Digital Convergence and the Next Cyber Trade Wars.
Conference Paper on Convergence and the Internet,
Organised by IDATE, Montpellier, 1998

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I'd like to discuss with you tonight the convergence as experienced in America, but also the impact of convergence - the questions of what is beyond convergence, and I will argue that instead of creating bridges, convergence will create trade wars; Instead of creating harmony and harmonisation, it will create disruption and disagreement. It is especially appropriate to discuss this here in France, which has been for some years been a digital antagonist of sorts for the United States.

Let me begin with the Telecom Act of 1996, the legislation which reformed communications law in the United States and which was supposed to have such a great impact on everything including convergence. The reality, however, almost three years later, has been much more modest. Let me differentiate between five different types of convergence, four of which I will argue have made not much of a difference - it's the fifth that will make a difference.

The first convergence is the convergence of networks, of carriers, of delivery technologies. Telecom carriers were supposed to invade the cable TV business ; cable television companies were going to enter the telephone business ; local telephone companies were going to become long-distance companies, and vice-versa. Television was going to be digital, with text and data. But so far, things have moved slowly, Cable television's presence in voice telephony is only slight. Telecom firms had even less success in video delivery. Right now, the latest of their strategies seems to be ADSL. Even the telephone company that had US West, which required the third largest cable TV and operation in the United States did not integrate it into its telecom network - it has now spun it off into an independent and totally unintegrated company. No Bell company has so far been admitted to long-distance service, and when they will be admitted -

probably in 1999 - I doubt that they will be very successful largely. Long-distance companies have entered local service mostly by acquisition, because their direct entry has not been very successful - WorldCom has bought MFS, AT&T has bought TCG, all major companies have failed in becoming local resale carriers : altogether ??? a tiny share of the local access market has become competitive.

Digital television has just started a few weeks ago, but nobody really noticed. DTV will be for about five years a fiasco, even if it has been the right policy. The television sets are very expensive. There are few programmes. There are, for the foreseeable future, no advertising revenue streams and only costs. There are no convergent content models being prepared by broadcasters.

The second convergence is the business organisational convergence - mergers, alliances and so on - and here too the reality has been modest. Of course, there have been numerous mergers after the 96 Act, particularly in the radio industry, but few of them have been convergence mergers. I can't think of any instance in which a television company has become present in telecom, or vice versa. The main exception is AT&T -TCI, which is, of course, a very big exception. And then there is Microsoft in cable television and in its Web TV operation. The strategy behind these two investments and their price make no obvious strategie sense. If anything, I would expect existing media conglomerates to disintegrate and become more focused in the future. The argument of synergies that has often been behind media conglomerates has never been very persuasive to economists. When the Disney Company announced its acquisition of the ABC networks a few years ago, its Chairman Michael Eisner used the word " synergies " five times in five consecutive sentences - like a mantra, but the reality is less clear. In a competitive world, if Disney has an attractive programme, it should give it to the highest bidder, and ABC being in competition with other networks should not take a Disney programme just because there is a corporate relationship there.

The third convergence is the regulatory convergence, and here, too, while everybody recognises that something has to be done, nothing really very much has happened after 1996; The main exception that the FCC has created, is something called Open Video Platform, to permit a common approach if a telephone company wants to deliver a video service. But this system has been a total non-event so far. There's only one minor company using it, and telecom companies are seeking to just become a regular cable company.

The fourth convergence is the global convergence. There has, of course, been expansion by American and European companies to the rest of the world, but there has not been very much investment directly in America itself, with France Télécom, Deutsche Telekom and Sprint being the major exception There just hasn't been very much European or Japanese presence in the 20 % stake in United States, in particular, after BT panicked at the altar and let MCI get away. Plus 20% stake in, none of these new convergences seems to have had yet much of an impact in the United States.

Now, in the future, will everything be the same? No, I think to the contrary, because there's another convergence : the convergence of the Internet and telecom, more specifically of ISP backbone companies and phone carriers, and this will have an effect. Already now, GTE owns BBN Planet, WorldCom owns UUNet and parts of MCI Net, Sprint was always big here, and now there's a whole new set of hybrid carriers emerging - backbone carriers -a hybrid of long-distance phone carriers and backbone providers. These companies will make communications into a commodity. The impact will not be so much that communications will be smarter, but that there will simply be more of it, and cheaper.

This gets us to the questions of what to expect beyond convergence, what the impacts are. The major impact ot the fifth type of convergence will be the huge capacity and, indeed, an overcapacity : which is contrary to the conventional wisdom, according to which the future is one of inadequate network capacity, slowing the development of the Internet. The World Wide Web has become the World Wide Wait, and it retards multimedia convergence such as video over the Internet, of which there is some but of lousy quality;

Soon, however, the issue of congestion will be set on its head. Simply put, the decade of the 90s was dominated by the revolution in processing power, based on fundamental VSLI

technology advances of the 1980s. For a while, transmission couldn't keep up with processing because it was much more expensive to widen the channels than to add more powerful chips, and therefore bottlenecks emerged. But in the next decade, transmission will be the driver instead of the brake, in particular by those new hybrid convergence carriers, those Internet/ telecom carriers such as Level 3, Qwest, IXC, ICG, or Williams.

The technology improvements here are tremendous: experimentally, NEC has reached 3.5 terabits/second per fibre strand. Now suppose that this technology becomes off-the-shelf in five years at just one half of that rate, 1.75 terabits/second per fibre strand. Suppose that a long distance conduit holds 144 such strands, which is Level 3's plan. Suppose that the companies that offer such strands between cities are three new style carriers, three traditional carriers such as AT&T, MCI and Sprint, plus one, LECs, one cable company, two satellite providers and one terrestrial wireless company. If you add them all up for a moment on the back of the envelope, you get a national network with a capacity of 2.2 petabits/second, and if you divide this by the number of American households, it comes to a household capacity of about 20 Mbps per household, which will be enough for more than 10 compressed video channels simultaneously for every American household. This should be enough for residential Internet access. Now even if one scales this down by some magnitude, it's still clear there's going to be an awful lot of capacity out there. Now of course this has been backbone long-distance capacity, but the local capacity will inevitably grow with it, even with a delay. There are various approaches - DSL, FTTC, HFC, LMDS, blimps, balloons, aircraft, whatever - there's no shortage of imagination here.

So now what is the impact of all this capacity? Well, the most obvious impact is that prices drop. Basic transmission becomes a commodity, for domestic traffic but also for international traffic, where the same dynamics are taking place. If circuit costs drop, marginal cost is negligible, prices become low as well as flat as well as distance insensitive. I'd like to challenge you to think about that, because there's a lot of money to be made if you have the right answer, or approximately the right answer, but even more so there's an awful lot of money to be lost if you don't address that question in your business. And I will address - briefly two instances and then draw some interpretation.

The first example is about television media. If the experience with mass media means anything; abundance in communications will be used to a considerable extent for entertainment - films, games, sports, adult programmes, whatever. Many of these can be delivered in the traditional ways of broadcasts and satellites, but the new way permits interactivity, which means customisation and personalisation of content, and even more interestingly, of advertising. Video services at a distance become possible, push technology will become a quasi-broadcast medium, especially for advertisements, we will get a kind of customised, individualised channel - "Me TV" (Canal Moi). Now, in this environment, who will gain? Well, in a word, Hollywood. With distribution cheap, premium content becomes important. Hollywood firms will distribute their products from big video servers which they or their wholesaler allies will run. It is a logical role for vertically integrated Hollywood media companies to play.So I think that this will just mean a continuation of the already existing situation in which the television will be strongly American in content and ownership, in particular since it can bypass traditional gatekeepers of national TV stations and networks and of national licensing.

My second example is the impact on business transactions. Zero cost global transmission leads to a great rise in electronic transactions. Of coyurse, traditional approaches don't disappear, just as the Mom and Pop store did not vanish when supermarkets emerged, but the energy and dynamism will be in electronic modes of commerce. And here, too, it will be US firms that will be the most successful, because they are entrants, they have risk capital at their disposal and they have a large home market. Once established as a successful model for the US market, and once the transmission prices near zero, there's no reason to stop at the border.

Thus, my analysis so far has led me to the conclusion, that US firms will be able to capitalise first and strongest in this transmission abundance, and it suggests that US strengths in this area will, if anything, increase. Now this is not something many people like to say or to hear. More common is the type of unconvincing rhetoric of the global brotherhood of the Internet. Despite all evidence to the contrary, most Internet advocates, good internationalists almost by definition, deny that the Internet is a deeply American medium in ownership, usage, style and technology,

and will be so for a long time. Now sure one can always point to some Europeans and some Internet board and know that there are more Finns per capita on the Internet than North Americans. So what... Have you heard any good Finnish music lately over the Internet? Or bought some computers over a Finnish on-line E-store lately? Now, if the abundance transmission gives American firms a stronger role, it is not a conspiracy - it is a reflection of a confluence of different strands of strength which exist: there's content (Hollywood), hardware (Silicon Valley), software (Redmond and elsewhere), capital (Wall Street), universities (Boston), telemarketers (Omaha), a vibrant cable industry (Denver), there's language, immigration of vast talent, a cultural power that comes with being a superpower, and a multi-culturalism that helps create content for the world. And there are transmission carriers that have been subject to greater competition and performance pressures, for a longer time than elsewhere.

One does not have to be vastly superior to other countries and companies to succeed. All you need is to be a bit faster than the other guy to survive and prosper.

Now, what are some of those implications? This is the information revolution. In a revolution you have losers, not just winners. Joseph Schum Peter called this the creative destruction of capitalism. It is characteristic of losers to organise themselves politically better than the winners, because they tend to be big and established. It's always hard to fight modernism but it helps if the winds of change blow from a foreign country. And so there will be an inevitable backlash against the Internet and electronic commerce, and you can see this already in various places. The fight's over privacy, the issue of digital signatures, the issue of the domain name, all these are just the tip of the iceberg. I'm very sceptical whether we can expect continued global worldwide liberalisation of electronic commerce and cyber activities, if one country, the United States, gains disproportionately. And so there will be more restrictions on electronic commerce rather than less, and it's easy for the White House to preach to other countries to open up and sacrifice. The notion of the Internet as a libertarian island in societies that otherwise are full of rules and interest groups is not realistic. And it's easy to be against those regulations, the abstract, but imagine the American response if we had a thriving entry in the United States by teledoctors from Albania, by child pornographers from Thailand, by, telegamblers from Monaco, and so on and so forth. The point is that each society has its priorities and values and interests, for better or for worse, and these are not likely to go away.

People often say, well this is all fine and good but you really can't regulate the Internet. After all, kids can run electronic circles around flat-footed, heavy-handed government regulators. All these assertions are basically wrong; of course one can regulate the Internet, and electronic commerce if one wants to - maybe not the transactions themselves, the bits are indeed hard to catch, but communication are not just about bit streams and transactions, they involve, people, institutions with domiciles, and assets, so if you cannot catch the mobile parts of the system, you simply go after the least mobile, such as physical delivery, people, transmission facilities, assets. This is obviously not the perfect way to do so, but neither is the income tax or the traffic laws.