with the people aspect and policies regarding user involvement in design and in IS advisory committees, and the impacts of computer use on work life, social interaction, and team work—social variables. Jim Danziger was concerned with the play of politics between top managers, the IS department, and end users, and with who gets what—for example, how the membership of advisory committees influenced the extent of computer use among city departments and therefore whose interests were served. Eventually, we developed a large proposal (about 200 pages and 1.5 inches thick, in comparison to the 15-page limit on NSF proposals of today), complete with diagrams showing relationships among variables and the detailed measures from which variables were constructed. In order to deal with all of the variables of interest, we concluded that we needed to survey about 300 cities and developed a design for doing so. At Rob's insistence, we also included a number of field studies and case studies in cities as a way of increasing our understanding so we could design a sensitive survey instrument once funded.

The summer and fall was a great seminar. We met twice a week and in between reviewed the literature to find support for the ideas or variables we were each interested in. We searched for research we could cite as the basis for the relationships we felt existed and worked to move everything towards a conceptual framework and thereby variables, hypotheses, measures, and means of collecting data on the measures. Our goal was an organized, clear proposal indicating the motivation, research plan, expected results, organization, and budget.

The proposal was reviewed favorably, and we were given an NSF site visit. The team consisted of NSF officials, representatives from the federal government, and an outside academic (Dick Mason). We had planned to hire NORC at the University of Chicago to do the survey, but the site visit team insisted that "we" do it, that we focus on a smaller number of cities (around 50), and that we do extensive fieldwork in the cities because the whole subject of study was so new that it was important to have first-hand experience. So we devised a multimethod research

strategy that consisted of case studies, field visits, structured interviews, and survey questionnaires.

Rob was delighted with this turn of events, as it fit his preference for fieldwork and direct engagement with the subject. The rest of us were pleased, but concerned with how we would get it done, given teaching and other commitments. Given that we would be going to a smaller number of cities, we also had to come up with a strategy for site selection different from the traditional random sampling approach. At the end of the research, we wanted to make policy recommendations for other cities based on our findings, so we decided that we would select cities based on their policies for managing the computing enterprise. This idea and the scheme for carrying it out were invented by Alex Mood, a brilliant statistician, who came up with a "future cities" design as a way of selecting cities based on where they stood on six different policy variables.

Many of the details of the research implementation are described in the books and method articles that developed from the project, so I concentrate here on things that are not written about the experience (Kraemer et al., 1976, 1981; Danziger et al., 1982; Danziger & Kraemer, 1986, 1991). Because of its perceived importance and RANN tradition, we created a National Advisory Committee (NAC) to review the project annually. In order to get cooperation of city governments to participate in the study, we developed a relationship with the national associations of city government officials. We asked them to endorse our efforts with letters to mayors, city managers, city council, and allow us to use their logos as "Good Housekeeping" seals of approval on our questionnaires in order to encourage cooperation of individual city government officials and staff. In turn, we agreed to write articles for their magazines wherein we would report the results of our research. We started work by doing field interviews in about six cities. We used that experience to develop sets of survey questionnaires, structured field interviews, and general interview guides. We also developed a chief executives' survey to be completed by mail with assistance of city associations to produce early results for their members and develop local support for the forthcoming fieldwork. Once in the field, we found that we could get immediate respect by showing city officials and staff a copy of our articles in *Nations Cities* magazine.

MULTIPLE PERSPECTIVES ON ROB

Rob was always taken with the notion that multiple perspectives were needed to understand computerization phenomena. This is no less true of understanding Rob, but the perspectives that follow are only a small window on this complex and richly nuanced individual. Rob really liked the word "nuance."

Computerization and Controversy: The First Act

One of the early case studies from the project created a controversy with our national advisory board. Rob had done a study of information and referral (I&R) systems in social services in Chattanooga, TN. Social services is a complex function in communities, involving government and many nonprofit agencies in the delivery of services. As did all computer companies at the time, IBM had prepared an application brief on Chattanooga's I&R system that was more or less a glowing report of the system and the city's experience with it. Rob took this brief as a starting point and a "straw man" with which to examine the broader environment, use, problems, and consequences of the system's introduction and use. He showed how the "sanitized brief," as he called it, depicted only a very small part of what was actually going on, and he drew a much richer and more nuanced picture complete with problems and unanticipated consequences, as well as very real benefits. Rob's case study revealed a much richer history, set of institutional relationships, bureaucratic infighting, and implementation failures that went along with the narrower implementation success defined in the application brief. It was an excellent portrayal of the richness, complexity, anticipated and unanticipated consequences, and positive and negative aspects of the computerization effort. He, and we, were proud of the paper and eagerly looked forward to presenting it to the NAC, but received a surprising reaction. Rob's paper was met with shock and dismay by the NAC. Two industry members felt it was an attack on the computer industry, and on Big Blue in particular, and said they would resign from the project unless we changed the paper. Our explanations of what the paper was trying to do did little to assuage their concerns. In the end, Rob had to delete openly critical language and "sanitize" his paper in order to maintain their support for the project. The changes were a matter of style rather than substance. Some of Rob's early writing was very colorful, as was his speech.

A Survey Research Skeptic

Rob was frustrated with the results of the chief executives' survey, as the executives were uniformly positive about computing. Rob felt the executives were not really aware of what was going on with IS or they would not have been so positive about its use and impacts. He felt they tended to reflect what was expressed in the popular press rather than the reality of what city staffs were experiencing with the use of computers on the job. This continued to be a concern of Rob's throughout URBIS. When our very large end user survey of some 2500 city staff came in, he felt that end users also were too positive—again reflecting popular perceptions rather than their own experience. He found the survey results at odds with what he experienced

in his own personal interviews, where the "rosy scenario" didn't always fit what was going on.

It was not that Rob was negative on IT. He was just always skeptical of the claims and concerned that people responded the way they felt they were expected to respond rather than the way they really experienced and felt about IT. As a participant in some of the interviews with Rob, it sometimes seemed to me early on that he was "badgering the witness." Whether it came across that way to the interviewees is unclear. As I later came to appreciate, Rob was simply pressing the issues and trying to get beyond the media-preprogrammed responses of people to questions. For example, when asked about their experience with computers, respondents might say they are very favorable. He would ask why, what was it they liked, how it helped them in their work, how it made them feel, how it affected their interactions with others, and if there was anything they did not like or that presented problems for them. As anyone who has done fieldwork knows, such probing can result in quite different answers than the initial response.

R&R Meets Reality

During fieldwork, there was always an issue of whether to stay out in the field for two weeks or to come home for the weekend and then go out again. Rob's preference was to stay over the weekend, particularly in one of the nicer places, and travel to the next site on Sunday night, doing R&R (rest and relaxation) over the weekend. While doing fieldwork in Tampa before going on to New Orleans, he decided to go sailing in the Gulf as part of his R&R program and rented a sailboat. He submitted the \$150 bill for the boat as part of his travel expenses, along with a carefully written explanation and calculation of what it would have cost the project had he flown back to UCI and then out again instead of staying in Tampa. Rob argued that by staying in Tampa he was saving the project money and it was only appropriate that some of these savings should be spent on R&R. He did save the project money. Being new at center administration, I signed off on the expense, seeing some merit to his argument and very much influenced by his extreme passion in delivering the argument. The campus accountants were not persuaded by his argument or his passion. They not only rejected the expense, but also put us on a watch list for unannounced audits for the next year. [More recently, a UC Santa Barbara chancellor had to learn this lesson all over again as state auditors made him pay for the purchase of sailboat he had charged to the campus because it was a place for "official" entertainment.]

"Computers and Politics" Had Its Own Politics

Almost every paper that involved multiple authors generated intense discussions about order of authorship. Those

whose name appeared first in the alphabet usually preferred alphabetical authorship as the rule—one that is common in academia. Those who came last countered with reverse alphabetical order. Others preferred “contribution.” Of course, agreeing on contribution was difficult, especially in a highly integrated project such as URBIS. Over time, we learned to decide the order of authorship in advance so that people would not feel disinherited by where they ended up. However, we also learned that when order of authorship was decided in advance, we sometimes had a free-rider problem. So for what we considered to be the most important book of the project, *Computers and Politics*, we decided that we needed to write a book with all of the principal investigators (PIs) making strong contributions and had to come up with a new approach. We had written a large number of papers by this time and decided that they would form the basis for the book, but of course they had to be integrated. We jointly developed a theme for the book—the reinforcement politics hypothesis—and a framework, and then applied that framework to each of the analyses that formed chapters of the book. We did not decide order of authorship until the end, when we drew straws. The luck of the draw came out alphabetical!

Getting Along

Working together in a project where all of our futures were affected by what each did, or did not do, created tensions and the need for group maintenance. We all met at least once a week during URBIS implementation and much more often during the summers to work out details, coordinate travel schedules, and prod each other on completing assignments and working papers. We also had to spend at least half as much time dealing with interpersonal issues, conflicts, hurt feelings, ownership of ideas, authorship, credit, and “my overall management” of the project. Rob and others felt that I was getting too much of the credit for URBIS. Outsiders tended to assume that I was the “real intellectual leader” of the group because I was the head of PPRO and the formal PI for the project. Opportunities for speaking engagements, book chapters, and invited journal articles came to me. Although I shared the information with everyone, it upset people that they came to me and not to them. I was severely admonished to be certain to convey that this was a group project, that we were all equals, and there was no one intellectual leader. At the same time, each sought to be seen as the intellectual leader in his or her own circles.

ROB'S CONTRIBUTIONS FROM URBIS

Throughout the life of URBIS, Rob was always a full member of the team. Although initially it was Rob, Jim, Alex, and me, the URBIS team later grew to encompass

Bill Dutton, Alana Northrop, Debora Dunkle, and John King. Rob was always pushing the rest of us to expand our views, push harder in interviews, and maintain a critical stance. During fieldwork, he never stopped ruminating about what he was hearing and what it meant, and engaging us in discussions of our experiences, and then trying to theorize about it, draw conclusions, or send us back for re-interviews. He was a most helpful, yet critical, reviewer of our manuscripts. He was a great generator of ideas, which he liberally shared with others, just as he borrowed from others.

Several papers that Rob authored or coauthored during URBIS stand out as particularly significant to me because they are part of what became his world view of computing in organizations and society. They are:

- The “Riverville” paper, because it pointed to the significance of the broader institutional environment in which computing takes place as a means of understanding how computing is deployed, used, and has certain impacts, both intended and unintended (Kling, 1978).
- The “computing package” paper, because it articulated for the first time the notion that computing involved a complex web of technology, people, processes, and organization (Kling, 1981).
- The “reinforcement politics” hypothesis developed with the whole URBIS team, because it exposed the subtle political implications for different constituencies of the technology’s deployment and use for seemingly apolitical purposes (Danziger et al., 1982).
- The “behind the terminal” paper, because it showed the extensive network of organizations and institutions that have to come together to deliver utility to the end user of computing (Kling, 1992).

A good summary of the contributions from the URBIS and later periods at UCI can be found in Kraemer and King (1994). They are also summarized in Iacono et al. (2003).

SEPARATION

Towards the end of URBIS, Rob began a series of intellectual activities, some of which had their roots in URBIS, but which he pursued independently and with graduate students such as Walt Scacchi, Les Gasser, Suzi Iacono, Lisa Covi, and Roberta Lamb. One was his classic paper “Social Analyses of Computing,” which is significant because it illustrated how different perspectives on computing help to provide a fuller understanding of the social aspects, and because it argued strongly for the need to employ multiple perspectives in doing social analysis. This is probably Rob’s single most cited paper (King, 1980).

Another independent effort was a project called COMPUS, for computer use. It was initially based on field interviews with users, although Rob later developed

a survey and administered it to a large number of users in a few organizations. Even with the instruments he developed independently, Rob was always disturbed at how little variance showed up in the results as compared to his field experience, and engaged in a number of devices to get greater variance. One of these devices included labeling the ends of Likert scales with words like YES! YES! YES! and NO! NO! NO! in an effort to draw some people toward the extremes. Few of these worked particularly well, but they were interesting experiments.

I cannot do justice to Rob's and his students' work post-URBIS so I will not try. However, it should be noted that the URBIS experience was a very important beginning in which he developed and first articulated many of the ideas that became hallmarks of his fruitful career. That he went above and beyond is clear in his prolific writing and his considerable intellectual contribution and influence after the URBIS project.

Rob was a great colleague. After URBIS, we worked together from time to time on papers and one more joint project. Beyond joint work, Rob and I met every Wednesday morning over coffee for at least 15 of our 23 years together to discuss intellectual, political, administrative, and personal issues. We would spend about two hours at these meetings, and we each came with our list of things to discuss. His list was always longer than mine and he always went first—he used to say that he could not focus on my issues until he got his out of the way. On occasion, however, he did give way and I went first. What I remember about those meetings was how they always stretched my thinking. Rob had the ability to hear about something for the first time and to think outside the box, bringing to the fore so many more issues and options than I had considered. Although Rob had more speaking time during these breakfasts, I know that I received greater value from them, and have always been grateful for his advice. As a result, I missed Rob greatly when he went to Indiana. The role he played has never been replaced, despite very good colleagues at Irvine.

Finally, I would like to repeat a perspective on Rob expressed first by Roberta Lamb. Roberta was a doctoral student of Rob's at UCI and is currently at the University of Hawaii. In a tribute to Rob that appeared earlier in this journal, Roberta described Rob as "a focal point for a widely diffused community—someone toward whom we could channel our energy for high impact—the way a magnifying glass concentrates light. . . . Rob was an energizer. Just think about Rob as a big fuzzy pink bunny that keeps on going and going and going—exactly the kind of thing that would set him off in a full-body chuckle" (Lamb, 2003, p. 196). I like to think of Rob that way. He was an energizer his whole professional life. He is an energizer even now, as evidenced by this tribute in the journal that he made into an important venue for social analyses

of computing. I think Rob would have liked this view of himself.

NOTES

1. It is important to note that this remembrance refers only to URBIS I, which was conducted from 1975 to approximately 1985. A replication of the earlier study, called URBIS II, involved different participants and spanned 1985 to 1990.

2. See Kraemer and King (1979) for information on USAC program.

3. The concept behind the program is described in Kraemer, Dial, Mitchel, and Weiner (1974).

4. For example, we looked at work by Thomas Whisler, Charles Meyers, and Edith Mumford.

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