Title
Business Views About Government Proposals for National Information Highways

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BUSINESS VIEWS ABOUT GOVERNMENT PROPOSALS FOR NATIONAL INFORMATION HIGHWAYS

INTRODUCTION

The U.S. government currently is drafting legislation proposing the development of national information highways. The "information highways" are nationwide high speed data and multimedia networks potentially linking every home, school, office, and factory in the U.S. They involve a projected government investment of $100-200 billion over 10-50 years and a $2-3 trillion investment by private industry over the same period.

These electronic superhighways are expected to have substantial impacts on business, government and society in general. Most broadly, they are expected to increase U.S. competitiveness in the global economy.

Closer to home, they are expected to facilitate *electronic interchange* of data, documents and images. They are expected to support *business strategy* through new strategic applications in business, greater access to niche markets, new information for decision making, and reduced business costs. They are expected to help *business opportunities* by increasing marketing opportunities thereby increasing business profits and sales. They are expected to facilitate *business coordination* in terms of better responsiveness to customers, better coordination with suppliers and parts of the firm, and better communication with government regulators. Finally, they are expected to produce *consumer benefits* related to better information for consumers, better understanding of consumer demand by business, expansion of product variety, and providing consumer protection.

However, not everyone is sanguine about the benefits of the new information highways. Some question the extent to which the benefits will actually be achieved and they note possible drawbacks that might accompany the new information highways. Nor are they optimistic about the possible outcomes of government involvement in this previously private sector arena of business applications, data networks and information services. Some expect that the information highways will merely *up-the-ante for competing* by placing all firms on a new higher level ground with the result of *increased business costs overall*. Some also fear the government will attempt to regulate and *set standards prematurely*, *pick winners and losers* in support technologies, and sponsor demonstration projects for new applications that *compete with private sector innovation and entrepreneurship*.

National Survey of Businesses Regarding Information Highways

Given the potential importance of the information highways to the Nation, their possible impacts on business, and their implications for society more broadly, CRITO conducted a national survey in conjunction with the National Data Highways Advisory Council of the Society for Information Management (SIM). The purpose was to determine business views about the proposals for national information highways, their possible benefits, and the respective roles of government and private industry.

Nearly 400 questionnaires were returned, with one-third from manufacturing firms, another third from service firms, and the remainder from transportation, utilities, trade, finance, and distribution firms. Over four-fifths of the respondents were senior executives. Over one half are from firms above one billion dollars in annual revenues and the remainder are below this figure.

The results of the survey were reported out to officials from business, industry and government at the Society for Information Mangement's annual conference in Washington D.C., September 19-22. The key findings from the survey are described below under five broad topics:

Perceptions of benefits
Implementation issues
Role of government and industry
Roles of government in implementation
Roles of private industry in implementation.

KEY FINDINGS FROM THE SURVEY

PERCEPTIONS OF BENEFITS

Information highways will have significant benefits for business, education and U.S. competitiveness.

There is widespread agreement among business executives that information highways will benefit business, education and U.S. competitiveness in the global economy (Table 1), Those who currently are working with information highways are significantly more positive than those who currently do not have such experience. In addition, those who believe that government and industry should work as partners are even more positive about the benefits.

Table 1. Business and Education Benefits	**Agreement Score[a]**
The benefits of information highways for business are significant.	5.99
The benefits of the new highways for education are significant.	5.99
The information highways are essential for U.S. competitiveness in the global economy.	5.77

[a]Scores range from 1 'Disagree' to 7 'Agree'.

Information highways will have the greatest benefits for information exchange.

There is high agreement that electronic exchanges will benefit from information highways. In general, no single type of electronic exchange will benefit more than another type (Table 2).

Information highways will aid decision making and strategic applications, but might be less likely to reduce business costs.

While the agreement is not as high as for electronic exchanges, the executives tend to agree that the benefits of information highways will be great for decision making and strategic applications/uses in business. On the other hand, they are less sure that the national information highway will provide benefits for identification of niche markets and reduction of business costs (Table 2).

Information highways will increase market opportunities and possibly up-the-ante on competition.

On average the executives feel that national information highways may increase market opportunities but also up-the-ante on competition by making their use an essential requirement of doing business. Thus, the executives are less agreed that concrete financial benefits (increased business profits and sales) will result from information highways (Table 2).

Information highways will increase responsiveness to customers and coordination with suppliers.

The executives feel that information highways will increase responsiveness to customers, coordination with suppliers, and coordination within the firm. On the other hand, there is less agreement that information highways will provide better coordination with regulators (Table 2). The latter view seems to be a matter of ideology because there is no inherent reason why coordination with regulators should be less feasible than that with others.

Information highways will increase the information available to consumers but probably will not provide greater consumer protection.

The respondents feel that providing consumer information is a likely benefit of information highways. However, they are less certain that the new information highways will increase understanding of consumer needs, increase product variety, or provide consumer protection (Table 2).

Table 2. Benefits of Information Highways	**Total N=371**
Electronic Interchange	
Electronic data interchange (EDI)	5.98
Electronic databases	5.87
Electronic mail	5.80
Electronic imaging and document interchange	5.71
Electronic Interchange Scale	5.84
Business Strategy	
New strategic applications/uses in business	5.63
New information for decision making	5.41
Access/exploitation of niche markets	5.07
Reduction of business costs	4.91
Business Strategy Scale	5.25
Business Opportunities	
Increase market opportunities	5.55
Up the ante for competing by placing all firms on a new higher level ground	5.10
Increase business profits	4.95
Increase business sales	4.86
Business Opportunities Scale	5.12
Business Coordination	
Better responsiveness to customers	5.78
Better coordination with suppliers	5.67
Better coordination among business units, divisions and sites of the firm	5.28
Better coordination with regulators	4.75
Business Coordination Scale	5.37
Consumer Benefits	
Providing consumer information	5.38
Understanding consumer needs and demand	4.84
Expanding consumer product variety	4.82
Providing consumer protection	4.01
Consumer Benefits Scale	4.78

IMPLEMENTATION ISSUES

Widespread use of the new information highways is essential to achieving their benefits.

While business executives feel the benefits are considerable, they also feel that widespread use of the new information highways is essential to achieving the benefits (Table 3). As with electronic networks within a firm, the benefits of the electronic superhighways are greater when others with whom one needs to do business are also connected. Thus, it is not surprising that business executives also feel that the new information highways should be implemented soon. On average, they feel that the information highways should be implemented and widely available within the next seven years in order to achieve the benefits. But, they also feel that it will actually take nearly twice that long (12 years) to implement them (Table 3).

Table 3. Implementation Timing and Standards Issues	Total N=371
Widespread Use	
Widespread use of information highways is essential achieving their benefits.	6.07
Implementation Timing	
In order to achieve the benefits, how soon should the new information highways be implemented and widely available?	7.27 yrs
How many years do you think it will take before the new information highways are implemented and widely available?	11.87 yrs
Standard Setting	
It is premature to set standards for the new data highways.	3.13
It is important that standards be set as soon as possible for the new highways.	5.71
Early standard setting will facilitate diverse and expanded use of data highways.	5.54

Businesses also feel that standards for information highways should be set soon, and that it is not premature to set standards now. One explanation for their support of standards is that early standard setting will facilitate diverse and expanded use of information highways (Table 3).

ROLE OF GOVERNMENT AND INDUSTRY

Implementation of the new information highways requires a partnership between business and government.

Most businesses (80%) feel that implementation of information highways requires a partnership between business and government rather than sole government or private industry action (Table 4).

Table 4. Role of Government and Industry in the New Information Highways *Overall, which one of the following positions best represents your views about the role of government and industry in the new information highways?*	Total N= 371
The government should do it all	.3%
Private enterprise should do it all	6.2%
The government should become involved only if asked by private enterprise	12.2%
Government and industry must work together and evolve their roles over time	80.5%
The new information highways shouldn't be done at all	.8%
Total	100.0%

Less than 1% of the respondents feel that government should be in complete control. However, about 20% feel that industry should be in full control. They feel that private enterprise should do it all, or that government should become involved only if asked by private enterprise. Interestingly, only about 1% of the respondents feel that information highways shouldn't be built at all.

GOVERNMENT ROLES IN IMPLEMENTATION

Government should clear legal and jurisdictional obstacles to information highways.

There is very strong agreement (6.24 out of 7) that government should clear jurisdictional obstacles for providers and legal obstacles to subsequent deployment of data highways (Table 5).

Government should facilitate private sector efforts in information highways.

There is also considerable agreement (5.30 to 5.66) that government should facilitate private sector efforts in data highways by:

Working with business to develop a vision.

Facilitating access to, and ensuring compatibility among, multiple networks so that data highways can be pieced together from as much existing infrastructure as possible.

Addressing policy issues such as copyright protection, security of user organizations, and interoperability.

Providing tax credits for R&D (Table 5).

Government should not try to pick winners and losers in technologies or demonstration projects.

There was considerably less agreement among respondents that government should invest in precompetitive technology or demonstration projects to facilitate development of information highways. The agreement score for these items was less than 5 out of 7 (Table 5).

Table 5. Government Roles in Implementation	**Total N=371**
The government should encourage implementation of information highways by:	
Working to clear jurisdictional obstacles for providers and legal obstacles to subsequent deployment of data highways	6.24
Working with business to develop a vision for the information highways	5.66
Addressing networking policy issues: Copyright protection	5.54
Facilitating access to and ensuring compatibility/interworking among multiple private and public networks so that data highways can be pieced together from as much existing infrastructure as possible	5.55
Providing tax credit for R&D related to development	5.32
Addressing networking policy issues: Security of user organizations	5.32
Addressing networking policy issues: Interoperability	5.30
Investing in precompetitive technology to make data highways possible	4.93
Working with academia to develop a vision for the information highways	4.98
Developing demonstration projects to test the ability of information highways to support practical applications	4.87

Private Industry Roles in Implementation

Industry should demand and encourage quality, prepare to use the information highways, and innovate new products and services using them.

There is very high agreement among business executives (6.23 out of 7) that industry should demand and encourage quality in the networks and services of the new information highways (Table 6).

There is also considerable agreement (5.93) that industry should:

Educate the work force to use information highways.

Invest in R&D and innovation for use of information highways.

Focus on commercialization that takes advantage of information highways (Table 6).

Private industry is not likely to subscribe to the new information highways or support the efforts of government simply as a matter of principle.

There is less agreement among the executives (about 5.65) that industry should subscribe to information highway networks and services. When this response is considered in light of the respondents' views about demanding quality in networks and services, it is likely that the reservations about subscribing to information highways stem from concerns about quality (Table 6) and widespread use mentioned earlier (Table 3).

But industry also is not likely to support the efforts of government simply as a general principle. As indicated above in the discussion of the roles of government, industry is more likely to support government efforts that facilitate the linking of existing infrastructure for information highways than they are to support the building of entirely new infrastructure. Also, industry is not likely to be highly supportive of government spending for precompetitive technologies and demonstration projects for new applications. Many respondents feel these should be done by the private sector.

Table 6. Private Industry Roles in Implementation *Private industry should encourage implementation of information highways by:*	**Total N=371**
Demanding and encouraging quality in networks and services	6.23
Educating the work force to use the data highways	5.93
Investing steadily in R&D and innovation for use of data highways	5.93
Focusing on commercialization that takes advantage of data highways	5.93
Subscribing to data highway networks and services	5.65
Supporting the efforts of government	5.45

CONCLUSIONS

The high level of agreement about benefits of information highways and about the respective roles of government and industry suggests that businesses are broadly supportive of government efforts to develop and promote information highways.

Business executives are generally very supportive of efforts to develop new information highways.

Businesses are also very positive about the likely benefits of information highways, which is probably a major reason for their support. There is general agreement that there will be benefits for business, education and U.S. competitiveness from the development of information highways. There also is general agreement that there will be benefits in all five areas of impact: electronic interchange, business strategy, business opportunities, business coordination, and consumer demand.

In particular, business executives support the following elements of information highway proposals:

- A government-industry partnership for implementation.
- Early standard setting for networks, interoperability, information exchange.
- Quick implementation of information highways, i.e., 5-10 years versus 10-20 years.
- Government role focused on:

  Clearing legal and jurisdictional obstacles.

  Developing a vision for information highways.

  Using existing networks and infrastructure as much as possible.

  Ensuring compatibility among networks.

  Addressing key policy issues of copyright protection, interoperability, and security of user organizations.

  Providing tax credits for R&D related to information highways.

Business executives are less supportive of the following elements:

Government or industry running the whole show.

Government investment in precompetitive technology for information highways.

Government developing demonstration projects for new uses and applications of information highways.

A considerable number of respondents indicate they are already working on implementation of aspects of the information highways in their businesses. About one-half of the respondents indicate that they are already working on implementation of some aspects of the information highways in their business. And those with more experience tend to be more positive about the potential benefits and about the role of government in implementing them. In short, business executives are solidly "on-board" with proposals for national information highways. Moreover, they are interested in seeing the early construction of the electronic highways in order to achieve widespread use and the benefits that they expect to reap from such use.

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