

**INTERVIEW
WITH
JOHN HAUSER
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Sloan Oral History Series**

J: John Hauser
B: Bob McKersie
G: George Roth

G: It's always most helpful to ask you to start with your first experience and exposure to MIT. I know that goes back beyond what you are doing now here, but we're interested in how people first learned about MIT and what was going, and particularly the business school part of MIT, which is usually what people don't see first.

J: That's right. So I'll give you a short history.

I grew up in Allentown, PA, which at the time you may not know it was the truck capital of the world.

B: Mack Truck.

J: Exactly. In fact, everybody in my neighborhood, they had two goals. One was to get a union job at Mack Truck, the other goal was to get a union job at Bethlehem Steel.

I ended up doing well in school, so I applied to a bunch of places, one of which was MIT. It really came down to do I essentially leave home and come to Boston? Or do I stay in the Lehigh Valley and go to Lehigh? There were a few other schools in the mix, but that was really the key decision. So I decided to come to MIT. I had an aunt who went to a teachers college, but after that, I was the first one in my family who has gone to college. That actually extends back since my family came over in the 1600s. It's a fairly long history. But obviously, times have changed, and since then all my nieces and nephews have gone to college and graduate school. So it's really more times changing.

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So I came to MIT. I lived in Burton-Conner 3, which was, interestingly, a very different dorm than it is now, because they re-did it in 1970.

I came in 1967, so Class of '71. I'll skip over the undergraduate, although there are a lot of interesting things one learns as an undergraduate. Like many people at the time, I didn't quite know what I wanted to be. I had done well in EE, so I applied to graduate school in EE.

G: EE was your major?

J: Yes. Undergraduate major. Got a Masters. About that time, though, still looking for something to do. I had a social conscience, and had gotten involved in a lot of the issues about building highways, and the Southwest Corridor project, trying to figure out whether or not that made any sense. You may not remember the Southwest Corridor?

B: No.

J: It never got built. So if you have the Southeast Expressway, they wanted to have something coming in from the southwest, and it would do in a lot of neighborhoods.

I studied urban economics and also bus routing. I did a Master's thesis on bus routing, algorithms to route buses. I was sort of a bus expert. So even though I was in EE, I picked up a Masters in Transportation at the same time.

Why is this relevant? Because working as an RA, at this point, I'd really gotten into buses. We were writing algorithms to route something called "Dial-a-Ride," which is demand-actuated buses, where you would pick up and drop off people as you go along, making it very efficient. Dan Roos, who I was working with, and Nigel Wilson, they're still at MIT, they had a grant in Rochester, NY. The algorithm—which I was just an RA, it was Nigel's algorithm that was running mostly—as the youngest RA on this project, I was assigned to do a consumer survey. In fact, we knew there were some problems, that people would try the service and they wouldn't continue riding the service. So I did the survey, and we found out something very interesting: although the service was pretty good on average, every now and then you'd get stuck

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on the bus for what should be a five-minute ride, and you'd be stuck on the bus for an hour. That only had to happen one or two times and you never rode the bus again. Very simple insight.

By this time I was taking some classes at Sloan, and I had taken a class by Gordon Kaufman about utility theory. I said, "What we really need to do is change the objective function." People are risk-averse with respect to time, we should make the objective function concave and take risk into account. Turns out that you can have a quadratic objective function run just as fast as a linear objective function. So we changed literally one line in the code, implemented it, and solved the problem. We got rid of these super-long trips on the bus, ridership went up, and I said, "Wow! You do a survey and look at the impact. More so than all the technical work. Maybe I should learn how to do surveys right."

At that point, I had been taking some courses at the Operations Research Center, so I decided instead of taking my qualifying exam in EE, because otherwise it would have been Optimal Control or Civil Engineering, where I was working, why don't I take it in the OR Center? You could do things like that back then. So I took the qualifying exam. I never really switched, but suddenly I was kind of an OR student, working with John Little.

John got me in touch with Glen Urban. He said, "You really have to go see this guy." He had already spoken to Glen. You know what Glen was like back then – long hair, very much hippie, but so was I, actually! [laughing] We all had long hair. And John and Glen had beards.

Anyway, I worked with Glen. He had this project – MIT was rethinking its Medical Center..... I don't know if you remember? It was originally over in a building along Memorial Drive? I don't know the street, but there is McCormack, then there is a street, then there was a building there, right next to Baker House. It used to be the Sisters of Something? The MIT HMO took that over, and suddenly they were developing an HMO. Glen was doing research with them, to try and understand what people's perceptions of the MIT HMO versus Harvard Community Health versus some of the others, and what could MIT do to improve their HMO?

At that point, Glen had already been publishing in product development and service development. So I got involved in that project. Again, I started using some decision analysis, and also some ideas from statistical thermodynamics, which is involved. And also because I was working in civil engineering, at that point, there was this new idea called the Logit

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Model, which Dan McFadden had developed; Moshe Ben-Akiva had basically written the code to do it, and I knew Moshe and had taken courses from him. I was able to take the synergy of civil engineering training, EE training, and what Glen knew, and we developed a new methodology for designing services. We published a paper; actually, it ended up being my thesis as well. Then we went on to write a book about it and other things. It summarized not just Glen's research, not just this, but all the research that had been going on in the field.

It was a time, in the 1975-1980 range, when there was a sudden explosion of quantitative methods applied to product development. There was stuff done by Paul Green at Wharton; Frank Bass, who was at Purdue at the time; a whole bunch of people. We took all this research and we put it into a textbook, *The Design and Marketing of New Products*.

So now we are getting to a point where (I know this isn't quite linear) between 1975 and 1980, I was at Northwestern. The book got written at that time.

B: Before you go to Northwestern, just backing up. You mentioned Dan Roos. Was it under the auspices of the Study for Transportation Studies, CTS?

J: No, it was before that. He was a professor in civil engineering.

B: I think he founded CTS.

J: I believe he did, yes.

B: So the grant that came in came into Civil Engineering to Dan, and you were working under him?

J: You're pushing my memory here. It's already lost in time exactly when CTS came in. I think CTS came in later. Nigel was the world's expert, still is, in bus transportation. He was doing work in Colombia at the time. He's been involved in the Silver Line design.

B: And also the little thing on our MIT car project he had. If you already have a parking pass here, and you get a little chip on your MIT card that gets you into the trolley...?

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J: Yes, I've been meaning to walk over and get that done.

B: Yes, Nigel's right at the edge of a lot of these experiments.

J: Yes. I remember Nigel, and other faculty. Joe Sussman, who was there; you may have known him? Amadeo Odoni, back then you took courses in railroads, buses. airplanes. Amadeo had an airplanes course.

B: I think I also said the flexibility as you move and put together your program. And the Ph.D. you received was in?

J: Electrical engineering. It was given by Electrical Engineering. The Ph.D. is in Operations Research.

B: And that would have been around 1975, 1976?

J: 1975. I remember when I was looking for a job. It wasn't nearly as organized back then. So I really thought I was going to get a job in OR, not in Marketing. One day Glen came to me and said, "I got a call from my advisor, Phil Kotler. I told him you are the best student I've ever had... I said, "I'm the ONLY student you ever had!" Typical Glen, putting a great spin on it.

B: This was to Northwestern, right?

J: Northwestern! That's in the Midwest!! That's cornfields!! I don't want to go to cornfields!! "Why not give it a chance?" I flew out, and in fact Chicago is not cornfields and Evanston is a beautiful town. So I interviewed there. I did get other offers, but they made me an offer that was joint in marketing and in transportation. So for my first appointment.... Interestingly, they actually hired two other MIT graduates in transportation, people I knew.

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B: And transportation at Northwestern was part of Engineering then?

J: It was called a Transportation Center, and although most of the people were from Engineering, some were from Management. So I sat in the Management School – turns out the Transportation Center was in the basement of the Management School, although it obviously had very strong ties to the Engineering school, which was right up the street.

I went, and did a lot of transportation work, still. But at that point, it was more and more marketing of transportation as opposed to designing services in transportation. I really got out of the algorithms business.

B: But you were also teaching marketing?

J: I was also teaching marketing, AND transportation. It was kind of a nice appointment because the teaching load at the time, it was like an engineering teaching load, as opposed to a management teaching load because we did a lot of grant writing. So smaller classes, fewer of them. At the time the teaching load at Northwestern was five courses a year, which when you tell that to junior faculty, their jaws just drop.

B: That was five after being reduced?

J: No, no, for me it was three.

B: Okay, it was reduced down because of the grants.

J: Yes. But if you didn't have grants, it was five.

B: I can remember my first teaching was at Chicago where they had a quarter system, so you had 3 "semesters" and you had 2 courses each semester. We had 6 courses to teach.

J: Yeah, it was quite a bit. I don't know how we did it.

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B: So that carries us through – you said you came here in 1980.

J: That's right. In 1980, I actually had tenure at Northwestern. I had just received it. And MIT made me an untenured offer, which was probably crazy to take, but I did. I was pretty confident I would ultimately get tenure.

B: So you came as a non-tenured associate professor?

J: Yes, I think so.

B: I came in 1980, too. I was visiting in the fall of 1979. Started regularly in 1980. It sounds almost like Glen was hoping – we had that tradition that it was often good for a Ph.D. from MIT to go elsewhere for a little while, and then return. That sounds almost like Glen had that as a hope.

J: I don't know if he had that hope. I never talked to him about it. I always called it the Malinowski strategy.

B: Say more...

J: *Sex and Repression in the Savage Society*? My goodness, that's a famous sociologist, right? I don't know if he's been discredited like that other one. Who's that woman who was discredited, she did work in the Pacific....?

G: Margaret Mead in *Coming of Age in Samoa*?

J: Well, it was the same thing. You send the warriors out into the jungle. If they do well, they come back into the tribe.

G: The "armchair" sociologist.

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J: I think we do that a lot. We send people out for 5 years or so, and if they do well, we bring them back to MIT.

G: Were you working on projects or papers with Glen while you were at Northwestern?

J: We were writing the book.

G: You were closely linked. That's 1975-80....

J: Yes, but I was doing other things. I was doing work with Frank Koppelman, who is an MIT graduate. With Alice Tybout, who a behavioral scientist in Marketing. And with some of my students.

B: Now you are back, it's 1980, and it's a full-time appointment.

J: Yes, a full-time appointment in Marketing. Back when we were, what, 50 students? 100 students? I can't remember.

B: Where were you in terms of your office, and the group and setting to which you came?

J: As it is now, it was the Marketing Group within the Management Science area. We were in the Hermann Building, E53. I remember having this office that looked out over the parking lot. I also remember I had a choice of it or a bigger office, but I preferred the parking lot view to the other view, which was sort of Eastgate. I took the smaller office with the better view.

G: Who were you next to?

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J: I was between John and Glen. Later on – we will get to this non-linearly – suddenly part of the 4th floor of E53 became available, so the Marketing Group was willing to move up there. We had more space, we had a lounge, and it was really quite nice. We also had a view of the rest of the Institute, which was a whole lot better than the view of the parking lot.

G: More space AND better views!

J: AND better views. Of course now – I think that's where it started – we were becoming less tied into Management Science at that point, probably because even a floor made a difference. Even though there was an internal stair over in E53.

B: One of the distinctive features of Marketing has always been the community feeling that was present. You mentioned that you had a lounge or something. Was that about the time when things jelled in terms of people having lunch together, and the Ph.D. students and faculty?

J: Yes, we had a lounge. I remember fighting Donna Behmer, who wanted to make the lounge into an office. We fought her, basically in some sense, put our foot down and said “no! we want to keep the lounge,” so we could have lunch together. I think it was pretty important. We had read Tom Allen's book. Actually some of Tom's book is summarized in our textbook too, although very short. We felt it was important to create the community. Another positive is, at that point the Marketing Group really was quite close, but we also were drifting away from Management Science, which I think is more physical than anything.

Of course, when Glen was Dean, E56 became available, above the Dibner Library. We went over one night and looked at it. The space was spectacular, views were phenomenal. This was the view, a big river view, except if you look at our offices now, the offices in E56 were a lot bigger.

We were in E56 for a number of years. We were pretty tight. Not perfectly tight, but we all had our graduate students with us. A very strong communal lunch table of faculty and students eating around the table every day. There was also ICRMOT (International Center for Research on the Management of Technology), which first Glen and Ed ran, and then when Glen

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became dean, I took over. So it was Ed and me. So we also had the ICRMOT people who would come out occasionally. That was really quite nice.

Obviously, while this building (E62) was being built on the space previously occupied by E56, we got moved to E40, which is (I'm putting in a little extra that you know, just because this is going to be in the Archives) the brick building that used to be a warehouse. Actually, we still had a lot of communal lunches there. We fought, again, to keep a lounge. Of course, E40 had paper-thin walls. But we still had the students and faculty together.

When we moved in here (E62), we fought to get a lounge. I think we're one of only two pods that have only two staff cubicles, as opposed to three, and a very big lounge. But for some reason, this building has not been as conducive to community building, I think in part because the students are separated from the faculty.

G: Your students aren't on the back side of where you are?

J: No, the students are literally across the elevator lobby. They don't come to the communal table any more. And because they're not there – the faculty was always pretty busy, but you'd have one or two and a lot of students. And now, we don't have many. So we're ordering furniture, we've painted one of our columns to be a whiteboard, we got rid of the filing cabinets, we put up pictures. We're trying to re-create it.

B: Which leg of the L are you?

J: The west leg, two floors up from the interviewing room. It's been an enigma, this building.... The pattern isn't there and people don't come in as often because you don't have the communal feeling.

B: Do you have the same number of Ph.D. students in Marketing?

J: Yes. We've maintained that fairly constant. But the physical geography hasn't worked out as well, and I don't know why. We have some hypotheses, and we're going to experiment....

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G: You needed to have done a *kaizen*. I keep thinking of the wisdom of that – getting everybody together and doing it right away and testing it, versus waiting for Building Services to move the furniture, do all that. By the time you've got that done, the pattern is done.

J: Yup. And it's also taken forever to get the funding approved. Not only the funding, the permissions. Who knows? I'm not an organizational person. All I know, it would be nice to – I really want to rebuild the communal sense that we had, and we lost when we moved into this building. I don't think the Group is as tight any more.

B: The Marketing Group was always – when I was in the dean's office and thinking about these issues of space and how groups came together, your group was really THE model.

J: A lot of it is geography, and now we are realizing it's having the students with the faculty. And you're just not going to do that in this building.

G: I've often wondered why we have the coffee machine behind a pass-key door, as opposed to someplace out where people could gather around it.

J: Oh! As you know, we looked into that. That coffee machine has backfired.

G: I didn't know any of that. Did you do a survey on the coffee machine? [laughing]

J: Well, I was part of the committee that looked into some of that. Before the coffee machine came, the Faculty lounge was a real faculty lounge. People would have lunch there, etc. Then they did two things. One is they put the coffee machine in. The other is they unlocked the door, at which point the lounge became a Starbucks. I actually saw the numbers. In our 8 hours, 5 days a week operation, we were producing as much coffee as a medium-size Starbucks does over all their hours. And people stopped coming to the lounge to sit because it was just too much activity. What they've done now is lock the door, and the locked door is to – basically people were coming in off the street. It was known in Kendall Square: if you wanted good free coffee....

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So the locked door is to get the faculty lounge back. More and more you are seeing people come back.

The sad thing is when the coffee machine was not in the faculty lounge but on the floor in the kitchen, people would walk by our doors all the time. We'd bump into people and talk to them. There was a lot more communication when the coffee machine was not in the faculty lounge.

On the other hand, since I don't drink coffee, it may be that people bump into each other going into the lounge.

B: OK, back on your career here at Sloan. We were talking before about some of the interesting things you've been doing. What would be a good way to put into the record the things you've worked on, the Ph.D. student collaborations, some of the themes of your work here.

J: Give me a few examples. One is my career has been anything but linear. I worked on a lot of different things.

But clearly, with Glen, at least initially, it was almost all product development. The early research was ways to measure people's perceptions, preferences, and choice behavior; to build models that would identify how products should be positioned, what you should say to people, what characteristics you should put into them.

We also then started working on what are called "pre-launch forecasting models." Glen had done work with Al Silk, which I'm sure he talked about, on ASSESSOR, pre-test markets, which was forecasting the sales of new packaged goods before they were ever launched. So we initially thought, "Well, we'll do it for durable goods." Obviously, interesting. Well, it's not so easy for durable goods, for two reasons. One is that durable goods happen over a longer period of time and become a bigger part of people's budgets. The other is, the sales of durable goods are driven as much by what you make as opposed to what the customer wants. We learned that when we were forecasting sales of a new Buick, and people REALLY loved either the two-door or the four-door. So we were forecasting something like 80/20 or 90/10. And the numbers came in and they were 50/50. We were "How could we be so wrong??" Then we realized: they made 50% two-doors, and they made 50% four-doors, and you sell what you make. But it was harder to sell the less popular version.

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So we turned it around. We said “What we really want to do is forecast what it’s going to take, in terms of price reduction and marketing, to sell what you produce?” So we developed some models for that. We used to do measurements, fairly complicated, mimicking the entire search process that people go through. We got pretty good at forecasting what it would take to sell automobiles.

Then we got involved with the original electric vehicle forecasts. Glen had this idea – it was kind of nice – that you couldn’t forecast electrical vehicles unless people had a vision of what the future was. So at this point, video discs had just come out, and we were able to simulate the future environment for people. He called it “information acceleration.” It also simulated going to the dealer, watching advertising, talking to other people. So we developed this method. We actually did forecast pretty accurately customer reactions to the initial electric vehicles.

It was interesting at the time. We were doing work with General Motors. We picked up this interest in something called a hybrid, and we said, “Jeez, this will sell if you just produce it.” Of course, GM had no interest in producing it. They were more interested in the electric vehicle at the time. So they had the market research, they knew the doggone thing would sell. But obviously we didn’t have enough impact to convince them.

We did work on how consumers make durable decisions, how they allocate their budgets, how they search for information. We have some models of information search, so we can forecast that and understand that.

We’ve basically done a lot together in the product realm. And then we’ll get to some of the other stuff we’ve done.

So, let’s back up to another issue. This also comes out of work with Glen, but also it shows the MIT/industry connection. Glen and Al had developed this pre-test market survey method. It had been implemented by a firm they had developed called Management Decision Systems, later became IRI (Information Resources, Inc.). Glen had the insight to go back and look at the history of five years of applications. He wrote an award-winning paper on it. But there was one stylized fact that, as I was reading his paper and talking to him about, it turned out that people who paid for pre-test markets weren’t the companies that were launching the product, but rather their competitors. So if P&G was launching Sure deodorant, the people running the

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pre-test market on P&G's product would be Gillette. Is that right? Yes, P&G is Sure, Gillette is RightGuard.

B: Which was taken over by P&G.

J: Right, but before it was taken over. What is this theory of how you defend the market for Gillette? Let's see if we can develop a way to model the competitive interactions and determine what would be the optimal defense when another product launches? I was working with a student of mine, Steve Shugun. We built a model, we estimated the model, and we kept getting the same answer every time. It bothered us, but then we looked at the math more, and we said, the math is right, you get the same answer every time. There is a certain way you should defend, and it's pretty well determined by the structure of the model, not the specific parameters.

We tried to publish it. There was a new journal at the time called *Marketing Science*. It's now the #1 journal in the field. They had never published a paper that had no data in it, just pure theory. Steve and I joke that when we started working on the project, Steve was married, I wasn't married. By the time the paper got published, he had 3 children, and I had 2! [laughing] Ultimately, he had 4, and I had 3. But it actually made a big impact. It won a national award, an award that is now called the Little Prize, it wasn't called that at the time. And suddenly *Marketing Science* started publishing a lot of papers on essentially theory. We were cited at the time not only for what we did, but how we did it. What I always find interesting is, we wrote the first theory paper driven by industry and the things we find in industry. Now, of course, a lot of theory papers are pretty divorced from industry. I guess that's the way the field develops.

That was Defender (Defensive Marketing Strategies) and we did a lot of follow-up papers on that, put a lot more competition into it. Understood competitive positioning. Understood competitive advertising.

And then (this shows how things are non-linear here), we were working on competitive advertising, and this now is with Birger Wernerfelt. One of the phenomena of advertising – and also at this point, the field is loving theory papers, so why have data when you can have theory – so it's a theory paper. But it predicted a funny thing. It predicted that if you had a market of about 30 products, the average person would consider about one-tenth of those, a consideration set phenomenon. I'm really an empirical researcher at heart, so I went out and

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started looking at the consideration phenomena. We found that in fact not only was that predicted by the model, but that was kind of what was happening. So if you had 30 deodorants, the average person would consider 3 or 4. Automobiles – you have 200 to 250 make/model combinations, and the consideration set size is 8. Suddenly I realized that marketing is all about the consideration set. If you think of it, if I can reduce your odds from 1 in 250, to 1 in 8, that's worth a lot to the manufacturer.

We published that paper on consideration sets. Curiously, we had some nice theory in it, but I think it gets cited for the stylized fact. But it's been highly cited. Again, we went from practice to theory, to theory back to practice. [Note: It's now twenty years later and there seems to be a renaissance of research on consideration sets.]

G: That's nice. It makes sense when you look at it at that level.

J: Yes. We have a lot on consideration set. I'll get back to what we're now doing on consideration sets. But let's keep the timeline, about the same thing that was going on at the time.

You have to remember that Glen and I were doing a lot of work on consumer preferences for product development. And Management Decision Systems had been bought by IRI (Information Resources, Inc.), and IRI had a Custom Projects Group, and I was working with the Custom Projects Group. It was one day a week at IRI during that period.

One of the auto companies came to us and they said, "We really want to study this mapping. We want to understand how people form their preferences based upon the physical attributes of products." This was in the late 1980s, and they called it GM-99 – what GM would look like in 1999. They had basically bought all these cars and stripped them, and had physical measurements on literally hundreds of cars. They were willing to commission, and they did, surveys on people's perceptions of all these cars. They basically asked us to estimate statistical models to map physical characteristics into people's perceptions. We did it, but we weren't particularly happy with it because of co-linearity and other technical issues.

I went out to Detroit and visited a number of the auto companies, and went to something that is now called the American Supplier Institute, which at the time was called the Ford Supplier Institute. There was this funny thing that they were using, which Toyota had

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developed, called “quality function deployment” (QFD). They showed it to me, and I said, “Gee, that’s really kind of neat.” He had a bunch of matrices. But the way Toyota had used it was, they basically had teams of engineers figure out what the customer wanted. That didn’t seem right to me, as a marketing person. I had a student, Abbie Griffin, and she actually was a student in what’s now called MOT. Now it’s called TIES. Abby was not super quantitative, but she was willing to do a lot of field research. She was willing to get on airplanes, and I wasn’t. She did a lot of participant/observer work with the auto suppliers, with some computer companies, etc., studying QFD. We really determined that there was some good uses, but there were also a lot of abuses. And the abuses came in the form of engineers thinking they were customers. So we said, OK, instead of doing the old method that Glen and I had been working on (at this point) well over 10 years, could we develop a new method that would actually fit the QFD process, where we need lots and lots of customer needs? In part Abbie’s thesis, and part some other work I had done, we developed something called “Voice of the Customer.”

There’s a story in how we protected that name too. People later on wanted to copyright it, and I was able to point back to the syllabus and say, “It’s in this syllabus. Prior art.” MIT maintained it as a generic term, and nobody ever copyrighted it.

Anyway, we developed it, we published it. We won a Little Award. Abbie won the dissertation award for it as well (INFORMS Bass Award).

At that point, IRI had decided to sell off Custom Projects, and they went to a company called MARC. The person (Bob Klein, a former Sloan MBA) who was head of Custom Projects, as soon as his non-compete ran out, he came to me and said “Let’s start a company doing ‘Voice of the Customer’ work,” and we did. In 1989, we started Applied Marketing Science, Inc., which has just had its 25th anniversary. It does a lot more than just Voice of the Customer, but it’s still one of the top Voice of the Customer, total quality management firms around. Bob Klein is still president, although he has a succession plan, fortunately. He’s a little older than I am. The company will still be around for a while.

Again, it was products. GM came to us, we didn’t like what GM was doing, we went to the Ford Supplier Institute, we developed this. And also, to show you how these things happen, in 1988 I spent a year at Harvard as a Marvin Bower Fellow. Marvin Bower founded McKinsey and paid a bunch of money to have people come visit Harvard. My sponsor was Ted

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Levitt, who at the time was editor of *Harvard Business Review*. I actually knew Ted pretty well. He said, “You have to write something for HBR.”

I said, “God, Ted! HBR does not publish what I write! It’s much too mathematical.”

He said, “How about all this house equality stuff?”

So in fact, we did publish house equality, and it was with another MIT adjunct, Don Clausing. That particular article at one point was in the top 10 of HBR articles, top 10 most cited. Even in the 1990s, it sold over 100,000 copies. My best-selling article wasn’t my research; I was a reporter, I just described what industry was doing. I didn’t develop it. But nonetheless, that was my only HBR article, the only time I wrote for a non-technical journal.

G: That’s a great story, just all the connections woven together.

B: That leads to a question, John. You mentioned HBR, and the approach that they took, at least early on, to marketing which was so different than what has distinguished this place. Would you say that what you folks have put together, analytics of marketing, puts this place in a very special role as business school and their commitment to marketing as a subject?

J: It did, yes. I would say we are losing that....

B: But we were in the vanguard – you mentioned you had one of the first articles in *Marketing Science*....

J: We were in the vanguard.... I edited the journal for six years. INFORMS awards the Little Prize. Glen has really driven things. Al Silk did a lot of very important work here. And a lot of MIT students who have graduated from here. Fred Feinberg, Pete Fader, Scott Neslin, Abbie Griffin, Olivier Toubia – these people are all very senior, very influential. I’m sure all MIT graduates who have carried this out.

What’s happened now, Glen’s retired, John Little is 86, I think and he’s talking about retiring....

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B: He is?! That's amazing! I can't believe he's talking about retiring.

J: I'm 65, although I'm NOT talking about retirement. Marketing currently has three slots open, right? It's the next generation, and what's happening is we probably didn't do succession planning. The people who are economics-oriented, they want to hire economists, not management science types. It's a little bit of tension there.

G: That would drag you to where other marketing departments are.

J: Yes, we'd lose our unique ability, which is a shame, because we already have an extremely strong Economics Department, and an extremely strong Applied Economics department. We have economics and sociology. We have a lot of strength. And we also have the best Management Science and OR Group probably in the world. And we have the best Machine Learning over in EE.

G: I was going to say, Sandy Pentland's work on measuring large populations could have a dramatic impact on marketing.

J: Oh yes. There are some positives. Sinan Aral is joint with Marketing now. He's obviously in IT, but joint with Marketing. So that's bringing it in. Hopefully, we'll be able to hire some junior people. Juanjuan Zhang is really bright, and although she's economics-trained, she does a lot of stuff. Duncan clearly is doing a lot. There's a lot of hope. But we're not leading the field in Management Science any more. We're losing a little of that. It all depends. If we hire right, we will get it back. I'm always optimistic, I figure we're going to hire right. [chuckling]

B: Of course the other side – when I was in the dean's office, it was tough sometimes to recruit somebody from your Marketing Analytics group, say, to teach in the Sloan Fellows program. We would get someone like Barbara Bund to teach. That's always the balancing act: the work you do fits right in for Ph.Ds. and probably our bright MBAs, but when you get into Executive Education, and maybe the appetite on the part of the students in the Executive

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programs has changed so that the analytics are what they say is distinctive. “We don’t just want to talk about brand management.” It’s the location of marketing.

J: Right now we have two economics-type people teaching Sloan Fellows and the EMBA’s, and they are both very popular teachers. In fact, they teach a marketing strategy course, Strategic Marketing. They teach a little bit differently than we teach in the MBA. That part’s covered. The reaching is actually not so bad.

But the core is another story. As you know, we got pushed out of the core. We now have a much smaller percentage of the MBAs taking marketing. That’s going to affect how we can hire. But that’s not what we’re here to talk about. We’re here to talk about what’s happened in the past. We are at a crux, but we’ve managed through a crisis before. So there’s a lot of that.

And there’s another era, I would say, starting in the late 1990s. We hired Ely Dahan, who has unfortunately since passed away, and he was younger than I am. But Olivier Toubia was a student, he’s now at Columbia, and he’s considered one of the top people.

We started playing around with getting information about customers off of the web. We were doing this back when the web was really young. We called it the Virtual Customer. It was a good phase, but what it really meant web-based research. A lot of methods now, what they do is collect information from consumers, but they are very interactive, they respond to what consumers are saying. So before we ask the next question, we do an incredible amount of computation in the background which the customer never sees. That’s using methods the OR Group has developed, so really state-of-the-art optimization. We did that for linear preferences, and we got back consideration sets. We did it for cognitively simple decision roles. A lot of both optimization and now machine learning methods to prime our questioning processes.

B: In terms of disciplines, that can be part of the foundation for marketing. You talked about EE, OR, Economics, but you’ve also put in place psychology as a foundation?

J: Yes. Psychology, I do some of it, not a lot.

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B: But you've hired some people who have some depth in psychology.

J: Yes, we hired some people in psychology. Drazen Prelec. Over the years we've always tried to build consumer psychology since literally before I was hired. Rick Bagozzi was here, Eric Johnson, these are all very well-known people here. Dan Ariely. France Leclarc. But we have not been able to maintain that.

B: It hasn't really jelled?

J: Yeah. We still have Drazen, and we still have Renee Gosline, and we had Josh Ackerman, but he's leaving to go to Michigan's psychology department. I think he never really became a marketing person. He much prefers just psychology. Which is OK, there's nothing wrong with that. Michigan has an excellent psychology group.

B: Yes, that social relations group at Michigan has had a long history.

G: Don't we have a new observation room for behavioral experiments?

J: Yes, it's over at E-38, I think? E-19, maybe. I'm not sure. I've not been there. I collect data on the web these days. I don't need to physically have people present.

G: I've heard Glen talk about web-morphing.

J: Web morphing was an interesting thing. Glen had some money from BT Group. He had the concept. And as with many of the collaboration with Glen and me, Glen has this great concept, and I have to figure out a way to do it! [laughing]

G: That's a good partnership!

J: It's a very good partnership. I remember asking how do we solve this? I kept thinking you had to do a continuous space, and his feeling was continuous morphing, the change

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of the web. I remember, at that point I had had an operation and I had to walk every day for about an hour. I did my usual pass down Memorial Drive, around past the Stata Center, and I said, “Why don’t we do it in discrete space? If we do it as discrete space, then we could formulate it as a bandit problem. There are still a whole bunch of technical things we have to solve, but if we do it that way, I think we can do it.” It was changing it from continuous space to discrete space. Suddenly we saw a way to do it.

Then I remember going down the Cape and sitting there for a couple weeks reading everything I could on bandit processes until I finally found a technical method that would do what I wanted it to do. Because it’s actually a very hard technical problem. And I said, “OK, now we’ve got it.” So after that, we knew how to morph things, so then it was a matter of just putting together some basic statistics and get a morphing algorithm working. But it was one of these that you needed that one – you needed a transformation of what the problem definition is, from something that couldn’t be solved to something that could be solved.

It’s interesting. In some of the follow-up papers – in the original morphing paper, we said “You observe 10 clicks, and then you change.” Obviously that turns out to be a much, much more difficult problem. In complexity theory, it’s NP Complete, which means, basically, you can’t solve it optimally in a reasonable time. Again, I remember working and thinking about this. The problem is, when you’re thinking about when to morph, you have to worry about switching costs. To change the look and feel, there are some costs to doing that cognitively. It’s the switching costs that make the problem hard to solve. And again, I went down the Cape, I read dozens and dozens of papers on switching costs. And it was always additive switching costs. There would be a cost and it would be added. I’d think about this problem. When it’s a cognitive cost, it’s changing probability, hence, we want to keep everything between zero and one. What if switching costs were multiplicative? What if they were a percentage change instead of an absolute change? Ohhhhh. So once I visualized the dynamic program, I said, “Oh, I can solve it now.” So again, I made that one change, and suddenly I can solve this technical problem. And of course, there was still a lot of work to do. But that paper is now coming out. It’s coming out in *Management Science*, where I’m hoping that the algorithms people will pick up on it. And since I’m not a state-of-the-art dynamic programmer, they will figure out how to do it even better than we did.

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B: Boy, these are great examples, John, of how you folks have really made a mark here.

We're just about out of time.

J: I hope I've helped you.

B: Oh yes! The question is whether we've left some gaps, or some things that we should explore further.

J: Obviously, John Little has been a big impact. Glen has been a really big impact on me. I think Glen told me that he's published more papers with me than anybody else. I think the converse is true as well – I think I've published more papers with Glen than with anybody else.

B: So you've gone from being his best Ph.D. student to his best collaborator.

J: He's had other Ph.D. students, and I'm afraid to ask him the question! [laughing]
I don't know if I'm the best, but I was his only student at the time.

B: It's a great story.

J: Did John Little give you the Newton thing?

G: I didn't do the interview with John. What was it, the Newton thing?

J: Basically, you can trace, you can go advisor to advisor to advisor to advisor. You can go from John Little, to Philip Morris, and a bunch of other people, physicists. I think Compton is in there, and a few others. It goes straight back to Newton from John Little.

B: Well, he was the first person to get an OR Ph.D. here. And he came to study physics. But we have a lot more in the record.

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J: We put that together for his *Festschrift*.

B: This was a *Festschrift* to honor John?

J: Yes. We had the *Festschrift* conference, but MIT Press is going to publish the proceedings from that. As soon as John writes this final paper. The other papers are ready to go.

END OF INTERVIEW