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## Don't call it a highway!

Where did the information superhighway label come from? Highways and information technology seem to have nothing in common.

Ask yourself, Would it help me understand my IT business if I compared it to a highway? The answer, of course, is probably not. IT business strategy has little to do with driving anywhere. Even modern sages such as Bill Gates figured this out. (But after stating such good sense in his book, Gates then let his publicists title it [groan] *The Road Ahead*.)

Try a related question: Did it help any government policymaker to think about IT as if it were a road? Again the answer should be probably not. However, that does not stop Al Gore and his staff from pushing the highway metaphor; they use it to justify subsidizing IT. President Clinton even used the label in his acceptance speech at the Democratic convention in Chicago. While it is entertaining to watch the president and vice president act as cheerleaders for our favorite industry, it is still not immediately obvious why highways offer a relevant comparison.

My own personal theory is that this label is part of a grand conspiracy by Nebraska business people. This is how I figure it: Nebraska is so long that its motto is "Our state adds an extra day to your drive across the US." No other state benefits more from the federally subsidized national highway system (with apologies to California and Texas).

Subsidizing IT will also help Nebraska's biggest business today. Due to an abundance of workers without accents and the presence of a strong work ethic, the state has become the center of US telemarketing. Federally subsidized fiber optics will definitely help telemarketing. If it worked with highways, they figure, why not again?

By now, we have all had tongue-in-cheek fun talking about "detours" on the "I-way" or describ-

ing "traveling" on the "Infobahn." Yet—call me an old-fashioned professor—I believe a good label should do more than keep headline writers busy or subsidize a Cornhusker's business. It should also inform, which this one does not.

We need a contest to rename the information superhighway. Before you send me e-mail with your suggestions, however, let's discuss how misguided this metaphor really is.

### Highway economics

Governments subsidize roads for four reasons: Everyone uses them, governments can easily finance their expansion, private industry can only play a secondary role, and everyone holds governments responsible for them.

IT has none of these four features—not even close.

First, virtually everyone uses highways. Sure, some industries use them more extensively than others (the trucking industry comes immediately to mind); yet, everyone needs good roads. In turn, governments throw taxpayer money at road maintenance to increase road quality. Too many people depend on them.

In contrast, increasing the quality of IT does not benefit everyone. Many visionaries claim that someday advanced IT will be a household necessity, but so far the information revolution is still a phenomenon for the educated white-collar professional. While over three quarters of the US population use a computer somewhere at work, only a third of all households include a PC.

Furthermore, only a small percentage of the US population uses the Internet regularly. Yes, the Net is growing, but it will be a long time before the Net is as ubiquitous as, say, the telephone.

When we all leave cyberspace and come down to earth, we can plainly see that most people live just fine without advanced IT. More to the point, there are simply too few users of

advanced IT to justify government subsidies with taxpayer money.

Second, the financing of highway operations and building is closely tied to government taxation and revenue. This is so natural you may not even notice it. When we buy gas at the local pump, we also pay taxes for road maintenance. When we register our cars, we also pay for highway patrols.

In contrast, no natural financial ties exist between government and IT, except for two interesting exceptions, which I will discuss in a moment. To get the point, examine the operation, maintenance, and funding of computing or communications networks where you work. Further, think about the supply of computing and communications equipment, the development of third-party and in-house software, the market for outsourcing or for system integration, and the sale of on-line access either through Internet service providers (ISPs) or through other on-line services. In these markets, government intervention is largely incidental.

There are only two places in IT where governments regularly intervened in the past, but it is hard to see how a few exceptions justify the comparison to highways in the future. One exception is the Internet backbone. In the past this was managed by a sub-agency within the US Department of Defense. It was recently privatized, which means the government plays almost no role in future capacity plans. The other exception is local telephone service. Most states use the taxes on local phone calls to subsidize phone services for the poor, cover the costs of rural telephone hookups, or pay the salaries of 911 operators. Neither exception looks like government financing of roads.

This is not an argument to remove government from the IT industry altogether. For example, the Department of Defense may want to fund research and development for a new chip, or the Federal Communications Commission may need to reallocate spectrum for new types of communications equipment. All that activity is fine, but this is still small potatoes compared with financing every thoroughfare.

Third, governments plan the high-

way backbone or put limits on product designs, and count on private industry to fill in the details. For example, governments set aside zones for service stations, but private firms operate them. Furthermore, government mandates safety and gas-mileage requirements, but we all choose the car we want. This arrangement occasionally has its tensions, but seems to work pretty well.

In contrast, private industry's role is not secondary in IT markets; it is primary. Private firms regularly develop new technical frontiers, design new products, and test the boundaries of business models. Most IT firms do not have to check with a government bureaucrat before setting up a host, hooking up a modem, or taking a hundred other actions. Private industry has its biases, to be sure, but nobody argues that government employees should help plan or design most advanced IT.

Fourth, governments cannot escape responsibility for planning and maintaining most highways and roadways. While jurisdiction for highways falls into many different laps—federal, state, and local—those splits are well organized. Most state police look after their highways. Federal transportation officials worry about national safety and pollution standards. Local officials are in charge of fixing potholes and clearing snow. (Indeed, some years ago the mayor of Chicago, Jane Byrne, was summarily voted out of office for her perceived inability to manage the snow-removal department).

As far as IT markets go, there is nothing like the perceived governmental responsibility and organized federalism that characterizes policy for roadways. Information infrastructure policy is an assortment of the Telecommunications Act passed last year by Congress, the 1934 act that established the FCC, international treaty, state telephone regulatory decisions, patent and copyright law, the IBM consent decree of 1956 (which was recently softened), the AT&T divestiture decree (plus later modifications), and tons of related court decisions. What a mess to sort out! By the time any regulatory arrangement became comfortable, it was obsolete.

Oddly, this is not as bad as it sounds. The day we do not see a regulatory mess—as if one government agency has organized the whole structure for us, just like with highway policy—is the day that this industry has stopped its unguided and disruptive growth toward new frontiers.

Thus, it seems especially absurd for federal policy commissions to issue recommendations as if IT policy were well organized. For example, several commissions recently issued portentous pronouncements calling for a greater federal role in “building the Information Super-Highway.” The interesting issues are really these: Are ISPs doing a good job of providing Internet access? If not, why is the federal government in any position to do anything about it? Should the feds pay for local communities to hardwire local libraries and public schools? Should it pay for rural communities to adopt digital telephone switches? The comparison to highways adds little to the debate of these issues.

In summary, the comparison between IT and highways breaks down at virtually every turn, especially when it comes to public policy.

### **What is the right metaphor?**

If the highway metaphor is a dead end, what label do we use? What is the best metaphor: plant, animal, or mineral? Let's have a contest to replace “the information superhighway.” I am serious about this in a tongue-in-cheek sort of way. Send me e-mail. I promise to publish the best suggestions and acknowledge your contribution in the future. All I ask is that the new label describe IT's salient features, whatever you think those are.

In the meantime, resist the temptation for bad puns and take the high road. Make a New Year's resolution: Pledge to stop calling it a highway.

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