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Looking Ahead at Internet Video and its Societal Impacts

Eli Noam

Media economics provides a basis for Eli Noam in setting out the logic behind a series of expectations he shares about how the transition from regular linear TV to online video will lead to major changes in culture, politics, and society. His perspective on the dramatic implications of this shift suggests comparisons with the fundamental changes brought about by the introduction of first-generation TV over seventy years ago, with both exciting advances and also disturbing problems. Noam is able to raise serious questions about new and enduring cultural, consumer-oriented, political, economic, educational, and other social implications of what might sound like a mere technical shift to a new style of video.

Few questions are fraught with more long-term implications than the way we shape our communications systems. If the medium is indeed the message (McLuhan 1964), and if these messages influence people and institutions, then tomorrow's media, and today's media policies, will govern future society, culture, and economy.

It is therefore important to understand that we might well be on the verge of one of humanity's greatest leaps in media communications, and consequently also of one of its major disruptions of social, cultural, political, and economic arrangements. Based on technological and economic trends,[1] change in media will keep speeding up, and generate an unprecedented acceleration in the transformation of culture and politics.

[1] Koh and Magee (2006).

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In an earlier chapter of the first edition of this reader,[2] I analyzed the nature of content in a high-performance, dynamic, online environment.[3] While the societal implications of the changes underway are controversial and far from determined, the present chapter will seek to put forward some hypothesized impacts of the new style of television on economy, society, and culture, with the aim of shaping debate over research and policy agendas around the media.

Technology is one key driver of change. And with information technology progressing exponentially at the speed of Moore's Law,[4] it is not too early to think about the next generation of television—ever-changing, globalizing, experiential, individualized, immersive, often interactive, and increasingly absorbing attention away from reality. It is not too early to think about its technology, societal impact, public policy issues, and economics.

When we look ahead, we conclude that the central players in the next generation of TV will be companies we call "video cloud providers" or simply "video clouds" (Noam, 2014b).

These are operators that provide intermediary functions of storage, content delivery, advertising placement, financial settlements, and technological interoperability. Such providers will play a dominant role in the emerging media environment around the world, but there will be relatively few of them in number, they will operate globally, and they will be vertically integrated into content production and technology. They will provide many advantages and opportunities for unprecedented creativity and innovation in technology, content, and business models, but they will also create new problems, or require old problems to be dealt with in new ways. These are conclusions about the future, and they therefore cannot be verified by hard data. They are reached by an extrapolation of technology trends in North America, followed by an analysis of the implications of such trends, using an analysis inspired by social sciences in general, media economics in particular, and media history as a background. Unavoidably, there are speculative elements in such a forward-looking interpretation.

The most fundamental change in TV is its transition from a system that is slow-moving, tightly controlled, and standardized in technology to one more resembling the dynamics of the Internet and the information technology (IT) sector. Television has been around since the late 1930s as a consumer medium. In those eighty years, it has moved from an analog black and white imaging technology to color digital multicasting at a somewhat sharper resolution. Its bit rate per distribution channel has increased by a technological

[2] Noam (2014a). See also Noam (2014b).
[3] This is further developed in a forthcoming monograph: Eli Noam. *Into the Era of Cloud-TV*. Manuscript in preparation.
[4] Moore (1965).

compound annual growth rate (CAGR) of about four percent per year, if one is generous. In honor of the guiding spirit of the first decades of mass market TV, this rate should be described as "Sarnoff's Rate," for the leader of the US company RCA, which dominated TV technology for its first generation. In contrast, "Moore's Law" rate—with its doubling for every two years—describes technological change in the IT sector based on advances in the underlying semiconductor components, and comes to about forty percent a year, ten times as fast as that for TV.

But, in many high-income countries, TV is migrating to distribution over the Internet,[5] for example with over-the-top applications to offer movies directly to viewers. In the process it is moving away from the control of traditional TV organizations. This has been widely noted. But the attention has been mostly on the level of the widening of content options and providers. This is important, of course, but arguably even more fundamental in the long run is the breakdown of the system of (almost) uniform TV technology in favor of a system of multiple parallel types of TV. As the video system moves onto the Internet, and as TV sets become computer-like devices, different technologies can be offered.[6] Competing providers of various technology modules, distribution systems, and content technology are emerging, and their rivalries will transition TV from a system of technical uniformity to one much more resembling that of mobile devices, games, and apps.

Putting the emerging technology elements together enables TV to be a high-resolution, immersive, participatory, individualized, social, worldwide experience. Of course, a good amount of video will continue to be linear, traditional, classic television in a twenty-five-minute program format, surviving in the same way that newspapers, books, and magazines have remained. But they will decline in their economic and cultural roles. The leading edge of creativity—technologically, culturally, and economically—will be in the new media. The kind of television that is emerging is partly a "widening"—more of everything. But more interesting is the "deepening." More impulses, more information, more sensory impressions, greater richness. This continues a historic process going back to Gutenberg.

What will be the impact of the new media system? Obviously, it will be full of exciting advances, but also disturbing problems. Such is always the case with fundamental innovation. It is equally common that the promoters of the new do not wish to address the problems, either because they are too excited and occupied by the opportunities to anticipate problems, or because they fear that even identifying them will help the protectors of the old to gang up against them. This is not my intention, but neither should issues be

[5] Nielsen and Sambrook (2016). [6] Abreu et al. (2017).

swept under the rug. While the future remains unpredictable and certain to yield unexpected outcomes, this chapter outlines my analysis of the most likely and significant positives as well as negatives of the emerging system. Together, they provide an agenda for research on the societal implications of Internet video.

Positives of Next-Generation Video

1. *Media Use Will Move from Passive Consumption to Active Experience*

For many years, entertainment and much of culture were passive experiences. The user's main contribution was to choose the allocation of her time (and often money) to a particular piece of content. Thereafter, the creators and distributers took over, that is, authors, producers, performers, aggregators, etc. On the whole, the roles of user and provider were clear. The former consumed; the latter produced. This was not always the case. In ancient times, people were both producers and consumers as they sat around the fire, singing and storytelling. In time, the two activities diverged but never fully separated.

Today, IT enables a two-way interactivity, both vertical and horizontal. Of course, much media use will remain unidirectional. There will always be couch potatoes. However, once the option of engagement is offered, people often choose it. In the process, media evolves far beyond the simplistic interactivity of today to a much more participatory *experience*. The expansion of what content is today to generating those experiences is a central frontier in creativity for the artistic as well as technological and entrepreneurial communities.[7] We are on the verge of take-off on a largely new journey of creative civilizations into unexplored territory.

2. *Life Experience Will Be Enhanced*

The virtual experience takes the participant out of the humdrum of ordinary life into an often magical world. So does a trip to the Grand Canyon or to Venice. These are great experiences; it's too bad they are expensive and take a lot of time. With the new media, people's horizons can be widened. They learn new skills, meet new people, are asked new questions, find themselves with new challenges, yet are usually quite safe and can control the level of stimulus that is comfortable and affordable for them at any given moment.

[7] Pine and Gilmore (1998).

3. *Socialization and Education Will Be Enriched*

Experiential video is of particular benefit for those people who are limited in mobility, whether for reasons of age, economics, responsibilities, or physical limitations. The new style of interactive, experiential, immersive, and individualized video will be used for functions beyond entertainment. Education is an obvious example. This goes beyond school learning, including socialization more generally. The new technology allows this to be done much more effectively. This has both positive and negative aspects. The negative aspects are clear: a societal training toward conformity in the guise of social harmony and best fit for the individual. But the positives are there, too: the ability of parents to become more "productive" in terms of bringing up their children, by leveraging themselves through technology that functions, to some extent, in loco parentis.

The new tools of video, with their varieties of immersion and interactivity, can be effective in teaching students. Customization to the special needs of a student becomes possible, and this has numerous advantages which in the aggregate revolutionize the school system. But it is also a pathway to the outmigration from the public school system, and to a move to more segmented learning communities. Immersive and interactive media can also be used effectively for skills training. For instance, "body memory" can be acquired, and language skills can be practiced in a setting where one converses with virtual partners.

4. *Creative Activity Will Be Boosted*

In the emerging mediascape, the creative community is widened to include what used to be called consumers. On top of that, the connectivity with creatives around the world, and the ability to search and readily find contributions in many languages and from past generations, greatly enlarge the knowledge pool of humanity. While it is not clear where this expansion will take us as a civilization, it seems clear that it accelerates innovation and change.

Is the next-generation video content local in nature, or is it necessarily global? The answer is—both. There will be international, high-value entertainment of the Hollywood or Bollywood type. But it will be supplemented by content from nearby countries, in regions that share a similar culture. And there will be local content from established media organizations as well as from local "long tail" providers.

The globalization of culture is being routinely and ritualistically decried. Of course, diversity of origin is a good thing, and domination by a handful of companies and a small set of countries is a problem. But so is the domination by a domestic media oligopoly. Online video media is global in reach, and one should expect a more diverse media system to emerge in most countries than

was available previously. However, many domestic local-only providers may fall behind and decline, which is a major negative. This is an issue that would require addressing through various forms of supportive policies.

5. *Politics Will Become More Open to Change*

The new media system generates more transparency and participation. Candidates can be observed, or present themselves, in ways such that voters can better judge their personalities. The interactive and immersive aspects of the emerging video media allow a deeper connection with the personalities involved. The interactive media offers people the possibility to directly interact with politicians in a way they probably never achieve in person.[8]

The rapid change in political culture is often seen as negative. But what is wrong with overcoming the negative elements of a culture? Would one not wish for changes in the internal cultures of some states, regions, and societies, from Saudi Arabia to Belarus and many points in between? Opening media to different perspectives can make a big difference. Of course, there is a fine line between introducing new views and subverting traditional values, but we also must recognize that those values are often those of a domestic power structure. Changed societal norms accelerated by media technology thus enable social change like the Arab Spring, the collapse of the Soviet system, and a pushback to corruption.

6. *Communications Infrastructure Will Be Rapidly Upgraded*

A media system built on online, individualized and peer-to-peer, multi-device, high-resolution entertainment requires prodigious amounts of bandwidth. This means substantial upgrades of networks in some countries. The good news is that this bandwidth and supportive infrastructure, driven by entertainment usage, can also serve many other applications. Tele-medicine, shopping, working at home, and education are examples.[9] No doubt there will be many we can hardly think of today. Whereas in the past tech-type applications started the Internet and let consumer entertainment ride the system too, now this is being reversed, and the prodigious demand for entertainment—in both rich and poor countries—becomes the driver and financial model for infrastructure and platforms.

7. *Technological Innovation Will Accelerate*

We discussed earlier how the video system moved from the stately pace of "Sarnoff's rate" to the torrid rate of Moore's Law. Perhaps the most positive

[8] Brichacek (2017). [9] Federal Communications Commission (2010).

aspect of the new system is, therefore, that it unleashes technology innovation on numerous levels: infrastructure; consumer devices; storage; compression; payment systems; human–machine interaction; bio-electronics; holography; real-time rendering; semantic networks; and many more.

The reason why one can expect such innovations driven by the video field is that the consumer base for media-oriented technology is huge, is global, and is coupled with a willingness to pay. It is a large market for innovations. A second reason is that the media sector is familiar to every potential innovator, and hence receives much attention from such people.

Rapid innovation favors small firms and start-ups to take a lead. This is the case in technology, content genres, and applications. It is less true for the infrastructure itself, or for technology development where huge resources are required, such as flat-screen video panels, semiconductor manufacturing, or smartphones. In some cases the start-ups might grow and become large players. But many are likely to be bought up by the established firms.

Negatives of Next-Generation Video

As we have seen in the previous section, the advantages of the new emerging media system could be huge. But no gain comes without pain. There is no point in denying them, ostrich-like, or conversely, magnifying them into terrifying scenarios of doom and gloom. Instead, we should identify the issues and consider how to deal with them through research, policy, and practice.

1. *Market Power in Media in Next-Generation Video Media Will Be Significant and Global*

Perhaps the one issue to watch most is global concentration and power over video media. The fundamental economics of the emerging media point to market concentration on several levels of the system. This is the case on the level of video transmission infrastructure: wired and wireless networks, Internet service providers (ISPs), and the content distribution networks (CDNs) that move the video materials from the online providers to the ISPs. Observing market concentration in this segment is not particularly new, it has always been considered somewhat of a "natural monopoly" (or, more recently, oligopoly) that has therefore been subjected to state ownership or tight regulation. Market structures in infrastructure, it should be noted, are usually national or regional, with different players dominating different geographical and product markets. Often, they can therefore be dealt with by the traditional regulatory/antitrust systems, modified for the new technology.

It is a different story for the next level, video cloud service provision. Here, the economies of scale and network effects are so strong, the effects of distance so little, and the technology so expensive and fast-moving, that one must expect global players, supplemented by regional providers specializing in regional fare, such as Arabic or Indian film content. But when content moves to the level of immersion, interactivity, and customization, this becomes harder. The advantages of leading edge, technologically savvy, and large-scale firms will rise. The prime examples are video cloud firms such as Amazon, Apple, Facebook, and Google.

The third level is the creation of the content itself. Here emerges a bifurcation: "long tail" content provided by numerous individuals and small producers, and "next generation video" of immersive, interactive, special effects, and customized nature which is produced by big and sophisticated media firms with a global scale.

The fourth level is that of technology devices. Here, too, large IT and consumer electronics firms are globally dominant, supplemented by innovative start-ups that are bought up once their concepts have proven successful.

Taken together, this spells out a major media concentration, and one that is on the global level.[10] There have been trends of vertical integration across those levels, with infrastructure companies moving into content aggregation and production (e.g., Verizon/AOL/Yahoo; Comcast/UNBC). Or, device makers moving into cloud services (Apple). Or, content retailers moving into cloud services and production (Amazon or Alibaba). Or, device makers moving into content (Sony). The challenge is how to protect openness, diversity, national content creation, innovative R&D, and competitive pricing in such an environment without creating protectionist barriers.

2. *De-Industrialization and Inequality Are Rising*

For many years, policy-makers in developed countries have believed and hoped that digital activities such as video would replace and enhance industrial jobs. This was important to developed countries as their traditional manufacturing activities were either being automated or were outmigrating to developing or emerging countries. Such new jobs, with their replacement of low-paying factory drudgery with well-paying creative tasks, were also considered to reduce class division and inequality.

The conventional story is one of great success. Media industries that have been negatively affected tend to be viewed as inefficient oligopolies such as the music industry, daily newspapers, or TV networks. In contrast, the digital

[10] Noam (2016).

economy has supplied much growth. The Internet is supposed to have caused a GDP growth of up to twenty-one percent in five years in high-income countries.[11]

But what kind of jobs have been generated? In the US, most of them were in e-commerce, not in creative occupations such as in video media but mostly in order fulfillment, that is, packaging and shipping. The problem is not just the loss of traditional employment in manufacturing and retailing at a pace that is hard to counteract with digital employment, but also that the losses are distributed unequally. In the United States, half of the 7.5 million jobs lost during the Great Recession were in industries that pay middle-class wages. Since then, nearly seventy percent of new jobs have been in low-pay industries, and twenty-nine percent in industries that pay well. In the seventeen European countries that use the euro as their currency, the numbers are even worse. Almost 4.3 million low-pay jobs have been gained since mid-2009, but the loss of mid-pay jobs has not stopped. In Japan, a report from Hitotsubashi University in Tokyo documented a 'substantial' drop in mid-pay, mids-kill jobs in the five years through 2005, and linked it to technology.[12]

The data shows that middle-income occupations are losing out, while upper- and lower-income occupations have been gaining.[13] This has a lot of implications. It means that the job mobility from lower to middle class, which had been the historic way to individual progress, is becoming more difficult. The lower occupations are blocked. Social mobility is thus declining. For much of the twentieth century, people's job prospects rose with extra education. While this is still true, the effect is lessened at the lower end. And this happens at a time when the cost of education keeps climbing steeply.

Thus, the emerging unequal employment system may well be the result not of failure but of success. It is the result of fundamental economics that restructures economies fundamentally. And because this reflects basic forces it is very hard to deal with through government policy. The creative industries, with video a leader, are often promoted as an antidote. Yet they cannot possibly succeed in that role. In America, the number of industrial jobs lost has been five million, including the multiplier effects.[14] The number of retail jobs lost has been over a million.[15] The number of people in the US with jobs in journalism, books, TV, film, theater, music, is less than one million.[16] So if creative jobs alone should do the compensation one would have to expand that sector by a factor of seven. Who would watch, read, or listen to all this new creation? People are not going to watch seven times more TV when they already watch seven hours a day. Plus, many people produce content as volunteers, not as a

[11] Du Rausas et al. (2011). [12] Condon and Wiseman (2013).
[13] *The Economist* (2010). [14] Ile Kurtzleben (2012). [15] Wright (2012).
[16] Bureau of Labor Statistics. Reporters, Correspondents, and Broadcast News Analysts (2018).

job. On top of that, the globalization of media means that every other country's content is also available, and is also expanding, by the same logic. And, who is going to pay for all this, so that these creators actually get a paycheck?

3. *The Cost of Content Will Rise*

Many people believe that the cost of creating and distributing content will drop, since everything digital is becoming cheaper. The latter is indeed true but it does not logically lead to the former. The reason is that the product itself becomes much more ambitious, complex, and data-intensive. The complexity of the new styles of content, including immersion, personalization, interactivity, etc., requires much more of an effort than classic linear, one-way content. Asynchronous distribution requires much more bandwidth. All these new bells and whistles add to cost, even if each of them becomes cheaper.

There is also increased competition to create or licence premium content among platforms seeking to differentiate themselves. Marketing costs are rising. Audiences are more fragmented and thus smaller. They also have a shorter attention span, which means a shorter product cycle for content. The result is a rise in cost of content to the cloud provider, which translates itself, in time, into a higher price to consumers, too, and hence to issues of affordability.

4. *The Pricing Model Will Be One of Price Discrimination*

On the one hand, a next-generation video system is likely to lead to premium content which is widely attractive but also more expensive, thus raising equality issues for people with low incomes or who live in low-density areas. On the other hand, by reducing the need to pay for full bundles, as they exist today for cable and satellite "prix fixe" bundles, many users are freed from paying for channels in which they have no interest, and this reduces to some extent the financial burden. Another mitigating factor is that the marginal cost of the content is close to zero, which means that it lends itself well to a price discrimination that charges low-income users lower prices. This would not happen because of social-policy mandates but if price elasticity were greater, they would be still profitable customers, just at a lower price, as long as those with a higher willingness to pay do not get a price reduction, too. The electronic platforms enable such refined pricing, almost on the individual level. They also enable the offering of different quality levels.

Nevertheless, the question arises, for the next generation of video content, what its price is going to be, whether it is affordable across the social spectrum, and how the market power of cloud providers and ISPs affects pricing.

5. *User Privacy and Security Are Dropping*

As more data becomes available, and as it becomes easier to collect, store, correlate, and distribute data about an individual and his/her transactions, the individual's privacy sphere is shrinking. Cloud service providers or ISPs have vastly more information available about the individual user, including his/her other, non-video activities and profile.

Some criticism of personalization goes beyond the privacy issue. The argument is that provider-based, algorithm-driven, personalized narrowcasting negates consumer sovereignty.[17] When people receive and consume only content that is in line with their worldview and socio-demographics, and based on company-set algorithms on what they are expected to like, they never change.

When it comes to security, online video (especially interactive ones), provides a rich target area for mischief, data theft, and impersonation. Given such possibility, people are likely to self-censor their video consumption.

6. *Attention Spans Shorten*

A survey of Canadian media consumption studied attention span and found that while in the year 2000 the average attention span, defined in a certain way, was twelve seconds, in 2016 that same measure had dropped to eight seconds. Researchers assume that people are multitasking more but concentrating less.[18] Media providers must find ways to grab and keep the attention of a user. One can already observe changes to make programs shorter, more action-packed and story-driven.[19]

- The length of news articles has shrunk significantly. (This is partly due also to smaller devices used for accessing media, like smartphones.)
- Journalists create more attention-seeking content and headlines in order to reach readers. Roughly sixty percent of Americans admit they only scan headlines.
- News companies like USA Today, Fox News, and others have shortened their content to make it easier and faster to consume.[20]
- A Pew Internet study argues that the current generation of Internet consumers shows a "loss of patience and a lack of deep thinking" resulting from their instant access to information from numerous sources.[21]

[17] Kant (2014). [18] Watson (2015); Wilmer, Sherman, and Chein (2017).
[19] Liao (2016). [20] Kiisel (2012). [21] Weatherhead (2014).

7. *The Communications Process Is Intensified and Slanted toward Sensationalism*

As content producers and providers fight for the limited attention available, content changes. In an attempt to break out of the clutter, it becomes shorter, punchier, more self-contained, more simplistic, and more sensationalized. Other content brands itself as the opposite and seeks a market for sober and thorough content. But these attributes increasingly fall flat as users become used, since childhood, to the more attention-catching styles. Content moves in the same trajectory as urban newspapers did when they were engaged, more than a century ago, in fierce battles. The result then was a substantial "yellow press" of screaming headlines, short simplistic articles, and outright fabrications.

This has a negative effect on the political process and on an informed citizenry. Perhaps the greatest long-term impact of the new style of media is that it ratchets up the intensity of information consumption. The media experience provides a greatly increased amount of bits per second. This means that the level of sensory stimulus is being raised.

8. *Involvement with Real Life Declines*

Users can outmigrate from the physical community to the online community. In effect, the user has isolated him/herself from people, and interacts with machines, yet without feeling at all like a recluse. To the contrary, they may feel like exploring new horizons of social interaction. The traditional forms of interactions seem humdrum, boring, slow-moving, repetitive, whereas the virtual experience is controllable and can be constantly stimulating at just the level that the user feels comfortable with. It can be enormously varied, visually arresting, comforting, scintillating, and altogether a much better place than the real world. Its characters, style, and experiences are almost addictive. One should therefore not be surprised if many people find themselves increasingly drawn into such a world, and staying in it for long periods. In effect, they drop out of the real world, at least for extended periods between the times when they need to resurface for purposes of eating, earning a living, and sex. (And the latter two might be conducted online, too.)

9. *The Spheres of Work and Private Life Are Blurring*

Two electronic trends conflict with each other. One is to mobility. And the other is to a self-contained digital home. Are we going to be nomads, or are we going to be couch potatoes? In a way, both. What both trends of the digital lifestyle have in common is to weaken the traditional location of white-collar work, the office. The digital home becomes also the digital office, and vice

versa. The two become seamlessly connected with each other. People add work hours at home. From 2012 to 2016, the share of people who reported working remotely four to five days a month grew from twenty-four to thirty-one percent.[22] As people work remotely they also become connected and supervised by always-on video and other electronics.

The separation of the work and the private spheres blurs. In a way, we are returning to how it used to be in the past for farmers and artisans, whose work and family life were collocated and intermingled.

10. *Societies Fragment*

If one makes some forms of communication more powerful and cheaper, one also makes other forms of communication less powerful and less convenient. As one integrates in new ways, one also contributes to a disintegration of some established ways. According to one survey, people who use social networks such as Facebook and LinkedIn are thirty percent less likely to know their neighbors and have twenty-six percent fewer personal friendships. While there are counterarguments to this perspective [see Rainie and Wellman, Chapter 1, this volume], another survey found that the average American was feeling more socially isolated owing to the upsurge of the Internet and cell phones.[23] A British study found that children (aged ten to eleven years) who spend more than two hours per day in front of a screen have a higher likelihood of developing psychological problems.[24] There is a clear need for continuing research on such issues.

11. *Cultural Change Is Accelerating*

There is a close connection between content and platform. As technology changes, so does content, being able to do new things or old things in new ways. And when technology accelerates, content changes faster, too. This is the situation in today's media environment. The exponential acceleration of technological change, whose shorthand is "Moore's Law," leads to an acceleration in content and, more generally, in culture.[25] More creations, more innovation, shorter life cycles, more change, more global trends, more cultural change. How do societies handle this? Badly, if the past is a guide to the future. Cultural conservatism is deeply ingrained. Most individuals like the foods we grew up with, the music we courted to, and the ideas we encountered at home or in college. Societies are even more traditional, extolling their classic heroes of literature, poetry, arts, and music. Change was accepted but it had to be

[22] Chokshi (2017). [23] Olsen, S. (2009). [24] Moore, E. A. (2010).
[25] Bentley and O'Brien (2017); Webster (2013).

gradual. But the pace is accelerating. Inevitably this creates cultural conflicts. The 1960s and 1970s introduced similar cultural dissonances when "youth culture" broke out of the somnambulant culture of the 1950s, creating conflicts that still reverberate fifty years later. Then, too, the change was precipitated by the emerging broadcast TV medium with which that youthful generation had grown up, and the music that broke out of the parental styles. Today we observe culture wars, with moral traditionalists on one side and progressives on the other. Culture wars are an even greater problem in traditional societies and countries.

The acceleration of cultural change is a topic discussed by the German sociologist Hartmut Rosa.[26] Rosa observes three elements of the speed-up process: *acceleration of the technological change*, of the means of transport and communication, that should have resulted in slowing down the pace of life; *acceleration of the pace of life*, that is to say, the increase of the number of episodes of action or experience per unit of time, made of stress, sense of urgency and lack of time; *acceleration of the social change*, perceived as the evolution and instability of family patterns, lifestyles, religious beliefs, and careers.[27] These trends are destabilizing. As Rosa said, "The core of modernization, acceleration, has turned against the project of modernity that originally motivated and grounded it." Others have similarly observed that the digital society is an unstable society, with economic and social boom–bust cycles.[28]

12. *National Culture Weakens*

National culture is affected, not only vertically across time in terms of continuity vs. change, but also horizontally across geography. As the long-distance distribution of content and applications becomes easy and inexpensive, they move beyond national frontiers. Language issues are reduced by translation and dubbing technologies and by the spread of language skills, mostly in the direction of English. Cultural affinities rise, especially among the young. Shared interests and perspectives become more important. National identities remain important, of course, but not on the level of nationalism of days past. Cultures become less "pure" and differentiated, and more cross-pollinating and shared. In video and film productions, the economics of appealing to a worldwide audience leads to creations of multinational and multiethnic appeal, simply as a business strategy. In particular, the media system of poor countries becomes challenged, and this is typically a politically highly sensitive area.

[26] Rosa, H. (2010). [27] Carette (2012). [28] Noam (2004).

13. *Politics*

What is the impact of the new media system on politics? There has long been a romanticization of the potential of electronic media to elevate democracy and participation in the political process. Radio, and then television, were supposed to strengthen political participation and the level of information. Yet they proved to be instruments of the simplification of politics, and that made money and campaign contributions more important.[29] Cable television was envisioned as a public-access medium, in which citizens could discuss issues and candidates, yet in the end it became dominated by strident channels. Online video media, too, was seen to come to the rescue of democracy by enabling wide public participation and mobilization. The problem is that it enables everyone. At that point a costly arms race of online mobilization and persuasion takes place. This will be particularly true for online video of the kind we have been discussing. It is not cheap to produce, update, and customize. The deep pockets become even more important than before.

Conclusion

The preceding sections are not meant as a Luddite lament. The positives, which have been addressed first, much outweigh the negatives, in my view. But the negatives must be on the table, too, or else one ends easily in the land of hype, with the subsequent disappointment leading to backlash.

For all of these reasons, it is necessary to look ahead, continue to track change over time, identify the drivers of change, and critically consider in what direction they are taking us. This is not a predetermined future, but nor is it science fiction. We know what the trends are, what technologies can be used for, what leading-edge adopters are already doing, and what technology companies are offering in hardware and applications. Of course, details of developments are unfathomable in advance, but the broad outlines of current trends are arguably discernible.

It has been characteristic of individuals, institutions, industries, and entire societies to misjudge the future. This has been particularly the case in the field of communication. On the one hand, we tend to succumb to the various merchants of hype, overestimating the short-term spread of technology or its salutary impact. On the other hand, we tend to underestimate the long-term impact of fundamental technologies. The automobile and the radio were seen as convenient substitutes for horseless carriages or wireless telegraph, rather than as the agents of revolutions in cityscape and mass media, of living

[29] Noam (2002).

patterns and politics. It is easy to be smug about the short-sightedness of past generations. But what about our own today? Might we, too, overestimate the short-term yet underestimate the long-term? The challenge to the research community is to find ways to think more systematically about the mid- and long-term future and develop research strategies to track and understand their societal implications in ways that inform policy and practice.

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