Final Condensed Draft 8: edited for 05MS DVD script - 02/17/09

TOM GOLDSMITH'S STORY A

How the New System Came to Be and How It Worked

And you need to remember that this was not that long after the day of the punched card, when you couldn't handle a lot of data. It took a long time to process it, it was cumbersome to sort it, and to re-present it was possible, but it didn't work very well. [p1]

But I had made an arrangement to do the Children's Museum stuff, to rent some computer time from the Stride Rite shoe company… [p2]

…it just all worked. It worked from the beginning. And we came up to something we do, and we'd talk about it, and chances are we'd do it. I'm sure when it came time to put the budget in or to add a level or maybe add a couple of classifications, we just came up with what we wanted to do and do it. [p4]

But one day in February or March, it was time to produce the reports to begin to get the next year going. And I said to myself, "You know, we have not been breaking down the expenses enough. And if instead of making 15 categories we made 30 or 35, we could get a whole bunch more information out of the system and do some things automatically." And I said to David, "You know, what do you think?" [p5]

And he said, "Sure, give it a try." And without anymore discussion on that, and with all of the energy that I had, because it was my idea, and I wanted to do it and I had time for it and so forth, I just went ahead and did. And in a month or two we had a whole new system that was producing the management reports and the government contract managing stuff we needed in just a much better way. Now, I

mention that because that's kind of the way it seemed to work at the Children's Museum. We decide, you know, the thing really went well.

So what did we have? We had these three layers or reports and a couple of slices of reports across departments and ways to find the numbers you were after. [p7]

...and you start to have an organizational collaborative discussion about what the data means and what it tells you about what you can do. Now, as I talk about this, I guess I'm not sure how many organizations now do it this way, either in their budget process or in their cutting back process. But at the Children's Museum, that's what we did. [p8]

"You know, we've got all this information that starts to tell a lot of things... [p9]
...And if people can see these transactions and don't trust each other, or just don't use it constructively, it can be a very friction-causing device in the organization."

And Phyl basically says, "I think we can take care of that. Let's not worry about that. Let's concentrate on getting the information, presenting it, having it have the integrity that it needs to have." And so that was never a hindrance in the system. It was one thing that certainly made it work well in the museum. [p10]

And this whole business of rolling up to a total means that there's integrity in every part as long as the arithmetic and the architecture of the system is right. And of course, the computer program that does it starts to be incidental. The important thing is the management, the way it uses it, its willingness to be open. [p13]

...we added more subdepartments, which meant that it went down to a lower level of manager. Instead of the top manager and the three or four managers, there was a level underneath so that you began to get those people subscribed using it. We added the budget. And then underneath it we had the transactions. [p15]

And basically, we added that to the Children's Museum. And we added it kind of ahead of schedule for a little museum. And the fact that we're here today suggests that you're remembering that it was helpful [inaudible]. [p16]

How do you get the organization to work with this – well, what did I say? – accounting data, management information and then an organization that has the ritual and procedures and so forth to take advantage of it to actually turn the management information into decisions and finally performance against whatever the objectives of the organization are, whether it's teaching kids, building museums, preserving whatever. [p20]

TOM GOLDSMITH'S STORY B

"Phyll and David Support Experimenting". [20-21]

... you ran these big, expensive machines that took a lot of electricity, burnt energy at the time and were expensive to run and you had to figure out and you had to be a relatively savvy kid to do all that stuff. It was fun because it worked and things fell together and it went to so well. And then you came back and dealt with Phyl and David and you and your organization and it not only worked well but actually was accepted and appreciated and did a good job, so it was fun. [p26]

It's a long time ago so I have to try and remember, and I find myself almost falling back to the answer, well, what really worked was going over and sitting down with Phyl and David and talking and finding out what they wanted. And it isn't very memorable because we didn't spend a lot of time with it. There weren't wrenching discussions or conflicts or "goodness what will we do?". We just figured out something smart and we went ahead and did it, apparently, and the system came out and it worked. [p31-32]

I think the process really was a constructed, collaborative thing where we step-by-step made pretty reasonable decisions and didn't dig any deep holes would couldn't climb out of and we put together a system that did what *you* wanted it to, you know, you as, I don't suppose you called yourself CEO of the museum, but somebody's got to be [in?] charge and responsible that the visions sort of go in the right direction. And they need a nerve system and an information system. And if that person has or learns what they need to do what with and then leads that and communicates it, it makes the job of implementation kind of a pleasure.

I've always said about accounting decisions, if you can't figure out what to do with those numbers or how those numbers ought to be presented, you've just got to go back and what questions are there that you actually ask and which ones do you need

to know? And what you're saying is, maybe I began to learn that philosophy from being there because you folks did know what you needed to know. You had a sense for the information that was missing. And we maybe had to figure out how to present it nicely and make it efficient to find what you wanted. And so as you said, I'm going to say it again, just from the mass of numbers the information you wanted would pop out so it just didn't look like a sea of numbers. We had a process that gave us [that?]. [p33]

"Looking backwards were there any other things from which you think we might draw some lessons for today's world?" And what I wrote down is, "Well, Phyl and David had an innovative and supportive way of working, and that's a lesson for any generation. It's hard to achieve, always has been and always will be." There was the climate that we got into that allowed this to come out of it. And that's kind of the looking forward thing I most get out of ~~moving~~ [looking?] back, and of course the most general and it's aside from any of the technical pieces, it's the whole [moment] and the climate of what we were doing. And I think we were very lucky and both David and Phyl were very gifted to be able to do that. Because we leveraged it into something. It's time was coming, but it's time wasn't there yet, and we did it anyway. [p36]

Final Condensed Draft 7: edited for chapter text 05MS - 02/16/09

TOM GOLDSMITH'S STORY A

How the New System Came to Be and How It Worked

I can remember being probably with Phyl O'Connell, and there was a Mary Babine. Somebody who was the accounting gal. Both were very talented people, by the way, skills that were key to making this thing work.

Now, we used to talk about taking accounting transactions and getting them into management reports. [p1]

And you need to remember that this was not that long after the day of the punched card, when you couldn't handle a lot of data. It took a long time to process it, it was cumbersome to sort it, and to re-present it was possible, but it didn't work very well.

But I had made an arrangement to do the Children's Museum stuff, to rent some computer time from the Stride Rite shoe company... [p2]

But with a new systems, a good-sized computer and relatively little body of data, you could begin to do processes in a new way that the big companies couldn't do.

Mary never made any mistakes. She did an adding machine tape twice and got it right probably both times. And I asked her once [inaudible], and she was sort modestly and maybe a little embarrassed, "Well, I happen to be a person who never transposes figures. That just doesn't happen to me."

And we did, thanks to Mary, a great job of getting the data in and having the information right. [p3]

...it just all worked. It worked from the beginning. And we came up to something we do, and we'd talk about it, and chances are we'd do it. I'm sure when it came time to put the budget in or to add a level or maybe add a couple of classifications, we just came up with what we wanted to do and do it. [p4]

But one day in February or March, it was time to produce the reports to begin to get the next year going. And I said to myself, "You know, we have not been breaking down the expenses enough. And if instead of making 15 categories we made 30 or 35, we could get a whole bunch more information out of the system and do some things automatically." And I said to David, "You know, what do you think?" [p5]

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But you need the old drill down from the top line from the top line of your report right into the filing cabinet and find the piece of paper.

And basically, we added that to the Children's Museum. And we added it kind of ahead of schedule for a little museum. And the fact that we're here today suggests that you're remembering that it was helpful [inaudible]. [p16]

The other thing that you do is when you see something that has been misclassified, you actually do correct it. [p17]

So that when you do next year, you don't have that distortion in your planning. So there's a whole sort of a pruning and cultivating so that your data is good and keep the process.

How do you get the organization to work with this – well, what did I say? – accounting data, management information and then an organization that has the ritual and procedures and so forth to take advantage of it to actually turn the management information into decisions and finally performance against whatever the objectives of the organization are, whether it's teaching kids, building museums, preserving whatever. [p20]

TOM GOLDSMITH'S STORY B

"Phyll and David Support Experimenting". [20-21]

... you ran these big, expensive machines that took a lot of electricity, burnt energy at the time and were expensive to run and you had to figure out and you had to be a relatively savvy kid to do all that stuff. It was fun because it worked and things fell together and it went to so well. And then you came back and dealt with Phyl and David and you and your organization and it not only worked well but actually was accepted and appreciated and did a good job, so it was fun. [p26]

It's a long time ago so I have to try and remember, and I find myself almost falling back to the answer, well, what really worked was going over and sitting down with Phyl and David and talking and finding out what they wanted. And it isn't very memorable because we didn't spend a lot of time with it. There weren't wrenching discussions or conflicts or "goodness what will we do?". We just figured out something smart and we went ahead and did it, apparently, and the system came out and it worked. [p31-32]

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I've always said about accounting decisions, if you can't figure out what to do with those numbers or how those numbers ought to be presented, you've just got to go back and what questions are there that you actually ask and which ones do you need

to know? And what you're saying is, maybe I began to learn that philosophy from being there because you folks did know what you needed to know. You had a sense for the information that was missing. And we maybe had to figure out how to present it nicely and make it efficient to find what you wanted. And so as you said, I'm going to say it again, just from the mass of numbers the information you wanted would pop out so it just didn't look like a sea of numbers. We had a process that gave us [that]. [p33]

"Looking backwards were there any other things from which you think we might draw some lessons for today's world?" And what I wrote down is, "Well, Phyl and David had an innovative and supportive way of working, and that's a lesson for any generation. It's hard to achieve, always has been and always will be." There was the climate that we got into that allowed this to come out of it. And that's kind of the looking forward thing I most get out of ~~moving~~ [looking?] back, and of course the most general and it's aside from any of the technical pieces, it's the whole [moment] and the climate of what we were doing. And I think we were very lucky and both David and Phyl were very gifted to be able to do that. Because we leveraged it into something. It's time was coming, but it's time wasn't there yet, and we did it anyway. [p36]

<u>TOM GOLDSMITH'S STORY C</u> [possibly also as a chapter sidebar?]

How IBM and GM Ended Up Applying the Same Tools That Tom Learned Working at the Museum

in '75 I left the U.S. and moved to Sweden, and ended up getting a job in IBM and found out that they were building systems… and I gravitated into a group that was doing that, that eventually got a worldwide responsibility for planning system which were the predecessors of spreadsheets, and kind of got wiped out when IBM didn't have a PC with spreadsheets, and accounting systems. So I kept on going on this area, and eventually ended up convincing IBM at Armonk [New York] to use some of that same tool which, of course, was sharpened by my experiences in the things I learned in your [Children's Museum] system. And they actually ran the corporate consolidation on this system for a few years. And when they had it running, they were always kind of playing a neck-in-neck game with General Motors, so General Motors had to have it, too. [p9]

Final Draft 6: original transcript formatted for 05MS & 12JJ - 02/16/09

TOM GOLDSMITH

BEGINNING OF VIDEOTAPE 1

I had a couple of thoughts. One of the thoughts was however we got started on this thing. And that's pretty prosaic, what I can remember. **I can remember being probably with Phyl O'Connell, and there was a Mary Babine. Somebody who was the accounting gal. Both were very talented people, by the way, skills that were key to making this thing work.** And looking at a very rudimentary report. It was probably a profit and loss for the Children's Museum and probably three departments underneath it that rolled up into that. And it was probably a pretty good list of income and expense breakdowns that were good enough, and there was probably a balance sheet that went along with it, and I suppose there was some fund accounting in it. But there was no budget. And we made a note of that and thought there probably should be. And for whatever reason, I was working with these kinds of systems a little bit. I had a little report generator that could produce these reports I thought, and sure enough it did, and was interested in doing it with some real information. **Now, we used to talk about taking accounting transactions and getting them into management reports.** And at the time I can remember thinking it was really a bright idea to talk about taking accounting data and turning it into business management information. And that had been started by somebody who certainly knew what they were doing, but it was very limited, and they hadn't gone a lot further yet with it. Later, when we went further, I had heard he wasn't too happy about that because he was going to do that, he just thought the timing wasn't quite right for that. But that's how we got into it. **And you need to remember that this was not that long after the day of the punched card, when you couldn't handle a lot of data. It took a long time to process it, it was cumbersome to sort it, and to re-present it was possible, but it didn't work very well.** And what happened as we got started – and I had the idea from business school and a little bit of study of these kinds of

systems about how to, the information collected, how to do this. But the time – and as we said earlier, it was the early '70s – computers weren't that big and that far along then. **But I had made an arrangement to do the Children's Museum stuff, to rent some computer time from the Stride Rite shoe company,** which of course was a great maker of children's shoes, so they thought it was great. I don't think there was ever any product placement or anything here, there was any cooperative deal.

MIKE: But they also had a deep commitment to social equity and things like that in terms of their employees' benefits and things like that.

So they said they didn't mind doing it, and they knew what it was for. I think it's a family, you know, a lot of philanthropy in the Boston community as well, then and I presume still. But they had, it was a sizeable company, and they had a good-sized computer. So what did we have, we had a match of this little museum with – and we were post, why does 176 come into my mind? – a couple hundred transactions a month into the system and collect them all up. It must have been a little bigger than that, maybe 276. But you know, not a lot of transactions. But, you know, put that in terms of boxes of punched cards at the end of the year, and you didn't do it the way you might have done it in the old tradition. **But with a new systems, a good-sized computer and relatively little body of data, you could begin to do processes in a new way that the big companies couldn't do.** Stride Rite couldn't do that because they probably were 100 times bigger, and to put a 100 times bigger load on their computer was a much bigger engineering job. So we sat at that time with my interest in this area and the business of having a big computer to do a small organization's job, and we could do things that hadn't been done before. So we basically put the system together. Now, in a conversation like this, I have to be careful. It's really easy to get into accounting technical stuff. Everybody, you know, their eyes sort of fall a little bit, you [white out]. So I've learned not to explain the intricacies of getting all the data in and balancing. But you have to do that, it has to be an accounting system with a lot of integrity. And then you've got the data, then you sort of change hats and figure out how to structure it and present it. I started to say Mary had some enormous skills. She was just an excellent

accountant, bookkeeper, whatever her title was. I commented to her one day that I had a gal from Stride Rite who I was allowed to contract after hours who keypunched the transactions into cards before they got fed into the system. And I noticed always that she made either two or three mistakes in the batch. And we caught it very quickly because Mary also set up what we called a "control [total]", and you'd know when it was right and when it wasn't. And so this gal always made two or three mistakes, and at least one and probably two were in the last five to seven transactions. This is who she was. And it was very easy to fix because **Mary never made any mistakes. She did an adding machine tape twice and got it right probably both times. And I asked her once [inaudible], and she was sort modestly and maybe a little embarrassed, "Well, I happen to be a person who never transposes figures. That just doesn't happen to me."** And that was sort of one my early lessons in what David [Burnham] would call competencies. You know, that's a really good trait to have if you're a bookkeeper. And one of the reasons I'm not a bookkeeper. But there were all these technical things. **And we did, thanks to Mary, a great job of getting the data in and having the information right**. And then we needed to come around to what you earlier called roll up. And maybe you could mention that again, or I'll paraphrase it for you. You had several sources of funding, you had, I think there were these three major functions, what were they? One was the Visitors' Center, one was the store where you basically recycled interesting things from industry which got out into the classrooms, and then there was either a community or a school outreach program where people came in and you went out. So you had these three major programs which I guess were funded by different sources. And the different sources, for whatever reason, wanted more or less the accountability, or you wanted to manage more. So the idea of a roll up was that the top reportings, always income and expense for the whole organization, board of director level end of the month "are we doing well or bad", or end of the quarter or end of the year. And then I think you wanted underneath, and had, without a budget, the three major functions, or maybe it was four and you remember better than I. And then under those there was also three or four major functions under each. And it starts to get to be a handful of reports, so the integrity and the totaling, it has absolutely, if you look at a number here and the top level it doesn't look like, you know, it varies from budget or it

doesn't make sense, you wanted to be able to look down and see which of the four departments under that may have caused it and may account for the unexpected component. And you want to look at the subdepartments below. And then the thing that we added, that people really didn't do then, was you also needed to have a way of getting to the transaction itself, the posting. So you put the – simple stuff – you put the name of the vendor, the expense, the name of the person's expense report it was, and you know, if it Boston Edison, you know it's a big electric bill, and you don't need to go to, or you do need to go further and to look at the invoice which was in the filing cabinet. Now, since then I've worked with these kinds of systems, and we got very clever and we called this "drill down". When we were doing this at the Children's Museum, we didn't know what to call it, but we knew we needed it. And so this is one of the things that sort of evolved. But let me stop here with technical part of the system, because I've described the accounting, and I've described the way there was a report structure with various techniques and reports by different sequences and so forth would let you find the information you want. And we got really good at that, working with it for a year or two. And added a budget after a while, and were going along pretty well. Fortunately. Oh, and organizationally you were involved and Mary was involved, Phyllis was involved, David Burnham and I remember the auditor, there was the audit leader from, I don't know, through Anderson, I'm really not sure, who came in and helped us look at the information, decide and talk and think about what we were seeing and think about how it should have been accounted for and all those kind of things. But there was something about all of this that was very, the climate of this, **it just all worked. It worked from the beginning. And we came up to something we do, and we'd talk about it, and chances are we'd do it. I'm sure when it came time to put the budget in or to add a level or maybe add a couple of classifications, we just came up with what we wanted to do and do it.** I'm reminded of working with David Burnham. Because in parallel we were doing the same thing in [inaudible].

In parallel, David Burnham was heading [McBer], and he'd somewhere in the same swings had gotten me in, in the role that would now be called chief financial officer or something like that. But we were developing a similar bookkeeping system there. And

you have all of the complexity of government accounting and contacts and so forth. **But one day in February or March, it was time to produce the reports to begin to get the next year going. And I said to myself, "You know, we have not been breaking down the expenses enough. And if instead of making 15 categories we made 30 or 35, we could get a whole bunch more information out of the system and do some things automatically." And I said to David, "You know, what do you think?"** And I think I'd already tried this and gotten an idea of what it would look like so I could show him a little breadboard of what it would be. **And he said, "Sure, give it a try." And without anymore discussion on that, and with all of the energy that I had, because it was my idea, and I wanted to do it and I had time for it and so forth, I just went ahead and did. And in a month or two we had a whole new system that was producing the management reports and the government contract managing stuff we needed in just a much better way. Now, I mention that because that's kind of the way it seemed to work at the Children's Museum.** We decide, you know, the thing really went well. But then what happened, and I'm trying to remember if it was '73 or '74, because the key thing is, I'm sure you remember, is that politically the Middle East learned that what the oil companies had always been doing with them in the U.S. they could do themselves, which was to control the supply and therefore control the prices. And for the first time – we're sort of used to this now – but for the first time America saw that somebody else could decide a little bit on the oil prices. I think it was Nixon at the time could make a big mistake, and I forget whether he embargoed for or against importing or exporting, but he exacerbated the problem, and suddenly politically and economically had this huge – what do we call it, what did we call the oil price? What was it called in '73 and '74? But anyway the price of gas in particular and heating oil and everything else went up by a factor of two or three in a very short time. And since it had never happened before, everybody thought it's never going to go down, it's just going to keep going up, the world is running out of oil. There was a panic climate around driving cars. Americans stopped driving fast. Teenagers didn't even drive fast. Everybody thought about these big cars that our fathers drove that took so much fuel. And I think I had at the time had a Volkswagen and a few of us outlyers weren't really caught by this. And of course the cars our fathers had are much smaller than the SUVs of today, so you can see how our

thinking has changed over the years. But the mentality was that we're going to have to stop driving our cars, thank god we have cities where you can live in the middle and public transportation and so forth. And anybody who thought of taking a long ride down the Jamaicaway several miles from the center of Boston probably, well, 2, 3, 4, you tell me how many, but if I remember correctly, your experience at the Children's Museum was people stopped coming. And suddenly this nice washtub which was getting water in the top and flowing out at a nice rate and all these good things coming, bubbling over for children and education and museums and everything was, you know, the water level was going down too fast because people weren't coming and paying admissions. So David Burnham, of course, was on the board and was very aware this was happening, and so were you and so was Phyl. And we started to think, there was no way you were going to raise revenues, increasing the price wasn't going to work. People weren't coming period. There just weren't enough. You had decided that the answer was to move out of the suburbs into the city, and that process, I guess, started then but it was going to take years.

MIKE: That was a much earlier time.

Was it?

MIKE: Our first meeting about it was '65 or something. We didn't realize we couldn't pull it off then. But it went into higher gear, because we finally got to the point where we could contemplate, I think, [inaudible].

Okay, and the energy crisis, in a way, helped you.

MIKE: A little. That was part of [inaudible].

One more occasion to do it.

MIKE: [inaudible] trying to run a very complex organization. We were so entrepreneurial in terms of getting sources, that we way we grew was by getting more and more sources, which adds to the complexity of the accounting. Budgeting, particularly.

Okay. Interesting. Because you're telling it probably much more from a time perspective how it is, and I'm reporting it how we saw it as, from – and it doesn't matter, because the important thing is that we were there when you wanted to be able to – I think the imperative to cut costs was probably pretty real. The business you moving, you say, was underway, but was still going to take several years before it happened. And the question was, did you have information in the accounting system that would help you cut costs? And I guess you could almost come back and be philosophical. Cutting costs, especially in large organizations, is an enormously difficult process. I used to tell the story, you know, ten or twenty years ago when downsizing was new, my picture of downsizing was you look, you figure out what you might want to cut back, everybody was politically involved. And these were managers who had gotten to where they are by being politically savvy and good at building a case for this stuff. You ask them what you should cut back, you don't find out. So that what top management was doing in the 1980s was to basically take every third employee and shoot them. You know? Terminate them, put them out, maybe every fifth, maybe everything seventh. And I think companies still do that. And I think the reason they do that is it's the only thing they found that worked. Well, I don't think that was an option either with a weapon or with a legal process at the Children's Museum, although I know you had to cut back, I'm sure, many stipends and student placements and so forth, because it doesn't matter if they come for free they still cost money. But you needed to look very carefully at where your money was going and in a smaller organization maybe you can see a little deeper into the politics and decide that it is very nice to have something objective and quantitative. **So what did we have? We had these three layers or reports and a couple of slices of reports across departments and ways to find the numbers you were after.** And so when you want to cut back, of course you want to look where the numbers are big, because if you spend time trying to cut back on a big number and succeed you'll have a big saving. But when you look at that number and try to figure out if you can cut it back,

then you've got to see what's behind that number. And what we did is, each quarter we wrote out a transaction listing by – I think we wrote it two ways. We wrote it by department with all the accounts underneath, and then by account with all the departments underneath. And it was probably the first report that we used, by department. So you'd look at the department, you'd look at the account classification, and you'd look underneath at each item. And you'd look at the item and say, "There's no way you can cut that. But that, that was a discretionary expense, and if we cut it, it would have that impact." You suddenly, instead of, to use my macabre metaphor, instead of shooting every seventh person, you start to look at every seventh account, or as a matter fact, you look systematically at all the accounts and pick out every seventh account to look at, **and you start to have an organizational collaborative discussion about what the data means and what it tells you about what you can do. Now, as I talk about this, I guess I'm not sure how many organizations now do it this way, either in their budget process or in their cutting back process. But at the Children's Museum, that's what we did.** I know that I thought we should do it this way, I had some examples of it, we sat down and did it. I thought you got going on it, and I think that's what you ended up doing across the board. And I assume that it worked.

MIKE: It was amazing, because we were always using every penny we could find and then some, and we'd end up [that] year with $3 million budget, we would be at $15,000 surplus. We always were just in surplus, and always running at this edge of this precipice the whole damn year. And it was because we had the data.

You had the data and you knew as a manager how to manage the accounting system, with Mary and Phyl's help. I've seen that in systems, where the art is to learn how to predict what the accounting system is going to deliver. If you can predict what the accounting system is going to deliver, you're probably in control of your processes and your money. And it sounds like being so near this precipice gave you the energy to do that.

MIKE: And everybody, instead of the senior managers being in the know, everybody was in the know. And everybody department, a small department running the kit rental

department, or a small project that we got a $20,000 grant or something like that, each person who was responsible for those things, there was a working down so that everybody had the same printout run by their own department. They could get to the back pages with all the transactions.

Right. This triggers just two or three different thoughts in my mind. And my background, by the way, is I went on from here, as I think I intimated, **in '75 I left the U.S. and moved to Sweden, and ended up getting a job in IBM and found out that they were building systems,** they were five or so years along, way ahead of me in the kind of programs that would handle this sort of thing, **and I gravitated into a group that was doing that, that eventually got a worldwide responsibility for planning system which were the predecessors of spreadsheets, and kind of got wiped out when IBM didn't have a PC with spreadsheets, and accounting systems. So I kept on going on this area, and eventually ended up convincing IBM at Armonk to use some of that same tool which, of course, was sharpened by my experiences in the things I learned in your system. And they actually ran the corporate consolidation on this system for a few years. And when they had it running, they were always kind of playing a neck-in-neck game with General Motors, so General Motors had to have it, too.** And the last time I checked, they'd been running it for ten years. And it's all the same ideas, the same business of drilldown, consolidation, roll up, how you [proved] the reports, and so forth. But in those big organizations, there was a great deal of structure always built around who gets to see what. In the Children's Museum, and I think Phyl early on said this, whether it was after a conversation with you or not, I said, **"You know, we've got all this information that starts to tell a lot of things** about people. It shows the good things, it shows the bad things. It misrepresents both the good things and the bad things in a way that can be misused, embarrassing for somebody and it's the accounting system's fault that it's an imperfect process. It's the accounting system's fault that says somebody's salary or some of the expense was for a dinner instead of a hotel or an airplane ticket or something like that. **And if people can see these transactions and don't trust each other, or just don't use it constructively, it can be a very friction-causing device in the organization."**

And Phyl basically says, "I think we can take care of that. Let's not worry about that. Let's concentrate on getting the information, presenting it, having it have the integrity that it needs to have." And so that was never a hindrance in the system. It was one thing that certainly made it work well in the museum.

MIKE: [inaudible].

The need to have secrecy. Anybody who wanted to look at – I don't think you started handing everybody the other department's report, but you didn't build it so if – so there was no way somebody else could get the other people's stuff, look at their salary information, expense reports or whatever. I think probably everybody at the museum knew who was making what, and maybe that wasn't an issue. Did or didn't? Did know? Did not know. Okay.

MIKE: People didn't know the actual salaries, but one of the things when we moved downtown, the [inaudible] that had been suppressed by the [inaudible], tried to get open. So these things came out and stayed after the [opening], because there was no longer a reason for keeping that stuff. So there was a staff revolt, wanting to know was there equity? And we had a rough system, but nothing you could look at. And so one of the things that we developed was a scale and triggers about the whole structure.

The whole HR structure and the salaries.

MIKE: Yeah, we did it as a, there were representatives from every department elected to work on the thing. So again, you didn't know what anybody actually had in the thing, but you could infer the range because everybody was involved in putting the system together.

Well, when I think about this just technically, the salaries were certainly a major expense at the museum. And so it had to be in the reports. And a typical thing, and I don't

remember whether we did it, is you put in one line, which is salary costs for the department, and you don't back it up by A, B and C person makes so much.

MIKE: We had also an outside service, [inaudible], so that it was easy to not get the actual take-home pay for that week in the system.

But if you – and it's a problem with a system like this – if you open up the system and you start to show the economic [pictures], you probably put a figure in with a total salary with benefits allocation for the department. And if you look at the department and there's four people in it, and you're getting 10% of that total salary, and by the way you don't notice that it's got the overhead in it, the benefit, you think that there's some equity missing here. So it opens up, no matter what you do, it opens up enough so that you begin to see what the issues, you start to think about, you start to speculate. And if you don't ask or you don't know, you can get down some funny paths in terms of your conclusions.

MIKE: That is, you still answered you question. You were welcome, everybody got more and more sophisticated about understanding the printout and what it really meant.

But you know, you mentioned kind of a revolt, and I'm sure that having the system contributed to there being a revolt. Because the awareness starts to [inaudible]. If you start to have people aware of how to save money, they also start to think about how much is coming to them. And then the problem is, if you don't deal with it, and you said you didn't deal with it for a while because you were so busy getting moved, but when you got moved you had to deal with it and you dealt with it, if you don't have an organizational climate that will deal with it, then that's when the really funny and unfortunately – not funny – and unfortunate things start to happen. But what I started to say, and I need to come back, was one of the reasons the system worked so well is because it was open and the whole idea was to roll the information out and let people get at it. And I have to say, working with these larger companies, that's absolutely not always the case. And I could go, General Motors had union members sitting on its board, and they really did not want

their board to see every step of the way how they arrived at bottom-line earnings that raised the controversy of how much goes to capital and how much goes to labor. So these systems consciously were designed around how do you keep from making things too clear. And for, I think, business-wise, pretty good reasons. But reasons which – and you had a taste of this at the museum. But you were able to deal with it.

MIKE: Anything we could possibly make transparent, we did. And one of the interesting things is, when you start to counsel other organizations like the Metropolitan Cultural Alliance, things that wanted to adopt this system, too, some of them said, "No way, because we don't want that stuff rattling around." The decision was really mostly about who gets the control of this very powerful data.

I'm trying to think. I said I had two or three things. I went down into one of them. I need to get back to where we were when I said that. Do either of you remember?

MIKE: Well, you were talking about the [inaudible] thing about this question was there for IBM and their collaborators like General Motors and things like that. But the important thing is that it moved very quickly away from just accounting into much more sophisticated management of control, the use of the information, how it was applied in good and bad ways, all of that kind of stuff. Because we had this powerful system.

And it was a system with information that could be collaboratively used. It could be just the data that would get a dialogue going. And we've also seen on the other side it was information that could raise the question, "Am I being treated fairly? Is my program being treated fairly?" It could also raise the question, "If my program isn't being, to my mind, treated fairly, why not? Am I not communicating its benefits well enough? Is that why we're not getting our fair share? Does this data help us to understand better what we could communicate, and then obviously where we could save money?" And I assume that after we got through the '73-'74 energy crisis and we got moved down to Museum Wharf, that the system still went on and was still a part of the management culture there.

MIKE: And in fact I even tried to bring it to the [Field] Museum, which was $20 million instead of $3 million. And had a terrible time because they weren't willing to get the information shared out. And we were running at high speed, these very complicated projects, which we had to get done fast and use the money effectively and everything else. And we couldn't get them to adapt anything other than the most primitive, old-fashioned fund accounting, which was designed for the auditor. It had nothing to do with the management of the museum.

A report once or twice a year rather than monthly.

MIKE: We've gotten weekly, monthly reports. But they were so stale and they didn't reveal, the analysis was so crude that we ended up doing our own thing sort of back of the envelope [inaudible], inventing, you know, reinventing it.

And that's good. But you need to be able to do it – the computer can't help you with that stuff. You start it at a level up, you still have to probably put in some of the same effort. This system, you know, a relatively low-level manager could have a little profit and loss statement for their operation. And then the other thing is, and it did roll up each mini-profit and loss added right up to the top profit and loss. So you could look, and we had reports that insisted in this, you could look at which departments were making more contributions, whether it's an investment – which is a euphemism for a loss, operating loss – or whether it's a profit, which means you're helping the other departments and probably doing something right yourself as well. **And this whole business of rolling up to a total means that there's integrity in every part as long as the arithmetic and the architecture of the system is right. And of course, the computer program that does it starts to be incidental. The important thing is the management, the way it uses it, its willingness to be open.** It's a great a help that we kind of had a system that I had some energy to put together and Phyl and Mary were able to just make it happen, so we didn't spend a lot of time tripping over ourselves with false starts and bringing reports and we said, "Oh, my god, that's not right, we'll come back next month hopefully with

something better." The system came into place pretty quickly. And then the energy could go into all these organizational issues which you described.

MIKE: And it was brilliant that way, that how quickly we went from an idea conceived by all of us, including you and your sense of what's possible, to a working thing with very little, you know, the fine tuning, you didn't have to scrap the whole direction, the strategy, and go on another one because we didn't conceive it right.

We kind of got it right the first time.

MIKE: I think so, didn't we?

The system that was in place was a good little system. It was basic, but it had multiple departments, it had the account classifications that are key into – you know, accounting technical – but you need to decide how to group your expenses. It needs to be a way that works with your head and everybody understands. That part of it had been done. It was the basis that I saw first was a basis that was easy to replicate and then expand. It didn't need starting over, it just needed complimentary dimensions.

MIKE: Yeah, we were already on a "bridge seat" in that, a primitive version of it.

Yeah. Each monthly report, each page of the month reports was a little spreadsheet, and it was a well thought out spreadsheet. You know, a spreadsheet goes back to what the accountants used to do with the green eyeshades and a big piece of paper and they'd be really good at putting down numbers and cross [inaudible] and having it be accurate. And that's what a spreadsheet does today, and that's what these reports did. Is they did cross what they totaled, and they covered so much more because the computer was able to do that. And then the structure in a way you could find the numbers that ought to jump out. And then somebody had to look at it and want to see what ought to jump out. And that's what you're describing.

MIKE: That was the starting point, that was the raw material you started with. What were the things that you did to it that made it the thing that had the power?

Well, **we added more subdepartments, which meant that it went down to a lower level of manager. Instead of the top manager and the three or four managers, there was a level underneath so that you began to get those people subscribed using it. We added the budget. And then underneath it we had the transactions.** So you could go back and see which vendor, maybe which expense report, whatever, so you could actually.... You want to be able to get from the top line, let's say it's travel cost, down into your filing cabinet to find the expense voucher and if you see a travel cost too high, you want to be able to get to the piece of paper that's behind it and see that it got, you know, it actually is charged to the right department and the right category and it's nice to know who it was, and maybe you'd like to know whether it's because their car broke down in the desert and it cost $400 to get, you know, you need to know those things and whether they're going to happen again. So you need that drill down, is the word afterwards, that that thing got. **But you need the old drill down from the top line from the top line of your report right into the filing cabinet and find the piece of paper.** So we added the mechanism that let you go through the transactions on paper and figure out which ones – oh, yeah, I know what that is, oh, I know what that is, I don't need to look that one up. But what's that? And $2,500? And then you look in the filing cabinet and you probably find out. And the reasons may be good, the reasons may be not so good.

MIKE: Or they may be miscategorized.

Yeah, exactly. It's the electric bill and it's not somebody's bus fare. I think companies now do that. It wasn't done then, because the computers weren't big enough to do it. Now, you know, there's all this data storage and all this computer capacity, and systems have been built to process it, and it's pretty obvious when you know how to do it what you want to do. And I think big companies are able to do this extensively, in spite of the huge amount of data they have to navigate through, how to pick out what's relevant to the

question you've got. **And basically, we added that to the Children's Museum. And we added it kind of ahead of schedule for a little museum. And the fact that we're here today suggests that you're remembering that it was helpful [inaudible].**

MIKE: Yes. In fact, for example, although I was at the top of that pyramid and was looking at that monthly roll up of everything, I had a couple of projects that I ran myself out of the subdepartmental level. And I had that same problem. There was something weird about why is this, you know, why are we spending so much more than we expected by this time? And you could put that back to the transaction sheets and say, "Oh, they booked that early, and it's the same, but it just showed up early," or whatever the thing was. We put the wrong coding number on it or whatever it is. But [either] the line manager or myself put these little tiny projects that gone down to that. Or the other thing that was very useful – and I don't know whether this was current before you showed up – but we had I think there was about five columns of things to look at to see trends. Because there was the actual that month vs. the budget that month, the [cumulative] for that month vs. the actual and where we're headed, the total for that month.

Did we do an expected forecast? Okay. And the budget must have been in there some place. Do I remember correctly we put a budget in? I thought we did.

MIKE: Oh, the budget was the second and fourth and fifth thing.

So months, year to date, and actual budget and probably last year some place. And then a forecast what you're expecting to the year end.

MIKE: Yeah. If we were doing a thing that didn't have an earlier year to compare, we had to make it up. And the business of budgeting became the business of going back to each of the line items – we called them items, I don't know why – and saying, "Okay, what are we going to put in there not only for that whole year, but how are we going to put a 12th in for every month or was this seasonally adjusted?"

And was it big enough that you care, and so forth.

[END OF AUDIOTAPE 1, SIDE 1]

MIKE: ...good at figuring out how to budget the next [year].

Right. **The other thing that you do is when you see something that has been misclassified, you actually do correct it.**

MIKE: Correct it, yes. Quickly.

So that when you do next year, you don't have that distortion in your planning. So there's a whole sort of a pruning and cultivating so that your data is good and keep the process.

MIKE: But I can't remember whether – it seems to me that there was only, like, three columns when we started with the printout, so it didn't have that power also of presenting what was really going on in a way even at the broad sense, so that we could pick it, it wasn't just a flood of number, it was the thing that jumped out at you. Because if things were straying away from where they could be, you could figure out where they were and then, of course, get down to the transactional level and find out why.

Right, right. It's interesting that you say it wasn't a sea of numbers. It was a lot of information where the numbers popped out, and then you could go down to the transactions to check the integrity or really measure the nature of one of these numbers that did pop out.

MIKE: And that meant there were decisions to be made. Well, you really were going over, we should grab some of the money from another account and put it over there. Or we've got to stop spending that on that item or no more trips for the rest of the year or whatever.

Right. I mean, when you have those tough decisions to make, it's nice to have some data behind you so it doesn't look like you're being an autocrat, but that everybody can see how we've got to do something, and this is what it will have to be.

[PAUSE IN RECORDING]

MIKE: Choice about whether running that subdepartment, whether you're going to go to the conference or not. Maybe we can't afford it this time.

Right, yeah. There's always hard decisions to make, aren't there?

MIKE: Yeah.

Always around time and always around money.

MIKE: Exactly. When we were always trying to use – we had not spare cash. We were using every.... So these tiny decisions turned out to be – unless they were really tiny. But the subtotal of them was significant [inaudible] why we could get [inaudible]. And get good stuff now, I guess. But I'm sorry, I was explaining about them getting – it was bad, because we need to have you saying how these, I was saying it seemed to me that having these extra columns was also.... And was that my invention that that wasn't there standard for people?

You know, I built this whole system on – I will tell a story. I went to business school, and I was working on a $100 million a year broadcasting and outdoor advertising company called Metro Media in 1965, '66, when I went back to school. And the CEO of the company had gone to the same business school. And I screwed up my courage and went and asked him, "I'm going to business school, your school, too. Is there something I should pay attention to here before I go there? Any advice you want to give me?" And I was really disappointed in his answer. He says, "While you're down there in the

computer room, you want to go over and talk to Clem Weber, our chief accountant, and you want to look at the reports that he does for me every month and every quarter and a year end." And I was really disappointed. Because from a computer side of this thing, that was the most boring application we had. It was far too simple, it was just tidying up a little bit of old punchcard applications which added and sorted things out and put them together into standard reports. And the standard reports, of course, are not very different from the ones that you had, because that's the way they did it then, and that's the way you do it now. The number is actual budget last year, year to date, current month, and then some kind of [inaudible] for the rest of the year, which is probably just your budget figure, maybe adjusted for some special [inaudible]. That's what you work with. Those are the pieces you're interested in. So it's a matter of how you sort them out as a company. But this very senior, very skilled guy really disappointed me. But I'd asked, I kind of had to do it. And [inaudible] go and look at the reports. And so Clem, who later had a very substantial job in the company, took over after Richard [Guysmore] who'd given me this advice was – he had the odd habit of smoking cigars at work and not buttoning his tie and some of these things, which in the '60s nobody else did. And he worked down in this kind of crummy basement computer hole. And he was very helpful. He was real interested that I'd come and asked. And he showed me and he led me through. And I looked at these reports and saw how they worked and began to get a hint of why each department and then the subdepartments in the TV stations and radio stations and so forth, and how it all added up and as Mr. [Guysmore] said, we were able with this system always to come within 2-3% of our annual budget. And that's not bad in the media business. They didn't even call it media then, they called it broadcasting and so forth. And the system is what does this. So I went off to school and had this [inaudible] in my back pocket, and understood that you do need numbers to run a company and there are systems that can do it. And I knew enough about computers to figure out how they went together. And then at school I went back at the end of my second year and made a research report out of studying that accounting system, as I had always thought it was before I went off to business school, was used as a management tool in the company, and asked again, and learned how different people use it and everything. So I kind of came off to you guys with a little bit of experience about what the components of a system like

this was, and how one big company used it. And what you were doing in the '70s was what they were doing in the '60s, and I'm pretty sure it's what people do now. And finally the computers have caught up again so they can handle the volumes of data that Metro Media did not use. Their system didn't go down and trace transactions. They were delighted to get the departmental reports together, and then did all kinds of things: organizational, rituals, procedures, processes, to get the collaboration and the transfer of information, so that what management was thinking about kind of connected with what people down at the station level were doing. You had the advantage of the transactions, which was even more important with the things that were happening in the museum. And people still have just those same problems, and the systems will do more like your system will do today, I would assume, than Metro Media's system did for it then. But it's still all the same building blocks, all the same issues, philosophy. **How do you get the organization to work with this – well, what did I say? – accounting data, management information and then an organization that has the ritual and procedures and so forth to take advantage of it to actually turn the management information into decisions and finally performance against whatever the objectives of the organization are, whether it's teaching kids, building museums, preserving whatever.** Communicating. And, yeah, we were working on that back in the '70s. And I think we were very much involved in the evolution of using those concepts. Which were still the same old concepts.

END OF VIDEOTAPE 1

BEGINNING OF VIDEOTAPE 2

In '73 and '74 it was called "the energy crisis". And that's when we stopped having major world oil companies, we had energy companies. Which of course we still have one of the big changes since that time. What we call ourselves. And the other note that I was looking at here was that, what I wrote down is that **"Phil and David support**

experimenting". And I told you how David said, "Yeah. Experiment with changing the system and see if we can get our contract accounting to work better." And I felt really empowered when he said to do that and had the energy to do that. And the same thing happened with Phyl, with David there sometimes and sometimes not. We decided we wanted to tune the system up a little bit, maybe shift these columns around or add some account classifications or something. You call them "line items" and perfectly – lots of people call them that, too. And we would do that. And we'd try to change and we were smart enough, we'd do the right changes and it would stick, or we'd change it to something else or change it back. So it's just a thought. But you were asking what we did, and then I think of two things. Well, we did two kinds of things. And again, it's this accounting technical and the business of then figuring out how to use the data and how to present it. So from an accounting technical point of view, each month I came over, picked up some sheets of paper from Mary with a control total tape, took it back to Striderite probably that evening and got the keypunching done and reconciled all the data and got it right and put it into the computer and ran it through. And it checked again. You might have an invalid account classification and you had to figure out what it was. You don't catch that in the numeric control total. And then he would run the reports and we'd bring them back to the museum. And then – and I don't remember whether [often] dropped them off or looked at them together. But then [you'd obviously] shift tacks and then it would start to be the management information you'd process. And I'm trying to think now, and it was a long time ago so this doesn't come back immediately. But certainly we'd sit down once in a while and think of whether there were questions coming up that we, of course, didn't have answers to but could. And we'd always, I guess, pay some attention to whether they were accurate. Because you always have to be careful in any kind of information system that it doesn't start to get fuzzy and flaky and pass on information that isn't there or not pass information that is there. One of the things I remember very carefully as the deficit was looking pretty shaky, I guess it was after the end of the year and whether it was '73 or '74, the numbers were in and they didn't look good. And we sat down, probably Phyl and David and the auditor and said, "Are they really this bad? And if they are this bad, they can't look this bad because fundraising doesn't work for organizations that are failing. People want to put their

money and their attention to organizations that are going to be around next year." And we spent a lot of time figuring out which expenditures were really future expenditures, which income the expenses were already incurred so the future income which was or was soon to come in or already come in in that following year, you have to figure out how to tune this up so that you have – you know, one of the major accounting rules is period expenses should always match period income.

[INTERRUPTION]

This accounting, it's always a struggle to see if someone wants to listen to these accounting details. And because it's accounting information, and especially in the last couple of years after the bubble of the 2000 and the crash and the Enrons and everything, accountants sometimes have a bad name for adjusting these kinds of things. And you can do it feloniously, you can do it creatively. If you don't do it, your profits and your income and expense go all over the place and there's no comparability, you can't manage with it. And so we had a very intense meeting where we sat down and said, "The figures look pretty bad. Are they this bad? And how can we make our 13th period adjustments which then report the year as it really was for the Director level final performance figures? How do we adjust those?" And I remember going through a line item at a time figuring out whether that number was a fair number. And in retrospect, I think we adjusted a little bit to the optimistic because we really were not at all anxious to, well, I guess it's ask you to present pessimistic numbers. I don't think you were in that meeting. But a very important part of the work is to sit down – and I as a technician really wasn't involved. I could explain and help dig and for some number that.... I was probably as fast as anybody at going into that big listing and helping find the explanation. But it was really between the auditor and Phyl and David as a board representative, I guess, to figure that out. So that's certainly one kind of transaction. We had the other is, I think, the one I mentioned before is, first as I began to bring in these, in the 1st quarter it was this thick, 2nd quarter this thick, 4th quarter we're 13th period it got to be a little handful. You probably had to have two hands to lift it. There was a training process where we found out if you can even do this, because it was tedious. You'd still have to page through a lot

of pages, and how did you index it so you could find the right things you wanted quickly. And there was a learning and then a training process. And I was involved in that. And so certainly we sat down and maybe with a department person because the department people needed to be able to sit with it, too. So that was certainly another thing that we did. And then I guess I already indicated you'd always be checking if it was accurate. And there was some – I was pretty rigorous about being able to know if things got out of whack arithmetically. And that gets you 80% or 90% there. But you still have to do some looking. So I'm sure that's one of the things we did down there in Jamaica Plain when reporting time came.

MIKE: You still haven't answered the question about when you got into it and the model that you were massaging and making and learning how to use and all that kind of thing. But this is from the starting point was the charge, can we make this more useful and here are the things we're still struggling with and then here is what the computer is presenting us with right now. What did you actually do to make it from figuring out which of the operations you wanted to work on? You were just working at a keyboard? What was going on there?

The only time you got near a keyboard was when that woman entered the transactions, and that was of course after Mary had gotten the data pretty accurate to begin with. I have to think of how we would actually go back and fix a posting that was classified wrong. And maybe we went in and copied and replaced the punched card. I think the information went into the computer and probably was on disc, but it wasn't typical to change the information there. This was in the 1970s. You didn't have the terminal where you could go in and actually modify the data. There were some ways you could do that, they were almost with buttons and lights and switches. Not quite at that stage. And Striderite had large IBM mainframe computers. Now, in '75, when I phased out of this and moved to Sweden, you had by then had a DEC system. And then one of the major advances in that system was that you did have tools that would let you go in from a terminal and actually make change and corrections. So one of the things that happened there, of course, was the business of teaching a young man how the system worked and

what the system had to do, and also listened to him – and I was bewildered by it. You had to ask a lot of questions and wasn't sure what I thought of the answers. But in retrospect, he was talking about database techniques and just computer science, ways of getting the same information. And I was a bit skeptical. "You know, it's got to start with control totals and the numbers have got to roll up and you have to really drill down. And you have to be absolutely sure if you've got the number up here you can get back to the piece of paper and that nothing else wandered in because somebody had a programming error."

MIKE: That was Bill [inaudible]?

Yes, I think that was his name, yeah. Did he stay around a long time?

MIKE: Yeah. He transitioned to Mike Fitzgerald, who was a kid who grew up at the museum.

And he was there with these techniques that he thought he would use. And obviously he employed them and he employed them well or the system would have crashed badly. Because it's all built on this accounting technical information processing foundation. And if that foundation is fungi, the edifice, the building sags and gets uninhabitable. So he must have solved those problems pretty well.

MIKE: What did you, from the time you had the – I understand Mary would give you the hard data or the tape would do it. And if there wasn't a tape, then the keypunch person at Striderite would –

Codes on paper. Lines on a form, which you would punch them.

MIKE: Who did the programming of maybe the Striderite computer so you could get these results to print out?

There were two components of that. One is the reporting system that I mentioned, I sort of brought to the system. And the fellow that I'd worked with over at Metromedia had moved to Washington DC had helped me to expand and build that. And that was pretty much of a working thing. I've learned since there are hundreds of systems pretty much like it that people invented before mass market systems came to do that. But he put that together and if I ran into a special need or some special problem I'd be on the phone and have him figure him out. But past that, basically, I did everything else. I took that program and then coded it to a standard system that was pretty good at processing accounting stuff and I used the same standard system both at [McBurr] and with you. And then you'd add a table reflecting the acceptable accounts and the classifications that basically steered the line items. And then you'd have to decide what your report structure was. So you had also some, you tailored the basic framework to give you the right columns and the right sorting orders. And so basically I maintained that and changed it a[s] little as I could from month to month because you wanted the reports to be comparable. And of course you don't want them to break, and the best way to have them not break is to do it the way you did it the month before. So I maintained those as I needed to, and added as we wanted to change and expand. And then I put it on the computer and ran it every night. I guess I'd have to think of one of my favorite all-time stories was I was in – and I did it at night. And I was pretty much, there was somebody who was a night operator was there and he had other things to do. And it was a big job and a lot of computer and you'd take up sort of the, figuratively speaking, the space on a computer that you were allocated for the use, and you were there and you ran all that. But there were other things were on the computer and you had to be a little careful not to spoil them. And I was working late one night and a little tired, and maybe I'd had a bad run and I needed to get it out to you the next day. And a question came up on the console, do you want to erase this area, and I quickly responded yes. And I knew as soon as I'd done it that I hadn't answered that question right. And I called the guy who was the head of information systems and said "I've made an awful mistake. I'm pretty sure I erased something. And I'm sorry and you just need to know so you don't find out about it any other way." And he said, "Well, that's alright. You know, we have backup systems and they need to be tested once in a while and this will be a fine time to do it."

So Jeff Murphy said, "Don't worry about it, things will be okay." And I'm a little better, got the reports off, got the job done, and got a phone call in the next couple of days, he says, "Do you need to come in in the next few days?" And I said, "No, I don't think I do." And he said, "That's good. Don't. We have a little trouble here, and it's taking us a lot longer time to reconcile and recover this thing than we thought it should take." And I said, "Oh, okay, well, I'm really sorry if I've caused a problem here." And he mentioned that there was one person who was particularly irritated about this and had said a lot of kind of unkind things of why is this outsider coming here and I'm sitting here and oh, my god, my resource to run the Children's Museum's information, I've spoiled everything. And it was a couple of weeks later – I think it got into the paper but Chuck certainly told – "Well, the reason we couldn't reconcile, and we were off by $300,000 or $400,000, was that the computer system had quite a big discrepancy for our actual inventory, and it turned out that one particular individual in the company was selling inventory himself. And your unplanned intervention in the system pretty much spoiled his operation and he's left us now and you can come back and you can run your next month's reports." Some of it's conjecture on my part, but clearly it's fact and the numbers were pretty big numbers for the time, certainly for me. And I saw something in the paper about it, and I'm pretty sure the guy who was doing the complaining was also the guy who ended up [part of] the criminal process around him. And he had reason to be disturbed. But anyway, that's a sort of an operational story. You know, you went and you did, **you ran these big, expensive machines that took a lot of electricity, burnt energy at the time and were expensive to run and you had to figure out and you had to be a relatively savvy kid to do all that stuff. It was fun because it worked and things fell together and it went to so well. And then you came back and dealt with Phyl and David and you and your organization and it not only worked well but actually was accepted and appreciated and did a good job, so it was fun.**

MIKE: David, when he was there last winter, he said one of the things that was characteristic of the museum was that it was always on the edge of trying to do things that were either, there was no prior experience with this thing. You're inventing stuff. But also, and this was in many ways, [inaudible] ways [than accounting], he said, we got

into this with Tom and this whole thing because, as far as he could see, the management consultant, that we are, as a management system, we were into trouble again and again because we didn't have the tools to be able to manage a fully functioning, open collaborative organization because it added so much complexity to the things we were trying to do with not enough money, and all these tiny, fragmentary sources of income. That's the way we added, built our budget up each year, is we figured out another way to get another [fragment], or sometimes they were big ones, a new source of income [inaudible] because our interests and our costs went much faster than our capacity to bleed a particular source of income further. So what we had to do was find another income source. And that added even more complexity to the accounting and the budgeting. But he said the reason we were so happy to have Tom and his system working because it allowed us to finally do the things that we, in our dreams, wanted to be able to do from a management and an organizational [standpoint] that wouldn't cost much.

I think large organizations were doing most of these things and knew how at the time. And so part of it was exploring, discovering, and just getting the tools. But the innovative part was to dig down to the transactions. I don't think people were doing that then. Certainly in the biggest companies, but even then. And then there's the economics of doing it within a cost framework that you can manage.

MIKE: The computer demands were multiplied particularly by trying to get down to that level of detail, the transactional.

The computers those days didn't have a lot of storage. Oh, boy. I could sort of spin stories to tell you how big the data was on.... The story I love is, well, the payroll system for Metromedia then, for its 2,500 employees, it was getting pretty hard to write the system, and I was getting a little pressure for why it was taking so long. And I said, "Well, we just don't have enough memory on the computer. The internal memory is too small." And they paid $10,000 a month to rent that computer from IBM, that 1401 computer in 1964. And that was a big chunk of money. And it turned out that for

another $1000 a month, because internal memory was really expensive, they could increase the memory by 50% and they did. And suddenly everything I was programming just worked smoothly and had room. You didn't have to cut corners here and there. And then the punchline to the story is, does anybody know how much memory that computer, can anybody guess how much memory that computer had and how much we added? And the answer is 8k increased by 4k. 8000 bytes increased to 12000 bytes. Now try to get it in perspective. That's the text of a chapter in a book, maybe. It's nothing in a computer today.

MIKE: You could get it onto a floppy.

Well, this was the internal information. And I can picture these things with all the wires sticking out. And there were arrays this big and one this thick was probably 1k and there was the k had 6 bytes to the [inaudible] bit and that's how thick it was. And they were made always by women and if I were to be even more prejudiced, probably by Asian women who could actually thread wires through these [inaudible] I think they called them, these donuts, and make 1000 x 6 without a single mistake. And they cost thousands and thousands of dollars of manufacture and activate and come out to recover. They were expensive. Now, that's the one story is the internal memory. Now what I also remember about this particular shop is we had disk drives. That was really unusual. And you could mount the disk drives, take it out, put it back in. They were relatively modern and didn't make mistakes very often. Can you imagine how much data one of the these mountable disk packs contained? And they went in on a drive that probably cost $1000 a month to rent, and you could buy extra packs for only a few hundred dollars each. Can you guess how many characters or bytes of data went on one of these drives? 2 million. 2 megabytes, right? On this mountable drive. What's a CD got today, when you buy for a dollar and can write yourself and so forth? 600 and some at a DVD, six or seven times that? And you throw those things away and you buy a new drive for $40? And you had two of these on this machine which gave you an enormous flexibility with 2 megabytes. Now against this standard, you did not have room to do much. Now, we take a Now against this standard, you did not have room to do much. Now, we take a terabyte, a

thousand billion bytes of data and you can keep that online on your computer so you can keep track of a good handful of movies. Those kinds of numbers were unthinkable. And you couldn't even [hope] that far forward. I'm going to tell another story. In the '70s when I moved to Sweden, I remember meeting a guy at IBM who was fairly knowledgeable and fairly thoughtful, and he posed a question that he'd read someplace, and he wasn't sure what he thought about the discussion. But he said, "You know, there's been a study inside IBM about whether we could really speed up the speed of data transmission." And speed of data transmission then were not so different from the dial-up speeds of five or eight years ago with 9.6 thousand bits per seconds, which we think is antiquity speeds now. And those were leading edge speeds in 1975 and '76. And IBM had done a study and somebody had said, "You know, we could speed that up, increase that capacity by a lot. Maybe 100, maybe 1000 times, two or three orders of magnitude. And if we did that, would anybody buy it?" And the study said, "What would they use that for?" Couldn't envision it. And basically at that moment decided probably not to put a lot more money into it and let the need mature, as we all know it did. And the three order of magnitude number still seems really small compared to internet carriers today. But what I'm trying to illustrate is at that time – and really at any time – it's hard to look more than a few years ahead at what technology could really consume and what people would want. One thing's been consistent in my mind since 40 years ago when I got into the computer business, is you could always kind of see four or five years ahead what you would like to do. Today it's merging the telephone and the television and getting all these things to not only work on the same channels and devices but sort of support each other in ways you hadn't thought of before. But you can never think more than four or five years ahead has been my experience. But you've always been able to think four or five years. You could see what was coming. You could see a couple of years ahead you'd know exactly what would come. You'd just have to think about it and read a little bit about it and they would be there in three or four, maybe five getting pretty shaky, and beyond that it's all Santa Claus thinking because you just don't know what's coming. And we were kind of there then in figuring out how to use this, what looked like enormous capacity that the Striderite computer offered with what we

were doing. And people now look at it and say, "Yeah?" Of course you're going to get the transactions. But people weren't doing it then.

MIKE: The reverse thing of scaling with the answer, the scaling was down because you could play this system out with, at the Children's Museum, where you couldn't at Striderite.

If Striderite had tried to do what I was doing, they didn't have a computer big enough to do it. They had a computer big enough to do the Children's Museum job in this way.

MIKE: So that was why we could use these sophisticated management tools because we could afford, thanks to you and Striderite, and that IBM system.

I was renting computer time from them for $60, $100 an hour or something like that, and they didn't mind if I had to rerun something, that was okay with them. They knew how I was working for and they wouldn't make me.... So I could deliver something to you at what gave me enough money to make it bearable to do it and still a fair price. And I guess I could look through that big listing and find out how much it was, because that's how transparent the reports were. And you were paying good money for what you were getting. We probably agreed you'd continue to pay about what the accounting guy had done for you earlier and just give you more information, because that's what I was doing. We just sort of worked it out in a what's available almost barter basis. Yeah, there was a little philanthropy involved in it from Striderite's point of view, I guess, and I was glad to do it. And I was experimenting, and I was building some things that I used in my career, at IBM and for General Motors later, that I was having fun with.

MIKE: And you were building, also along that recording thing that you – you said you brought it from....

The report generator?

MIKE: The report generator. That came also. I mean, the stuff was between what you had worked on – and I don't know how to characterize it, but was report generator nice, clean, simple?

It was pretty simple. It was a very well done thing. The guy who programmed it was a very good software conceptual guy, and implemented it and it worked pretty well. I used to, when I got to IBM and we had this similar accounting system, I used to have a little routine that I did. And I'd take and draw up on a flip chart or on the board six or seven boxes in a row and tie them together and then describe what the boxes did, and say, "Now, you've all seen the system...." And it was exactly the system. "You've all seen a system like this." And they'd all nod. And I'd say, "Then you probably had a special one that somebody put together and you used. And you probably still use it and you used it a lot more two or three years ago." And they'd all nod. It was a familiar story. They'd all done it or worked with somebody who had done it and they had one like this. And then I'd go on and I'd describe the system that IBM was using then for accounting and why it was so much better than this and then it was standardized and IBM offered it so it would be generally supported and everybody used it. It was a great sales pitch only because everybody had invented one of these, because you needed it and it evolved. And they were all homemade. Some better than others. And they got used. I sold that same system to the State of Massachusetts and I know they used it for at least a dozen year after, and I wouldn't be surprised if you could dig into their systems today if you'd still find some of that some code or that same concept, because that's the way those sort of things work. But at the time it was what was happening, and it was how you solved those kinds of problems. And we had that tool and then we just used it for that. And it was available and it worked. The other thing I keep thinking is you pressed me a little bit more about what we did and how it all worked. **It's a long time ago so I have to try and remember, and I find myself almost falling back to the answer, well, what really worked was going over and sitting down with Phyl and David and talking and finding out what they wanted. And it isn't very memorable because we didn't spend a lot of time with it. There weren't wrenching discussions or conflicts or "goodness what will we do?". We just figured out something smart and we went ahead and did**

it, apparently, and the system came out and it worked. And it was built on what I was doing for David over at [McBurr] with the other hand, and it was built on what Metromedia had developed over a number of years and was really basic in the way accounting systems were done then, at least by people who were thinking a little bit ahead and getting the systems that gave that transparency which for Metromedia and for you was really management power. What's the nicest kind of management power? It's knowing what's going on and making the right decisions and having the power, to use a metaphor, to run all four or eight cylinders of your engine.

[END OF AUDIOTAPE 2, SIDE 1]

Because you're firing off at the right time and you've got the fuel in place and you've got the information assistance working to do that. Well, we had a system that fired on all its cylinders. And the decisions to make it go to the next stage. At Metromedia they were doing that and at the Children's Museum they were doing that. And the work was kind of routine. Yeah, you had to be careful not to say yes when you should have said at the computer console and some thinks like that. But I don't think it's just smoothing it out because it was so long ago or wanting to look at it in the happiest way. **I think the process really was a constructed, collaborative thing where we step-by-step made pretty reasonable decisions and didn't dig any deep holes would couldn't climb out of and we put together a system that did what *you* wanted it to, you know,** you as, I don't suppose you called yourself CEO of the museum, but somebody's got to be [in?] charge and responsible that the visions sort of go in the right direction. And they need a nerve system and an information system. **And if that person has or learns what they need to do what with and then leads that and communicates it, it makes the job of implementation kind of a pleasure.**

MIKE: I think you described your team of Mary and Phyl and David and you. They were very smart people.

It worked.

MIKE: And a lot of energy wasn't invested in going for some crazy reason and going in bad directions. In other words, when they started to call you in, the museum had some ideas about what they needed. You designed against need. It wasn't about some big idea that we should be grand or anything like that. It was practical stuff that we had to have.

I've always said about accounting decisions, if you can't figure out what to do with those numbers or how those numbers ought to be presented, you've just got to go back and what questions are there that you actually ask and which ones do you need to know? And what you're saying is, maybe I began to learn that philosophy from being there because you folks did know what you needed to know. You had a sense for the information that was missing. And we maybe had to figure out how to present it nicely and make it efficient to find what you wanted. And so as you said, I'm going to say it again, just from the mass of numbers the information you wanted would pop out so it just didn't look like a sea of numbers. We had a process that gave us –

MIKE: [inaudible] user friendly, and it was not in the hands of the accountant or the top manager. It was everybody [did it].

Or the data processing people, which was me.

MIKE: It was interesting, because David remembers it the same way.

Interesting.

MIKE: That you go the answers quickly, you didn't raise a lot of false expectations, there was a lot of experimentation, that sense of "well, let's try it." You were adjusting it. So he remembers it the same way. It was amazingly productive and smooth getting to that.

It was exciting. **[save for 13JJ]** The other thing I have to remember is it was kind of fun to have to go down to the Children's Museum some afternoon. And my daughter lived in Brookline. I was divorced and it was pretty easy to swing by Brookline and then over the Jamaicaway. And she'd come down with me and she'd go to the museum and we'd be welcomed in. And one of the benefits was that we didn't have to pay the entry fee because we were considered honorary members or whatever it was at the time, and it became a family thing. She and I'd go down and we'd poke around the museum for a while and then maybe she'd come over and sit while we talked and watched. It was okay to do that. Over those years she was probably 7, 8, 9, 10. So that was a fun part of it, too, that it was a great big extra benefit. It's one of those father-daughter opportunities that it's nice when they fit together and she gets to see a little bit what work is like. And I should back up. We're here in her office. She's built a business since then. And it's the same, she was a red-headed kid when she came to the museum. Now she's a red-headed lady running a company with an office I can use to get together today and talk. And I guess we'd like to think some of the things that are important to her in running her business are skills that she learned, honed, sharpened or whatever as she learned things at the Children's Museum and got to see some of the organization that we're describing here. Because after all, that same business of collaborating, working together with Phyl and David and Mary, kids sense that. They're there and watch, and they can either see that that's not a comfortable environment, or that those are people that are respectfully, maybe even lovingly, working with each other. Enjoying solving a problem or whatever, and those are the things that let a kid go into business and maybe make it succeed. I don't want to point too much about my daughter, but they just got one of the biggest contracts that FEMA ever awarded to do some work down in New Orleans after last year's Katrina problems. And these are tough problems. Nobody knows quite what to do down there, and they've chosen this little company to lead this huge contract because of some creativity and vision in the way my daughter's company has looked at that whole problem. So a proud dad can say "Aren't we lucky to be...."

MIKE: And my two kids have, on that same thing that they were hanging out at the museum, one of them runs a museum, a big museum. And the other kid has worked in

related fields, a daughter, she's worked in the National Park Service and did bioassays and [inaudible] of habitats and things like that.

A lot of people working on that today. If we think that it was exciting to take these accounting numbers and turn them into management information and organization, kids today think it's rather interesting to try and preserve our environment, figure out what's going on, make up for some of the thing that forces of our generation and our parent's generation didn't do as smart as they might have. And there's a lot of work to do now as we populate the planet so fully and so forth. But each generation and each educational training group kind of chooses and goes off into things they go off into. My daughter's equally enthusiastic, I can tell you, about what she does as we were then in figuring out how to –

MIKE: But that family experience of going to the museum together, and there would be a meeting and you'd get the kid understanding this is where the meeting is, then they would go off on their own. And wander back and check in from time to time.

It was fun to go to Museum Wharf with my grandchildren not so long ago and watch how totally, totally exalted they were to be there and see all the things. I remember when it was time to go, my grandson at six years old just wasn't going to leave. And I finally tackled him and gave him the greatest squeeze on the floor and said, "We've got to stop now and we've go too. They're going to close the place." We finally sort of got down to.... But the enthusiasm and the joy, it's still there now. It's just that it's so much bigger now, and there's so much more run to around and escalate it. And of course my grandson's a little boy and it seems to double up for a little boy and all that energy. But it is fun, the family experience. And then the business of, **[save for 13JJ]** I always used to say when my children were a little bit younger than one of the most difficult things of having a daddy that works in an office is trying to figure out what he does. Your dad's a policeman or a fireman or does construction or does something you can explain it to your friends. "My daddy works at an office." At least the office went to the Children's Museum, sat in a meeting with Phyl and David and Mary and when he could keep

himself busy with something else and sort of see if that was going on, and that we were happy with what we were doing, or there was a little suspense maybe about how we'd solve one problem. And then when we got done we'd go and look at the exhibits in the museum. That was a very wonderful added benefit from all of that, generationally has been passed on [inaudible].

MIKE: Is there stuff that we didn't cover that you think would add to the understanding of somebody else hearing this interview or hearing the transcript of it would think about, you know, I wish you'd asked, or he'd talked about – fill in the blank?

Did I say my notes? We'll look first at the last question and then go through it backwards if you want to look at it differently. **"Looking backwards were there any other things from which you think we might draw some lessons for today's world?" And what I wrote down is, "Well, Phyl and David had an innovative and supportive way of working, and that's a lesson for any generation. It's hard to achieve, always has been and always will be." There was the climate that we got into that allowed this to come out of it. And that's kind of the looking forward thing I most get out of ~~moving~~ [looking?] back, and of course the most general and it's aside from any of the technical pieces, it's the whole [moment] and the climate of what we were doing. And I think we were very lucky and both David and Phyl were very gifted to be able to do that. Because we leveraged it into something. It's time was coming, but it's time wasn't there yet, and we did it anyway.**

MIKE: I also, looking back on it, wondered whether we were going too fast for the technology and the adaptation of it. We were too small of an organization that was trying to do these big things because we could see how useful they would be.

You wondered then or you wondered after?

MIKE: Shortly after in each of things, use of computer, use of all the other technological and all the other management things that were going on at those times in the '60s, '70s

and '80s, whether we were going too fast given how much that we had to do, because there wasn't enough precedent or that the precedent was that the IBM level, not at the museum level.

I think you're absolutely right. And if I think back and put it in the rearview mirror, it wasn't a big risk to go from the reporting system that that accounting fellow had put together so well and try to expand it. Because you always could have fallen back to that. That was pretty much current state of the art. It would have cost a little money to pick up the pieces if we'd really blown it. But we didn't. We worked, as I said, collaboratively, put out the report together. Well, how do I say this without trying to extend my importance in it? The biggest risk, I think – well, naturally, when we started to push the system and get more information out of it and be able to have this big report and drill down by turning pages in it, if we'd tried to do that and the information had been flaky and ambiguous and generated more static than progress and stuff, that would have been too bad because we would have had to back off and it wouldn't have done the job that needed to be done at that time. But then after that, I kind of left the thing prematurely, you know? People always leave projects prematurely, now. I remember, well, I spent a lot of years working in Europe and we always thought you stick with the job a long time. And yeah, if you change jobs two or three times in your lifetime working career, ten or fifteen years in any job working for any company is probably pretty good. And three or four years on any general project is minimum for what you ought to do. In the '80s I went to IBM with our system and told them how long we'd been working on it and talked about its roots and how substantial it was, and one of the guys says, "Wow! You guys must be nuts! We think anybody who has done the same job for a year is certainly out of the inner circle and not able to organize their time very well." And I think everybody looks at life kind of now, anything you do for more than a year you probably long ago stopped learning and maybe stopped contributing. Well, here's a project that lasted before I left at three years would be my guess, and was still going strong, and then as you intimated, had become part of the insides, the inner workings of the Children's Museum. I think if there's anything that makes an organization work, there's probably six or eight or ten things you really can't do without. And this system, the way David and Phyl used

it and [the way I use it] was one of those six or eight or ten things. You couldn't have a board meeting without showing what went, and if you missed that in the board meeting, the board meeting would be less for it. It makes it one of those things. And we'd spent two or three years getting that together and making it work. But it wasn't institutionalized. It was still ahead of the curve for anybody your size. ***[save for 12JJ chapter]*** *And when I left the project and left the country, then is when you were really exposed to a risk, because I was still doing all the button pushing and being sure that the reconciliation resulted in what got punched and got into the system and ran and everything. And it was a real question in my mind, I was leaving the country, that's where I was in my life at the time, and you say it was Bill Mayhew was he going to take this over? And I told David this was going to happen and he says, "Well, there's a young man there and all we can do is tell him as much as you can and hope he takes it over." And I said to David, "Well, that's good, I can tell him, but he's got a lot – how long is he likely to be around to use what I tell him? And who's going to tell the next person?" And David says, "Oh, count on a year. These people always come and go. The Children's Museum's a stopping point, a training place. And university people go there and they learn from it but they always go home. So he won't be around very long. Tell him everything you can, but make it simple so he can pass it." Well, you've told me that he stayed for many, many years and that may be very fortunate. Because he was both able, obviously, to take up the system and get it to survive in its incarnation with its [inaudible]. It did the job and it would have been pretty easy for it to crash without the team staying in place to hold it together.*

MIKE: You also got it onto the DEC machine that we were managing ourselves. But the process [inaudible].

Right. I guess that was essential for its succeeding. Because if he had tried to run over to Striderite and make it work on computers he didn't know it wouldn't have worked. But at a stage like that to change it to a new set of computers, anybody would advise you against doing that because there's a lot of pitfalls. So he must have been a bright young

man to do that, and dedicated, and again, well guided by that friendly organization that knew what it wanted and didn't need to scream about it.

MIKE: It was interested, because when DEC gave us the first [inaudible] and then PD11 [inaudible], the DEC people [inaudible] kid. Everybody was young. But he was insisted that the operating systems that DEC was making possible, or selling as part of the thing, he wanted to go to the stuff that MIT and Harvard [inaudible], which is still the baseline of all the stuff. It was [inaudible], and then it became...

CMS and VM?

MIKE: No. It's the one that's, the program language, it was.... Everything, all the open systems and everything else was built on this thing that wasn't DEC's.

UNIX?

MIKE: Yes. And so they adapted this to UNIX.

Oh! I think the PDP8 and PDB11 ran on a propriety version of something very UNIX-like, and then this is when the whole open source thing, and its roots, too, go back to that. We didn't call it open source then, I don't think. But lots of the words I'm thinking were there. And so he actually moved from the DEC...?

MIKE: He started right from the very beginning with UNIX, saying that this is the dead end and this is much more useful thing over the long term. I mean, that was [inaudible].

Fortuitous to be betting – smart and fortuitous to choose to follow [the smart one]. You don't always follow the [smart man]. When we do it is good fortune.

MIKE: [inaudible] they were offering three, essentially. DEC. They were offering their proprietary [inaudible]. They were very anxious to have the hardware running [inaudible].

So they were willing to offer it with a generic UNIX.

MIKE: Well, he said – I guess there were other clients or customers that were also saying....

And this was almost a DEC before the young Bill, you know, 21-year-old Bill Gates wrapped IBM around his fingers. And it was considered okay for young people to know and make these kinds of suggestions. So Bill was....

MIKE: I don't know. I'll have to interview Bill. I don't really know how the decision was made. But the decision was – this was wonderful having this free and each year we kept using it we got the next generation. But by going to the UNIX it seemed to me it would put us in the mainstream from that point on.

It also put you into a very risky research – a lot of managers would decide not to do that. And then the comparable decision today absolutely wouldn't do it. And what you're saying is it was as good and a sustaining move. And I say and a bold one. And you had this young man, and maybe that describes also some of the things that Phyl and David and I did. It was certainly, well, we ran it on a Striderite computer where I was able to make a mistake that easily could have put an end to the resource that made it economical to do it.

MIKE: When you went to Sweden, you were still using Striderite?

Yeah, oh, yeah. And I wonder if Bill didn't run it a few times there before he moved it over. I can picture sitting in the room with him listening to all the stuff about the methods he wanted to use to process the data and my saying, "Well, fine, but just be sure

that it does the roll up and the drill down," and he didn't have those words for it, and certainly not for the drill down. And I just remember sitting there and wondering and David saying, "Well, he'll be here for a year and then there'll be somebody else." Which undoubtedly was based on the way staff usually turned over at the museum.

MIKE: Well, actually there was, I think, it was not even just now, but even back in the '60s that everybody thought you're supposed to keep moving because if you were hanging on too long you'd lose your edge.

Lose your perspective.

MIKE: And I think the core of people, or most of them, were there for a very long time.

Well, certainly Phyllis was.

MIKE: [Yes, indeed], 23 years. And I think that actually having that continuity in the middle of this fast-moving world that was changing so fast, the fact that we weren't intimidated by the fast moving but we were there long enough so we could, as things because possible, we'd slide it in. But they might have been on our dream list for ten years. And then the [inaudible] came –

END OF VIDEOTAPE 2

BEGINNING OF VIDEOTAPE 3

MIKE: ...where we should have been in terms of what we put out on the floor. And we had Wang calculators which were the things that kids could actually....

[save for 13JJ] *I always go back to an idea that kind of came up in my mind. You and I were talking a little bit earlier about how old you and I are now. And I remember pretty*

clearly in the '70s I was in my early 30s. Not as young as Bill, a little more seasoned in a few things, but kicking around and finding my way. And this much older woman was helping. And David took her pretty seriously so I did, too. And we [spent a longer] time what we was able to do. But she seemed really old at the time. She must have been in her 60s. And I'm not sure you would have asked how old she was then and I think she's probably passed on now. But she became, she lasted a long time. Phyllis. And she was the head financial person. But you know, it's absolutely clear to me that she was the glue that held this climate and this inspiration together that made this thing work. And I spend a lot of time now with me in my 60s and you in your 70s writing this book and pulling this together, trying to figure out what I'm still good at and what I'm not still good at, and what we're still good at and we're not as good at. And I was trying to explain this to my daughter the other day, that about when I turned 40 I worked with a guy who was in his 50s. And we'd push really hard on something, and he'd say, "You know, when I was your age, I'm going to tell you this, when I was your age, I could do this 12, 14, 16 hours a day and I could get a really hot idea and I could go home and do it all night and come back with a prototype the next day. It takes me a little longer now." And I said, "Okay, I guess so. I guess you're not loafing. I see you're still motivated so that's not it. But you know, I kind of wondered." And it was the introduction to the fact that as the years go on, there are some things you don't do with the same energy and duration and intensity that you did. And of course, now in my 60s that's a really actual question. Do you have more bad days than you used to? Or were you always like that and you're just recognizing you never could do that? But then against all those natural questions that come as you get older and as you let go of things and you turn things over to other people, just like at 30 I turned the system over to this [20-something or 27] year old, you're asking these questions of what do you do well, what can you contribute, and are there some things that wisdom, perspective, style, patience are absolutely essential? And clearly Phyl has introduced, she, from what I hear, she was clear pretty well into her years and so we can assume she was pretty clear then, which is a special gift. But also I think she must have been very important in influencing this climate of permission and experimentation and the ability for the organization to work well and effectively. We've all seen organizations and situations where that tragically doesn't happen. And some of

us have seen situations and organizations where this gloriously and as a gift does happen and some of the things that come out of it. So I can't help in my mind but coming back to this whole aging issue. And the obvious question is, as there's more of us around over the youthful thresholds that still would like to contribute and have a role, what are some of the things that we do well and how does the coming generation tap our skills and how do we, in turn, help ourselves and help them tap their skills? It's just a whole subtext in this whole discussion. And we saw some of it first hand at the museum under your and Phyllis' organization. Maybe you've talked about this in some other transcriptions, what Phyllis was like working with you, and what you were like working with Phyllis. I wonder how appreciate she was of the opportunity of a woman, I suppose, in her 60s being a real part of the mainstream things that were happening. She was not put off to the side and says, "Yes, dear, we'll get the reports to you and you can hand them to the board if you want together with your coffee that you'll undoubtedly be serving them." This was not the role Phyllis was playing and nobody relegated her to that. And for I assume thoughtful, economic, generous, insightful reasons. It's just one of the things that must have been happening at the museum. I'm sure you saw it and know much more about it than I do. I just have a hint that it happened and know that in the work we did that she was surely instrumental in that's being productive, effective work. One of the team, of course, a contributor I'm sure. Just a footnote and a thought.

MIKE: We didn't give you enough time to make sure that we've done everything, your notes and the questions.

My notes we've covered. We've really done a good job on that and that's good. And I had two generations of notes on different dates so that's really good. And I'm going to look at your questions again and see if they pop out again. I love this first [answer], I'm going to have to read it. ***[save for 13JJ]*** *Hear the story about creating and fine tuning the wonderful [inaudible] system created for the museum. And that's what it was. It was wonderful and it was just all those technical things. And the museum got it and asked for it, got it and used it. And we as a team put it all together. Where did you start? We started with that system that a capable accountant had put together. I always felt a little*

badly never having met him, never having apologized for taking his job away, and I guess in retrospect wondered what it would have been like if he'd collaborated in it. But then on the other hand I think we continued to do for the same fees the job that he as a professional accountant had done, except we repeatedly doubled up on what it produced. And unless he did it pro bono, which he might well have done – we'd have had to work on him – to keep costs down. How did the develop of the system go? And the answer is carefully and creatively. And then Bill at the harvesting moment when the fruit could fall on the ground and be spoiled, picked the fruit up and carried it to the next stage. And then the analogy sort of falls. But he kept the system going and let it pros~~pect~~[per?]. So the development went fine until it got to the critical point when somebody else needed to take it over. And that happens in the best of families and most lives, and it actually made the generational shift. But I guess it would be interesting to know what the comparable system at the museum is like now. If there's anything left of either the document structure – which I would assume there is because it's all just the same bricks and mortar that buildings are always built out of. But much more importantly, if the cultural tools that made it useful are still there and still make it useful. And as organizations get larger and go through time, those things don't always get preserved. Give and take between me, David and Phyl and you, and manager's staff, board. And Mike Fitzgerald I don't think I ever met. The board, never talked to. IT people, that was me, it was a one-man show. And the gal who did the keypunching and the guy that I had to call at night to apologize for having wiped out his database. I did meet with the auditors, never talked to DEC. And never was involved in DEC. My only real acquaintance with DEC was from Bill Mayhew who began to let me understand the steamroller DEC was coming with. Give IBM one hell of a run with it for its money. Kept IBM very focused for the next decade. We lost a lot of good people to them when I was in Europe and that was because they were a wonderful, energy-filled company that had the insight to invest in you and you, in turn, had the insight to invest in them and shift them over to the next generation of operating system. Which I'm pretty sure they bet heavily on later on and served them very well. How was [test] with managers, staff and the board? Don't know about the board. Managers and staff were periodically involved, especially when the energy crisis came and their involvement became critical. Then it was important to bring them up to

speed on the tool, explain it, and I assume adjust it somewhat so they could use it and get the most out of it. False starts or places you had to switch [inaudible] and go in new directions? Not that I remember. I put a two-letter word here, "no". There must have been a little bit of dribbling around before we got up to shoot the shots. But no real big problems. I was comfortable enough with what I was doing that it wasn't a total guess at the time. And then here we come back to it all the time. The climate was supportive and mistakes were corrected quickly if we made any, and we just got on with the game. How new or innovative or cutting edge was what you all came up with? Were there similar models you used were adapted to this task? And the answer is absolutely, the Metromedia stuff was standard. Forward-thinking but well-established building blocks. The innovative thing was to go down to the transactions and then make the drill down, which we didn't know how to describe. We didn't have a good word for it yet. Make the drill down, actually get you from the top line and into the filing cabinet. To the right piece of paper.

MIKE: [inaudible] tools for the line people who were running real detailed budgets and making things come out. So it wasn't just that everything had to come together at the end and everything had to agree with everything else financially, but that the organization had to function roughly comparably so that they could accommodate the crazy guy who ran Recycle and the system could accommodate the person who was publishing a series of science books or any of these kinds of things. Each of things was in the hands of – with oversight – [inaudible].

The interesting thing about it – and this goes back to the accounting technical, too – the accounting industry has done a wonderful job of starting with the double entry bookkeeping that was a product of the Renaissance in Italy in the 1600s, and coming up with an income statement and an expense statement that reconciles with a balance sheet so your cash flows, your money in and your money out, match with your pool of assets, your cash in the bank and so forth. And that's been developed over the centuries and is pretty good and pretty rigorous. And it's a tool that, with not too much tinkering, if you can extract it out and bring it to the department manager, is a model that works. It's the

money that comes in and the money that goes out and it's related to the resources you manage and that's [inaudible] the decisions you make there's this kind of a common tool. Now in a degenerated form, and you mentioned an earlier one, there's reports like that that go to the board once a year, once a month, not enough detail, nobody else looks at them. The slightly more enlightened format would be those reports come down to the manager and maybe even the – if I use the expression – submanager lever and they look at it and they say, "Well, here's a score sheet and it looks like I did pretty good" or "I didn't do very well". And a lot of organizations do okay on that, too, because it's nice to know if you're doing well or not. But when the rubber meets the road and you've got a difficult circumstance, like the energy crisis gave you, and the move into Museum Wharf gave you, you've got to do more. So we had a system and then you said, "Well, then the manager and the manager below them could actually go into the system and find these things." And my thought was, "Well, not quite. You don't have these people going into the filing cabinets". And if you give them a transaction report every month, they probably don't read it unless they're motivated. So maybe they look at it once a month or you find a way to motivate them by asking the questions, the costs that are important that you need to control, or income that's important you need to control. Or you give it to them quarterly and then you sit with them whether they want to or not. But you also have them in a frame of mind where they start to wonder about that cost because they know it's important and it's going to come, and if it stays out of control it will really bite them by the end of the year. So they go ask Mary to look in the filing cabinet for them and maybe they walk over to the filing cabinet together. And I guess I'm starting to make a picture of the contrast between the superficial system and the good system. And of course you have to need a good system where you want to have it and it's appropriate to have it. But it was appropriate at this point. And with the system and the management process, the middle manager or junior manager would go over and ask Mary a question and she'd be able to tell them what was in the filing cabinet, and probably also what she knew and Phyllis would have some information also. And if it was a really important question, maybe somebody does an analysis, pulls out from four different places in the filing system or the reports and gets the information. And the question is, should you have this kind of activity and awareness? And if you should, and you want it, how do

you get it? And the answers are yes to all those questions and so you did want and you did get it. And it was used. And that was very innovative for a little museum. If the museum's small enough you can run it by the seat of your pants and you know every decision and you spend money where you want to and you make acquisitions that you want to or hire staff that you want. But it got as big as the Children's Museum, it's a little too big for one person to do it seat of the pants, as you must have found out. So you had to have systems and you have to have ways of coaxing and controlling the managers and the junior managers, and this became it. So it was innovative and cutting edge to do it for an organization your size. But it was also things that were done elsewhere, and all except the down to the transaction level because the technology wasn't ready for it, unless you happened to have a little museum and a big computer. So that's sort of the answer the skirts all around that. And it's interesting and it's fascinating to me and it's kind of philosophical and everything else. And then was I involved with its dissemination to other organizations? And then I noted IBM and General Motors for one, and then some well-known European companies for [other reasons]. I was other there and this was my training group. McBer and the Children's Museum were the places where I put together accounting systems that I had a total overview of. As a matter of fact, another short story is when I got over to IBM and we were putting together these systems, we almost used the Children's Museum data as a practical case, which we would have used for teaching and we then would have called you and asked you if we could use it as a little documentation. And I went off on a trip and asked one of the guys to take the tape which I had, and still have, and see if we could get [inaudible] the data off of it and convert it into our format. And it didn't happen because he couldn't find an old enough tape drive to read it. And for that logistical reason we never processed it any further. But if that little hurdle had been passed, we probably would have put it into our documentation into our systems and taught with it because it was such a good case, and it was a rare case. Because I thought that if I'd called the museum and asked if I could use, you'd have said "sure", with the same thought about transparency and the thought about it's being pretty old anyway. And with the approval we probably couldn't have gotten with too many data sets, set of data and sets of information, this was one I knew all about and was still

probably a little too big for a teaching example, but we could trim it down and use it. So the answer is, yeah, the ideas got used in many places, and we almost used the same data.

MIKE: And what time period was that?

That would have been the early '80s. So over a decade after we did the work. And it describes how these building blocks are the same building blocks. And IBM a decade later was dealing with lots of the same tools and just as probably was monks back in the early Renaissance that were coming up with double entry bookkeeping that gave you this miraculous way of being sure numbers always totaled and were correct. So the whole process was[n't] disseminated further.

END OF INTERVIEW

TCM/Boston/Lincoln

1962-63 – 30th, Children's Museum director, Bootstrap Plan

1963-64 – MATCh Box Project begins, What's Inside? opens

1964-65 – Facilities Committee Report, AYM formed, president

1965-66 – Grouping Birds Teachers Guide

1966-67 – Susannah born

1967-68 – Workshop of Things opens, Client Centered Model

1968-69 – Visitor Center opens, MDC/state line item begins, Metropolitan Cultural Alliance formed

1969-70 – Director's Project, Carnegie grant, Dead Circus report

1970-71 -- McBer, reorganization, AAM Council, Lincoln School Committee, Museums in Collaboration
White House Conference to Children

1971-72

1972-73

1973-74

1974-75 – Cultural Education Collaborative formed, president

1975-76

1976-77

1977-78

1978-79 – Museum Wharf opens

1979-80

1980-81

1981-82

1982-83

1983-84