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Vukan R. Vuchic
University of Pennsylvania, vuchic@seas.upenn.edu

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PRIORITIES

As an example of a product which sells for $18,000 and where the manufacturer enjoys a 50% market share of 150-200 units per year. In order to get a five-year payback on his investment of $2 million, it would require either a 20-25% cost reduction of the product or a 20% price increase.

The former (cost reduction) isn't likely and cost reductions are very rarely consistent with improved maintenance and reliability and the latter (a 20% price increase) is one way to lose a 50% market share very quickly. However, up front UMTA technology development and deployment or capital grant money for product improvement programs is probably the only solution in this small quantity but highly complex market. One federally supported passenger corporation feels importing of technology is the answer. That's abdication, not a solution. Let me shift gears and cover a couple more areas on maintenance costs.

Time study analysis is a software requirement that overlaps transit system management and rail technology. Time study analysis of car maintenance shops should receive a high priority. Productivity in these shops is very poor at best. The solution requires labor union cooperation, but in this transit industry productivity increases could be the only catalyst for survival, not only for labor but for the public. Time study analysis and improved maintenance methods need attention for the maintenance shops.

Another area is diagnostic testers for the existing fleet of cars. Not the fancy, less understood, software-hardware hybrids, but simple hardwired portable testers that can tell us not only what's wrong but where. This is being done on new car buys very well, but the task for the existing fleet is not an easy one and not only requires understanding but money.

Another item for car maintenance is videotape programs for car operation, car maintenance and total system, subsystem and component maintenance. Any of you who have had the experience of teaching a classroom of maintenance shop personnel, understand full well the feeling when you realize half the people in attendance are asleep. Video programs are not easy to do and are expensive but returns to an ever-changing maintenance force will improve maintenance and save money. It should be tried somewhere as applied technology and pursued elsewhere if successful.

We all want more reliable cars and product improvement programs will help that goal to be achieved. Except for field reliability data that is being accurately kept on the new commuter cars delivered over the past three years, to New Haven, the New Jersey Department of Transportation and SEPTA very little, if any, reliability data from the field environment is known. A standard field failure reporting system is needed along with capable car service engineer manpower contracts for gathering the data. An expenditure of $1 million will gather enough data over two years for a number of properties. Until this is achieved, we are pushing a rope.

In summary, it should be understood that the private sector considers the market to be too small in size and very complex. Thus product investment is rated poor and UMTA technology development and deployment or capital grants should be used for product improvements.

Finally, we should find the leverage points where life cycle costs can be reduced. This appears to be primarily in the "how fast" category. The American Public Transit Association has already recognized this and submitted to UMTA a list of priorities. However, time is of the essence. Money can be saved in operating and maintenance cost. Accordingly, we should do less talking and more doing.

Remarks

By Dr. Vukan R. Vuchic
Professor of Transportation Engineering
University of Pennsylvania

I am glad to take part in this program and I will, as you mentioned, be positive as well as negative about the Urban Mass Transportation Administration's program. However, throughout this presentation I will try to be constructive and suggest some solutions that I believe could be useful.

In observing UMTA's research and development program in recent years, one can easily see that there has been a trend toward greater realism—toward more realistic, more useful solutions. Several years ago we were still searching for the technology which would not only supersede all existing technologies but would also solve all the financial, political, social and other problems which are at the root of our urban transportation problem today.

I am much more happy today to see the work done on Transbus, on the standard light rail vehicle and on the State-of-The-Art rapid transit car. I think that program is very much in the right direction. I think that significant successes have been achieved in these programs but much remains to be done in the logical area of prototype development. A sophisticated prototype can be developed in one generation of research by one committee within a year or two.

Several generations are needed. I think we have seen one or two generations in these products where the work should be continuing and going further. Some of the products we have now have remained in the line of extrapolation of plans that better is faster, heavier and more complicated.

Now we will have to go to the second generation which pays more attention to the compromise between performance and economy and efficiency and reliability.

The dilemma between investments in new systems and the existing systems has been with us for a long time and it remains with us. We have to cope with it continuously. I think that the case for exploring and making advances in technology can hardly be made better than George Pastor did a few minutes ago.

On the other side of the coin, we have also observed that a number of inventions have appeared just about every year in transportation. In recent decades, we went through the monorail phase. We went through the phase of personal rapid transit. We have the success or lack of success of the Transurban in Toronto and several others. All of these were not only costly, but resulted in delaying real solutions, creating a lot of confusion and generating a lot of
criticism of all urban transportation improvements. That is a
danger we have to face. Clearly there should be a stronger
preparation of the product before it is introduced into an
existing system and I am glad to see that UMTA is
following that now.

We must also decide how far we should go into new
systems and how much we should do to improve the
existing ones. We still place a rather strong emphasis
on systems which are a combination of promising
concepts which are not promising at all. We need new
systems, but we should better define how we need them
and where they will be employed. I don’t know if I am glad
or disappointed to see that some other countries are
repeating our mistakes. There has been a lot of research in
the wrong directions.

In practice, however, while we are doing some research
in new systems, we are facing some rather trivial problems
on the existing system such as at the Bay Area Rapid
Transit system in San Francisco. We also have the problem
that the overcomplexity of many modes of many technolo-
gies of many vehicles and of many components have
led to a really inexcusable decrease in reliability. It is
paradoxical that many of these improvements are meant to
increase reliability and yet result in the opposite. Again
they result in strong criticisms of the programs and the
slowing down of progress.

It is important that UMTA focuses on two major
directions. One is that we should, at all costs, avoid major
errors and major technological problems such as those which
have occurred in recent years. For example we have systems
which have been planned for a long time, invested in for a
long time and which do not perform to the level of
expectation by any stretch of definition of that term.

The second point is that we should work on some
tangible results in the foreseeable future. Let me suggest
some specific projects which I think are promising. One of
them is the fare collection system, which is partly hardware
and partly in several other areas. We have been quite
reluctant to undertake this. This is strongly affecting and
setting a ceiling on many new systems.

The fare collection system is a standard procedure in
Europe based on automated fare collection and the honor
system. It has a direct influence on the two or three points
which we are emphasizing as the most critical ones. One is
the increase in labor productivity—that is, increased effi-
ciency in the transit industry. The second one is in
decreasing deficits. It is the fare collection system, first of
all, that speeds up service. Without it we will not get full
success either from any light rail system or from the
articulated bus. As a concept the articulated bus would be
limited in its success unless we improve fare collection. And
at the same time fare collection can allow us much greater
flexibility in charging and introducing different fare struc-
tures. Because of the simple fare structures we can collect
now, we are collecting much lower revenues than we could.

Another point, again relating to technology on one side
and operations and efficiency on the other side, is the
question of our labor practices on existing systems. We are
avoiding that. It is a very good point to avoid, especially in
an election year. But the fact is that we have an extremely
backward method of operating many of our systems—
particularly such systems as commuter rail which have large
deficits. We are quick to accuse the labor unions. Although
I am not going to excite them at all since they are certainly
participating in the problem, however, in many cases
management hasn’t raised the issue in the last several
decades and has not tried to increase productivity. The
point that we are discussing is whether our public agencies
are inefficient or whether the labor unions are creating
inefficiency while private industry would be more produc-
tive. I see many of these labor practices in private industry.
Many publicly-owned transit systems in Europe are much
more efficient in that respect, with their labor productivity
being much higher than ours.

I want to endorse transportation system management as
strongly as I can. I think it’s a very promising way to go but
it is floundering somewhat and not very successful at the
moment for a number of reasons. One of them is that it is
not a glamorous way to go ahead. It requires solid steady
work on improving the existing systems. I think UMTA
should continue and strengthen its efforts in that direction.

Another important aspect is automation. I think we
should go toward automation faster than we are going at
the present time. We will succeed more in automating
transit systems and increasing labor productivity if we focus
on automation by itself rather than relating it to a specific
technology. Automation is independent of technology and
I think we should address it as such.

In recent years there has been a strong change in
attitudes toward urban transportation in general which is
being felt here and in many other countries. And that change
in attitude is recognizing the fact that public transpor-
tation should respond to its role in transporting
passengers—we should not be favoring vehicles on the
vehicle basis, but on the passenger basis.

We are also beginning to recognize that to deal with auto-
use—now unlimited in cities—we will need tremendous
investments in public transportation in order to create a
reasonable combination of the two modes. We can drasti-
cally decrease costs of public transportation and increase
efficiency of transit systems if we start handling the use of
the private automobile more positively. Again I am not
suggesting any kind of drastic banning of the automobile.
But I am suggesting a transformation of downtown areas
into more pedestrian-oriented areas relating to transit. I am
suggesting looking into the pricing of everything from
parking to some more advanced concepts such as fees for
the use of automobiles in cities.

In general I am very happy to hear that there is a greater
emphasis on improving components rather than on creating
new packages of total systems. I think that it is the way to
go. We should examine mechanical components like pro-
pulsion and control, technical and operational components
such as automation and fare collection and organizational
components like labor. I think that is the key. We should be
looking realistically at what is needed and thereby finding
the best combination of new inventions and improvements
to existing items.

I would like to point out what Robert Burco mentioned
this morning regarding the dilemma between new systems
and existing ones and short and long range. We have to have
a combination of immediate solutions and short-term payoffs
and long-term solutions and advances. I am sure that if we
realistically judge the balance between short and long range—
the balance between hardware and software—we should
come to more concrete and sooner results than we have so
far. I think that will strengthen UMTA’s program and it will
lead to better cities. I am not afraid that the industry will
be without work or that the consultants will be without
work or that we at the universities will run out of research
problems if we turn to realistic solutions. I think the only
difference will be that doing the same job, the same
research, will be doing something more useful, I doubt
many of us would consider that as a problem.

I have just one thought in closing. Many innovations and
changes in urban transportation are extremely difficult to
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implement as we all know. They are all related not only to technology and the organization of operating agencies, but also to financial aspects, social aspects, various interests, political aspects and so on. Therefore it is difficult to introduce many changes overnight. In fact it is difficult to introduce them over years. Very often a major shock is needed for a new idea or a new concept to succeed. We were just about resigned that many of the things in urban transportation which are absolutely logical and would be in the public interest would never be done because we are so entrenched in the ways we have and the inefficiencies we have. Then we experienced the energy crises, which showed us that a shake-up—a change in conditions—can change a lot of opinions, attitudes and political atmospheres. I think that we should be prepared. We should do our homework even on the things which appear to be unrealistic now; for example, in the area of labor unions and in other operating procedures. If we have such programs ready when the situation comes up, we will have the opportunity to introduce those improvements. Also, it is always helpful to us, without political pressure, to produce something that is popular but not necessarily the best for our cities and urban transportation. Now that we are through elections I think we should speed up before new pressures arrive.

Remarks

By Jerome C. Premo
Associate Administrator for Transit Assistance
Urban Mass Transportation Administration

The world we operate in is kind of a very interesting one at UMTA and it's changed dramatically. It has changed amazingly in the decade I have been fortunate enough to be associated with this program. I would like to share some of those perceptions with you and share some of the questions that we confront in the administration of the grant program. I would like to see whether you have ideas as to the answers and the right way that we should decide a lot of the imponderables that we often seem to be confronted with.

We look back a decade ago on a transit promise in the country. I find myself, as many of you may be, a collector of memorabilia—particularly magazines. I have the magazine of the opening of the Golden Gate bridge. That is a particularly a fine one. I have saved Business Week, Time magazines, and Newsweek over the last decade. The other night I had occasion to thumb through these. It is interesting to see the perception in the national media of what the urban transportation problem is, in America.

You may remember, in the late 1960s, a Business Week article depicting commuters in cold disarray in New York. Trains were going above each other and under each other and into each other at a very slow pace with large numbers of people left on the platforms, screaming at the New Haven or the Long Island railroads because the trains weren't showing up. So, the perception in the national media during the 1966-1967 period was that we have to do something about commuter railroads. We had the Watts riots and the social unrest in so many of our nation's cities that we decided we were going to get everyone to jobs through a variety of transportation projects. These projects would open up new economic and social vistas for many of our unfortunate inner-city residents.

I then pulled out something around 1969, or so and it was a Newsweek, that spoke of the new technologies that were going to hold the promise of improvement in urban transportation. Of course we at UMTA continued to have a nearly nonexistent research and development budget during this time period. We also had almost no money to implement whatever meager things were emerging from the R&D effort. We had $100 million a year as late as 1970 for the total capital program for the country. That money was going to continue and sustain bus transportation in our nation's cities—a drip here and a drip there into a couple of rapid transit improvements, into some cars on Long Island or cars on the New Haven or South Shore extension in Boston and perhaps we were able to put some money into the Bay Area Rapid Transit system. In terms of what the federal government was doing in this period, we were giving money away and continuing to do it with a lot more questions about what happens to the money, as well as whether there should be an increase in the program.

Let us talk about BART. I heard someone talk of trivial problems at BART and I can't help but think of a conversation I had with General Manager Frank Herringer in which he was discussing the trivial problems of having only 52% of his cars in service every morning. I know the speaker didn't mean it that way. But, I look forward to conversations with Herringer and noting the changed perspectives that somehow seems to have affected his thinking in the last year and a half. That is for us an important kind of ingredient—this recycling of thought and perception as it affects our policy. Anyway we made grants to BART.

We made grants to New York for the R-46 cars and we had the General Accounting Office come trotting in asking us why we weren't more precise and more prescriptive, more analytical, more all sorts of things in the definition of the R-46 specifications. We used to think that Wilbur Hare, reviewing the car specifications for New York compared to 4000 engineers up there. That was not quite an even match. No negative thoughts of Wilbur Hare, but we try to rely on, and I hope the federal program will continue to rely, largely on the initiative, capability, knowledge and thinking of you who make this industry work.

We are finding ourselves now in a hell of a dilemma as we try to answer the myriad of critics—as well there ought to be when we are talking about the money in the range that we are talking about. We moved from giving a little bit away in the late 1960s to an increase in the program to $3.1 billion over five years. That program was enacted in 1970, with the amendments to the '64 Act. We had associated with it a commitment to new technology—a consideration which I guess reached its apex at the Transpo '72 show at Dulles International Airport.

We're going out to Los Angeles tomorrow night for a couple days, and we are going to be in some of the same corridors that I was in during 1970, when I went to see how a tracked, air-cushioned vehicle could link up Los Angeles International Airport with the San Fernando Valley. We are going now to check out rapid transit connecting the San Fernando Valley with downtown and talk about the 1972
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