An introduction to the information age

Manuel Castells

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In the last decade I was struck, as many have been, by a series of major historical events that have transformed our world/our lives. Just to mention the most important: the diffusion and deepening of the information technology revolution, including genetic engineering; the collapse of the Soviet Union, with the consequent demise of the international Communist movement, and the end of the Cold War that had marked everything for the last half a century; the restructuring of capitalism; the process of globalization; emergence of the Pacific as the most dynamic area of the global economy; the paradoxical combination of a surge in nationalism and the crisis of the sovereign nation-state; the crisis of democratic politics, shaken by periodic scandals and a crisis of legitimacy; the rise of feminism and the crisis of patriarchalism; the widespread diffusion of ecological consciousness; the rise of communalism as sources of resistance to globalization, taking in many contexts the form of religious fundamentalism; last, but not least, the development of a global criminal economy that is having significant impacts in international economy, national politics, and local everyday life.

I grew increasingly dissatisfied with the interpretations and theories, certainly including my own, that the social sciences were using to make sense of this new world. But I did not give up the rationalist project of understanding all this, in a coherent manner, that could be somewhat empirically grounded and as much as possible theoretically oriented. Thus, for the last 12 years I undertook the task of researching and understanding this wide array of social trends, working in and on the United States, Western Europe, Russia, Asian Pacific, and Latin America. Along the way, I found plenty of company, as researchers from all horizons are converging in this collective endeavour.

My personal contribution to this understanding is the book in three volumes that I have now completed, *The Information Age*, with the first volume already published, and the two others scheduled for publication in 1997. The first volume analyzes the new social structure, the network society. The second volume studies social movements and political processes, in the framework of and in interaction with the network society. The third volume attempts an interpretation of macro-social processes, as a result of the interaction between the power of networks and the power of identity, focusing on themes such as the collapse of the Soviet Union, the emergence of the Pacific, or the ongoing process of global social exclusion and polarization. It also proposes a general theoretical synthesis.

I will take this opportunity to share with you the main lines of my argument, hoping that this will help a debate that I see emerging from all directions in the whole world. I see coming a new wave of intellectual innovation in which, by the way, British researchers are at the forefront.

Trying to summarize a considerable amount of material within one hour, I will follow a schematic format. I will focus on identifying the main features of what I consider to be the emerging, dominant social structure, the network society, that I find characteristic of informational capitalism, as constituted throughout the world. I will not indulge in futurology: everything I say is

based on what I have perceived, rightly or wrongly, already at work in our societies. I will organize my lecture in one disclaimer, nine hypotheses, and one conclusion.

Disclaimer

I shall focus on the structure/dynamics of the network society, not on its historical genesis, that is how and why it came about, although in my book I propose a few hints about it. For the record: in my view, it resulted from the historical convergence of three **independent** processes, from whose interaction emerged the network society:
- The Information Technology Revolution, constituted as a paradigm in the 1970s.
- The restructuring of capitalism and of statism in the 1980s, aimed at superseding their contradictions, with sharply different outcomes.
- The cultural social movements of the 1960s, and their 1970s aftermath (particularly feminism and ecologism).

The Information Technology Revolution DID NOT create the network society. But without Information Technology, the Network Society would not exist.

Rather than providing an abstract categorization of what this Network Society is, let me summarize its main features and processes, before attempting a synthesis of its embedded logic in the diversity of its cultural/institutional variations. There is no implicit hierarchy in the sequence of presentation of these features. They all interact in, guess what, a network.

1. An informational economy

It is an economy in which sources of productivity and competitiveness for firms, regions, countries, depend, more than ever, on knowledge, information, and the technology of their processing, including the technology of management, and the management of technology. This is not the same as a service economy. There is informational agriculture, informational manufacturing, and different types of informational services, while a large number of service activities, e.g. in the developing world, are not informational at all.

The informational economy opens up an extraordinary potential for solving our problems, but, because of its dynamism and creativity, it is potentially more exclusionary than the industrial economy if social controls do not check the forces of unfettered market logic.

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2. A global economy

This is not the same as a world economy. That has existed, in the West, at least since the sixteenth century. The global economy is a new reality: it is an economy whose core, strategically dominant activities have the potential of working as a unit in real time on a planetary scale. This is so for financial and currency markets, advanced business services, technological innovation, high technology manufacturing, media communication.

Most economic activity in the world, and most employment are not only national but regional or local. But, except for subsistence economies, the fate of these activities, and of their jobs, depend ultimately on the dynamics of the global economy, to which they are connected through networks and markets. Indeed, if labor tends to be local, capital is by and large globalized — not a small detail in a capitalist economy. This globalization has developed as a fully fledged system only in the last two decades, on the basis of information/communication technologies that were previously not available.

The global economy reaches out to the whole planet, but it is not planetary, it does not include the whole planet. In fact, it excludes probably a majority of the population. It is characterized by

an extremely uneven geography. It scans the whole world, and links up valuable inputs, markets, and individuals, while switching off unskilled labour and poor markets. For a significant part of people around the world, there is a shift, from the point of view of dominant systemic interests, from exploitation to structural irrelevance.

> I propose the notion of the emergence of a Fourth World of exclusion, made up not only of most of Africa, and rural Asia, and of Latin American shanties, but also of the South Bronx, La Courneuve, Kamagasaki, or Tower Hamlets of this world. A fourth world that is predominantly populated by women and children.

This is different from the traditional First World/Third World opposition, because the Third World has become increasingly diversified, internally, and the First World has generated social exclusion, albeit in lesser proportion, within its own boundaries. Thus, I propose the notion of the emergence of a Fourth World of exclusion, made up not only of most of Africa, and rural Asia, and of Latin American shanties, but also of the South Bronx, La Courneuve, Kamagasaki, or Tower Hamlets of this world. A fourth world that, as I document extensively in volume three, is predominantly populated by women and children.

3. The network enterprise
At the heart of the connectivity of the global economy and of the flexibility of informational capitalism, there is a new form of organization, characteristic of economic activity, but gradually extending its logic to other domains and organizations: the **network enterprise**. This is not the same as a network of enterprises. It is a network made either from firms or segments of firms, or from internal segmentation of firms. Multinational corporations, with their internal decentralization, and their links with a web of subsidiaries and suppliers throughout the world, are but one of the forms of this network enterprise. But others include strategic alliances between corporations, networks of small and medium businesses (such as in Northern Italy or Hong Kong), and link-ups between corporations and networks of small businesses through subcontracting and outsourcing.

So, the network enterprise is the specific set of linkages between different firms or segments, organized ad hoc for a specific project, and dissolving/reforming after the task is completed, e.g. IBM, Siemens, Toshiba. This ephemeral unit, The Project, around which a network of partners is built, is the actual operating unit of our economy, the one that generates profits or losses, the one that received rewards or goes bust, and the one that hires and lays off, via its member organizations.

> With the exception, and an important one, of Western Europe, there is no major surge of unemployment in the world after two decades of diffusion in information technology.

4. The transformation of work and employment: the flexi-workers
Work is at the heart of all historical transformations. And there is no exception to this. But the coming of the Information Age is full of myths about the fate of work and employment.

With the exception, and an important one, of

Western Europe, there is no major surge of unemployment in the world after two decades of diffusion in information technology. Indeed, there is much higher unemployment in technologically laggard countries, regions, and sectors.

All evidence and analysis points to the variable impact of technology on jobs depending on a much broader set of factors, mainly firms' strategies and governments' policies. Indeed, the two most technologically advanced economies, the US and Japan, both display a low rate of unemployment. In the US in the last four years there is a net balance of 10 million new jobs, and their educational content for these new jobs is significantly higher than that of the pre-existing social structure: many more information-intensive jobs than hamburger flippers jobs have been created. Even manufacturing jobs are at an all time high on a global perspective: between 1970 and 1989, manufacturing jobs in the world increased by 72 per cent, even if OECD countries, particularly the US and the UK, have indeed de-industrialized.

There is certainly a major unemployment problem in the European Union, as a result of a combination of rigidities in the institutional environment, strategies of global redeployment by firms and, more importantly, the restrictive macroeconomic policies induced by an insane obsession with fitting in the Maastricht criteria that nobody, and particularly not Germany, will be able to qualify for, in an incredible example of collective alienation in paying respect to gods of economic orthodoxy that have taken existence independently from us.

There is indeed a serious unemployment problem in the inner cities of America, England, or France, among the uneducated and switched off populations, or in low technology countries around the world, particularly in the rural areas.

For the majority of people in America, for instance, unemployment is not a problem. And yet, there is tremendous anxiety and discontent about work. There is a real base for this concern:

(a) There is the transformation of power relationships between capital and labour in favour of capital,through the process of socio-economic restructuring that took place in the 1980s, both in a conservative environment (Reagan, Thatcher), and, to a lesser but real extent, in a less conservative environment (Spain, France). In this sense, new technologies allowed business to either automate or offshore production or outsource supplies or to subcontract to smaller firms or to obtain concessions from labor or all the above.

(b) The development of the network enterprise translates into downsizing, subcontracting, and networking of labour, inducing flexibility of both business and labour, and individualization of contractual arrangements between management and labour. So, instead of layoffs what we often have are layoffs followed by subcontracting of services on an ad hoc, consulting basis, for the time and task to be performed, without job tenure and without social benefits provided by the firm.

> The 'organization man' is out, the 'flexible woman' is in. The individualization of work, and therefore of labour's bargaining power, is the major feature characterizing employment in the network society.

This is indeed the general trend, exemplified by the rapid growth in all countries of self-employment, temporary work, and part-time, particularly for women. In England, between 40 and 45 per cent of the labour force seems to be already in these categories, as opposed to full time, regularly salaried employment, and is growing. Some studies in Germany project that in 2015, about 50 per cent of the labour force would be out of stable employment. And in the most dynamic region in the world, Silicon Valley, a recent study we have just completed shows that, in the midst of a job creation explosion, in the last ten years, between 50 per cent at least and 90 per cent of new jobs, most of them highly paid, are of

this kind of non-standard labour arrangements.

The most significant change in work in the information age is the reversal of the socialization/salarization of labour that characterized the industrial age. The 'organization man' is out, the 'flexible woman' is in. The individualization of work, and therefore of labour's bargaining power, is the major feature characterizing employment in the network society.

> # The Information Age does not have to be the age of stepped-up inequality, polarization and social exclusion. But for the moment it is.

5. Social polarization and social exclusion

The processes of globalization, business networking, and individualization of labour weaken social organizations and institutions that represented/protected workers in the information age, particularly labour unions and the welfare state. Accordingly, workers are increasingly left to themselves in their differential relationship to management, and to the market place.

Skills and education, in a constant redefinition of these skills, become critical in valorizing or devaluing people in their work. But even valuable workers may fall down for reasons of health, age, gender discrimination, or lack of capacity to adapt to a given task or position.

As a result of these trends, most societies in the world, and certainly OECD countries, with the US and the UK at the top of the scale, present powerful trends towards increasing inequality, social polarization and social exclusion. There is increasing accumulation of wealth at the top, and of poverty at the bottom.

In the US inequality has regressed to the pre-1920s period. In the limit, social exclusion creates pockets of dereliction with various entry points,

but hardly any exits. It may be long-term unemployment, illness, functional illiteracy, illegal status, poverty, family disruption, psychological crisis, homelessness, drugs, crime, incarceration, etc. Once in this underworld, processes of exclusion reinforce each other, requiring a heroic effort to pull out from what I call the black holes of informational capitalism, that often have a territorial expression. The proportion of people in these black holes are staggering, and rapidly growing. In the US, it may reach above 10 per cent of the population, if you consider that simply the number of adults under the control of the justice system in 1966 was 5.4 million, that is almost 3 per cent of the population, while the proportion of people below the poverty line is 15 per cent.

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6. The culture of real virtuality

Shifting to the cultural realm, we see the emergence of a similar pattern of networking, flexibility, and ephemeral symbolic communication, in a culture organized around electronic media, including in this communication system the computer-mediated communication networks. Cultural expressions of all kinds are increasingly enclosed in or shaped by this world of electronic media. But the new media system is not characterized by the one-way, undifferentiated messages through a limited number of channels that constituted the world of mass media. And it is not a global village.

Media are extraordinarily diverse, and send targeted messages to specific segments of audiences and to specific moods of the audiences. They are increasingly inclusive, bridging from one to another, from network TV to cable or satellite TV, radio, VCR, musical video, walkman type of devices, connected throughout the globe, and yet diversified by cultures, constituting a hypertext with extraordinary inclusive capacity. Furthermore, slowly but surely, this new media system is moving towards interactivity, particularly if we include CMC networks, and their access to text,

images, and sounds, that will eventually link up with the current media system.

Instead of a global village we are moving towards mass production of customized cottages. While there is oligopolistic concentration of multimedia groups around the world, there is at the same time, market segmentation, and increasing interaction by and among the individuals that break up the uniformity of a mass audience. These processes induce the formation of what I call **the culture of real virtuality**. It is so, and not virtual reality, because when our symbolic environment is, by and large, structured in this inclusive, flexible, diversified hypertext, in which we navigate every day, the virtuality of this text is in fact our reality, the symbols from which we live and communicate.

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7. Politics

This enclosure of communication in the space of flexible media does not only concern culture. It has a fundamental effect on **politics**. In all countries, the media have become the essential space of politics. Not all politics takes place through the media, and imagemaking still needs to relate to real issues and real conflicts. But without significant presence in the space of media, actors and ideas are reduced to political marginality. This presence does not concern only, or even primarily, the moments of political campaigns, but the day-to-day messages that people receive by and from the media.

I propose the following analysis:

To an overwhelming extent people receive their information, on the basis of which they form their political opinion, and structure their behaviour, through the media, particularly television and radio.

- Media politics needs to simplify the message/proposals.
- The simplest message is an image. The simplest image is a person. Political competition revolves around personalization of politics.
- The most effective political weapons are negative messages. The most effective negative message is character assassination of opponents' personalities. The politics of scandal, in the US, in Europe, in Japan, in Latin America etc. is the predominant form of political struggle.

> Those who survive in this world become politically successful, for a while. But what certainly does not survive, after a few rounds of these tricks, is political legitimacy, not to speak of citizens' hope.

- Political marketing is the essential means to win political competition in democratic politics. In the information age it involves media advertising, telephone banks, targeted mailing, image making, image unmaking, image control, presence in the media, staging of public appearances etc. This makes it an excessively expensive business, way beyond that of traditional party politics, so that mechanisms of political financing are obsolete, and parties use access to power as a way to generate resources to stay in power or to prepare to return to it. This is the fundamental source of political corruption, to which intermediaries add a little personal twist. This is also at the source of systemic corruption, that feeds scandal politics. The use of scandal as a weapon leads to

increased expense and activity in intelligence, damage control, and access to the media. Once a market is created, intermediaries appear to retrieve, obtain, or fabricate information, offering it to the highest bidder. Politics becomes a horse race, and a soap opera motivated by greed, backstage manoeuvres, betrayals, and, often, sex and violence, becoming hardly distinguishable from TV scripts.

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8. Timeless time

As with all historical transformations, the emergence of a new social structure is necessarily linked to the redefinition of the material foundations of life, **time and space**. Time and space are related, in society as in nature. Their meaning, and manifestations in social practice, evolve throughout histories and across cultures, as Giddens, Thrift, Harvey, Adams, Lash, and Urry, among others, have shown.

I propose the hypothesis that the network society, as the dominant social structure emerging in the Information Age, is organized around new forms of time and space: timeless time, the space of flows. These are the dominant forms, and not the forms in which most people live, but through their domination, they affect everybody. Let me explain, starting with time, then with some greater detail on space, given the specific interests of many in this conference.

In contrast to the rhythm of biological time of most of human existence, and to the clock time characterizing the industrial age, a new form of time characterizes the dominant logic of the network society: **timeless time**. It is defined by the use of new information/communication technologies in a relentless effort to annihilate time, to compress years in seconds, seconds in split seconds. Furthermore, the most fundamental aim is **to eliminate sequencing of time**, including past,

present and future in the same hypertext, thus eliminating the 'succession of things' that, according to Leibniz, characterizes time, so that without things and their sequential ordering there is no longer time in society. We live, as in the recurrent circuits of the computer networks in the encyclopedia of historical experience, all our tenses at the same time, being able to reorder them in a composite created by our fantasy or our interests.

David Harvey has shown the relentless tendency of capitalism to eliminate barriers of time. But I think in the network society, that is indeed a capitalist society, but something else at the same time, all dominant processes tend to be constructed around timeless time. I find such a tendency in the whole realm of human activity. I find it certainly in the split second financial transactions of global financial markets, but I also find it, for instance, in instant wars, built around the notion of a surgical strike that devastates the enemy in a few hours, or minutes, to avoid politically unpopular, costly wars. Or in the blurring of the life cycle by new reproductive techniques, allowing people a wide range of options in the age and conditions of parenting, even storing their embryos to eventually produce babies later either by themselves, or through surrogate mothers, even after their procreators are dead. I find it in the twisting of working life by the variable chronology of labour trajectories and time schedules in increasingly diverse labour markets. And I find it in the vigorous effort to use medical technology, including genetic engineering, and computer-based medical care to exile death from life, to bring a substantial proportion of the population to a high level of life-expectancy, and to diffuse the belief that, after all, we are eternal, at least for some time.

As with space, timeless time characterizes dominant functions and social groups, while most people in the world are still submitted to biological time and to clock time. Thus, while instant wars characterize the technological powers, atrocious, lingering wars go on and on for years, around the planet, in a slow-motion destruction

process, quasi-ignored by the world until they are discovered by some television programme.

I propose the notion that a fundamental struggle in our society is around the redefinition of time, between its annihilation or desequencing by networks, on one hand, and, on the other hand, the consciousness of glacial time, the slow-motion, inter-generational evolution of our species in our cosmological environment, a concept suggested by Lash and Urry, and a battle undertaken, in my view, by the environmental movement.

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9. The Space of Flows

Many years ago (or at least it seems to me as many) I proposed the concept of Space of Flows to make sense of a body of empirical observation: dominant functions were increasingly operating on the basis of exchanges between electronic circuits linking up information systems in distant locations. Financial markets, global media, advanced business services, technology, information. In addition, electronically-based, fast transportation systems reinforced this pattern of distant interaction by following up with movements of people and goods. Furthermore, new location patterns for most activities follow a simultaneous logic of territorial concentration/decentralization, reinstating the unity of their operation by electronic links, e.g. the analysis proposed in the 1980s on location patterns of high tech manufacturing; or the networked articulation of advanced services throughout the world, under the system labeled as 'global city'.

Why keep the term of space under these conditions? Reasons: (1) These electronic circuits do not operate in the territorial vacuum. They link up territorially based complexes of production, management and information, even though the meaning and functions of these complexes depend on their connection in these networks of flows. (2) These technological linkages are material, e.g. depend on specific telecommunication/transportation facilities, and on the existence and quality of information systems, in a highly uneven geography. (3) The meaning of space evolves — as the meaning of time. Thus, instead of indulging in futurological statements such as the vanishing of space, and the end of cities, we should be able to reconceptualize new forms of spatial arrangements under the new technological paradigm.

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To proceed with this conceptualization I build on a long intellectual tradition, from Leibniz to Harold Innis, connecting space and time, around the notion of space as coexistence of time. Thus, my definition: space is the material support of

time-sharing social practices.*

What happens when the time-sharing of practices (be it synchronous or asynchronous) does not imply contiguity? 'Things' still exist together, they share time, but the material arrangements that allow this coexistence are inter-territorial or transterritorial: **the space of flows is the material organization of time-sharing social practices that work through flows**. What concretely this material organization is depends on the goals and characteristics of the networks of flows, for instance I can tell you what it is in the case of high technology manufacturing or in the case of global networks of drug traffic. However, I did propose in my analysis some elements that appear to characterize the space of flows in all kinds of networks: electronic circuits connection information systems; territorial nodes and hubs; locales of support and social cohesion for dominant social actors in the network (e.g. the system of VIP spaces throughout the world).

Dominant functions tend to articulate themselves around the space of flows. But this is not the only space **The space of places continues to be the predominant space of experience**, of everyday life, and of social and political control. Places root culture and transmit history. (A place is a locale whose form, function, and meaning, from the point of view of the social actor, are contained within the boundaries of physical contiguity.)

In the network society, a fundamental form of social domination is **the prevalence of the logic of the space of flows over the space of places**. The space of flows structures and shapes the space of places, as when the differential fortunes of capital accumulation in global financial markets reward or punish specific regions, or when telecom systems link up CBDs to outlying sub-

urbs in new office development, bypassing/marginalizing poor urban neighbourhoods. The domination of the space of flows over the space of places induces intra-**metropolitan dualism** as a most important form of social/territorial exclusion, that has become as significant as regional uneven development. The simultaneous growth and decline of economies and societies within the same metropolitan area is a most fundamental trend of territorial organization, and a key challenge to urban management nowadays.

As information/communication networks diffuse in society, and as technology is appropriated by a variety of social actors, segments of the space of flows are penetrated by forces of resistance to domination, and by expressions of personal experience.

But there is still something else in the new spatial dynamics. Beyond the opposition between the space of flows and the space of places. As information/communication networks diffuse in society, and as technology is appropriated by a variety of social actors, segments of the space of flows are penetrated by forces of resistance to domination, and by expressions of personal experience. Examples:

(a) Social movements. Zapatistas and the Internet (but from the Lacandona forest). But also American Militia.

(b) Local governments, key agents of citizen representation in our society, linking up through electronic networks, particularly in Europe (see research by Stephen Graham).

(c) Expressions of experience in the space of flows.

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* Leibniz: 'Space is something purely relative, like time; space being an order of coexistences as time is an order of successions. For space denotes in terms of possibility and order of things that exist at the same time, in so far as they exist together. ... When we see several things together we perceive this order of things among themselves.'

Thus, we do witness an increasing penetration, and subversion, of the space of flows, originally set up for the functions of power, by the power of experience, inducing a set of contradictory power relationships. Yes, it is still an elitist mean of communication, but it is changing rapidly. The problem is to integrate these observations in some theory, but for this we still lack research, in spite of some insightful elaborations, such as the one by Sherry Turkle at MIT.

The new frontier of spatial research is in examining the interaction between the space of flows, the space of places, function, meaning, domination, and challenge to domination, in increasingly complex and contradictory patterns. Homesteading in this frontier is already taking place, as shown in the pioneering research by Graham and Marvin, or in the reflections of Bill Mitchell, but we are clearly at the beginning of a new field of study that should help us to understand **and to change** the currently prevailing logic in the space of flows.

Conclusion: The Network Society

So, what is the Network Society? It is a society that is structured in its dominant functions and processes around networks. In its current manifestation it is a capitalist society. Indeed, we live more than ever in a capitalist world, and thus an analysis in terms of capitalism is necessary and complementary to the theory of the network society. But this particular form of capitalism is very different from industrial capitalism, as I have tried to show.

The Network Society is not produced by information technology. But without the information technology revolution it could not be such a comprehensive, pervasive social form, able to link up, or de-link, the entire realm of human activity.

So, is that all? Just a morphological transformation? Well, historically, transformation of social forms has always been fundamental, both as expressions and sources of major social processes, e.g. standardized mass production in the large factory as characteristic of the so-called fordism, as a major form of capitalist social organization; or the rational bureaucracy as the foundation of modern society, in the Weberian conception.

But this morphological transformation is even more significant because the network architecture is particularly dynamic, open-ended, flexible, potentially able to expand endlessly, without rupture, bypassing/disconnecting undesirable components following instructions of the networks' dominant nodes. Indeed, the February 1997 Davos meeting titled the general programme of its annual meeting 'Building the Network Society'.

This networking logic is at the roots of major effects in our societies. Using it:

- capital flows can bypass controls
- workers are individualized, outsourced, subcontracted
- communication becomes at the same time global and customized
- valuable people and territories are switched on, devalued ones are switched off.

The dynamics of networks push society towards an endless escape from its own constraints and controls, towards an endless supersession and reconstruction of its values and institutions, towards a meta-social, constant rearrangement of human institutions and organizations.

Networks transform power relationships. Power in the traditional sense still exists: capitalists over workers, men over women, state apparatuses still torture bodies and silence minds around the world.

Yet, there is a higher order of power: the power of flows in the networks prevails over the flows of power. Capitalists are dependent upon uncontrollable financial flows; many workers are at the same time investors (often unwillingly through their pension funds) in this whirlwind of capital; networkers are inter-related in the logic of the network enterprise, so that their jobs and income depend on their positioning rather than on their work. States are bypassed by global flows of wealth, information, and crime. Thus, to survive, they band together in multilateral ventures,

such as the European Union. It follows the creation of a web of political institutions: national, supranational, international, regional, and local, that becomes the new operating unit of the information age: the network state.

> **The challenges to social domination in the network society revolve around the redefinition of cultural codes, proposing alternative meaning and changing the rules of the game. This is why the affirmation of IDENTITY is so essential, because it fixes meaning autonomously vis-à-vis the abstract, instrumental logic of networks.**

In this complexity, the communication between networks and social actors depends increasingly on shared CULTURAL CODES. If we accept certain values, certain categories that frame the meaning of experience, then the networks will process them efficiently, and will return to each one of us the outcome of their processing, according to the rules of domination and distribution inscripted in the network.

Thus, the challenges to social domination in the network society revolve around the redefinition of cultural codes, proposing alternative meaning and changing the rules of the game. This is why the affirmation of IDENTITY is so essential, because it fixes meaning autonomously vis-à-vis the abstract, instrumental logic of networks. I am, thus I exist. In my empirical investigation I have found identity-based social movements aimed at changing the cultural foundations of society to be the essential sources of social change in the information age, albeit often in forms and with goals that we do not usually associate with positive social change. Some movements, that

appear to be the most fruitful and positive, are proactive, such as feminism and environmentalism. Some are reactive, as in the communal resistances to globalization built around religion, nation, territory, or ethnicity. But in all cases they affirm the preeminence of experience over instrumentality, of meaning over function, and, I would dare to say, of use value of life over exchange value in the networks.

> **The implicit logic of the Network Society appears to end history, by enclosing it into the circularity of recurrent patterns of flows. Yet, as with any other social form, in fact it opens up a new realm of contradiction and conflict.**

The implicit logic of the Network Society appears to end history, by enclosing it into the circularity of recurrent patterns of flows. Yet, as with any other social form, in fact it opens up a new realm of contradiction and conflict, as people around the world refuse to become shadows of global flows and project their dreams, and sometimes their nightmares, into the light of new history making.

Manuel Castells is Professor of Sociology and Planning, and Chair of the Centre for Western European Studies at the University of California, Berkeley. He has published 17 books, including The City and the Grassroots *and* The Informational City.