From ‘Information’ to ‘Knowledge’ Societies? Argentina in the Context of Engendered Regional ‘Globalization’

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During the decade of the 1990s, a vast spectrum of the Social Sciences focused on the dynamics of ‘End of the Century’ capitalist development, and highlighted its informational, scientific, and technological features that a number of scholars associated to the construction of Information or Knowledge Societies, that is, societies in which expanding flows of information-communication and knowledge, facilitated by kindred systems of work organization, are signified as crucial dimensions of any project of long-term socio-economic growth. This virtuous Circle would be linked to the generalized use of ICTs (Information and Communication Technologies (ICTs)) within a ‘global’, regional, national, and local regulatory framework deemed to be conducive to that development goal. When arguing that the relationship posited by economic schools between knowledge, information-communication, and work organization is embedded in the theorization and practices of development (or to the absence of development), I am referring to a broad definition of development implying 'success in the display of the human and productive potential' of a given society (Aronskind, 2001: 11). This is to say, development signified as the articulated construction of contexts that guarantee the exercise of economic, social, cultural, civil and political rights of women and men as indivisible dimensions of human rights¹.

This demand is urgent as despite the International Covenant on Economic, Social and Cultural Rights, (ICESCR, 1966) pledging to guarantee the exercise of these rights without discrimination of any type – race, color, sex, language, religion, and others (Article 2) – the evolution of an increasingly informational world economy during the last decades violates Human Rights to development in the majority of the countries of the world². The long cycle of decline in the rate of growth of the world product that started in the 1970s is associated with the acceleration of the internationalization of capital on a regional basis – a process commonly known as 'Globalization', and facilitated by the generalized utilization of ICTs. Globalization has brought about new polarizations and exclusions and a growing but articulated gap between developed (central) and non-developing (peripheral) economies whose informational dimensions are yet to be assessed (Brenner, 1998).

Argentina and other countries in Latin America, Africa and Asia, have not remained outside this general trend. I argue, therefore, that the construction of contexts of development
constitutes a goal, and a main theoretical and political challenge of our time. Moreover, any attempt to revert that trend involves multiple theoretical, conceptual, and political challenges raised by one fundamental question: How are we to think genuine development paths in the Era of information–knowledge ‘Globalization’?

The objective of this article is to contribute to the ongoing debate over the nature and dynamics of information and knowledge based-development, underlying possible transitions from Information to Knowledge Societies, and to reflect on its engendered implications on the basis of the Argentine experience (1990s-2000s). To this effect I argue, in the first part, that it is necessary to distinguish between the neo-Liberal and Liberal (institutional) theoretical paradigms embedded in that debate in order to elucidate, from a critical perspective, the dynamics of the ‘Virtuous Circle’ linking information, knowledge, work organization and development, and the congenial regulatory framework deemed necessary to translate that virtuosity into practice in different macro regions of the world. I take the European experience as one illustration of these possibilities. Last, but not least, I argue that the problematic of this article is still a missing component of the Feminist agenda in Southern Latin America.

The Theoretical and Conceptual Framework

I argue that it is important to distinguish between socioeconomic theories in order to clarify the significations given to the Virtuous Circle linking information, knowledge, and work organization, and the multi-level regulatory framework defined as a necessary condition for the construction of Information or Knowledge Societies as tools for the attainment of 21st Century capitalist development. This takes distinct features according to the macro-region being considered, be it central, industrialized North America, the European Union, or the Japanese-led Asian space; or peripheral, often transnationalized industrializing areas, such as Southern Latin America. I will briefly summarize the neo-Liberal (neo-classical), and the Liberal (institutional) economic paradigms and their application to the Information and Knowledge Societies debate developed in Europe in the 1990s, to proceed to the critiques raised from Critical Political Economy, and to the challenges Feminist scholarship in Southern Latin America must face to effectively contribute to this ongoing debate in the 2000s.

The Neo-liberal Vision: The Bangemann Report
By neo-Liberalism, I mean the renewal of neo-classical or conservative economics. Its philosophical support is utilitarianism, a vision that signifies the rationality assumed to characterize human nature and, hence, the 'good society' that will satisfy it, – through the market – strictly on individual preferences in the search for pleasure maximization and suffering minimization (Jaggar, 1983). This philosophical underpinning was born in the United Kingdom in the 18th Century, blossomed in the last decades of the 19th and the 20th Century, and still holds its ground at the dawn of the 21st Century by being embedded in contemporary neo-liberal rational-utilitarian economic discourse on 'Information Societies'.

By giving priority to equilibrium, and by ignoring broader social and historical variables, and the conditioning factors inherent in the concrete and real environment of the process of production, this approach equally ignores the tensions and contradictions that mobilize ‘from the basic units of accumulation to the society as a whole’ (Taulile, 2001: p. 35, my translation from the original Portuguese text.)

During the 1950s, information became a synonym of valuable news, a fact or event that exerts influence on business or social behavior, stock market prices, and government decisions. Knowledge, in turn, became codified technical information, which is typically generated in the Research and Development (R&D) offices of specific firms; a type of good whose production, diffusion, and uses are endowed with economic values, and lead to beneficial results. It is also an exogenous variable, which is replicated through ICTs, and is available by paying royalties, or licenses in case it is protected by patents or copyrights. (Chudnovsky and López, 1995). The crucial issue of intellectual property rights, a theme of the Second Industrial Revolution, has once again come to the fore.

With regards to work organization, the management literature, celebrates the transference of the Japanese informational 'lean production' model of work organization (teamwork) to all companies. New workers must be problem-solvers, creative, and responsible, and they must have the skills and attitudes that might be developed by their employers (SCANS, 1991).

Although denied in discourse, public policies do exist in real life situations: nation-states and local governments actively intervene in all economies through de-and re-regulatory strategies, in pursuit of 'market-friendly' growth. This requires nation-states to participate in macro regional negotiations as the Bangemann Report illustrates (Comisión Europea, 1994). This Report entitled *Europe and the Global Information Society: Recommendations to the European Council*, is the most widely quoted source of neo Liberal thinking on ‘global’ Information Societies in Latin America. Very briefly, it sponsors the
adoption of Public Policies that would lead to the emergence of a world Information Society under the auspices of the (European) private sector by guaranteeing: the generalized access to ICTs, the reduction of the digital divide, and free competition for European ICTs manufacturers and/or telecom operators, which ‘are at the forefront of these technological developments and should reap the benefits’ (ibid)

To this effect, this market-driven revolution mobilizes the private sector and European nation-states to guarantee a needed competitive environment, by breaking national telecom State monopolies (through privatization and market liberalization) and, simultaneously, attempting to control the free flow of information through the struggle in defense of intellectual property rights. As a result, supra national, regional regulation (institutionalization) is now necessary. Given that the information society is global, ‘the Group thus recommends that Union action should aim to establish a common and agreed regulatory framework for the protection of intellectual property rights’ (ibid.)

The Liberal Vision: The HLEG Report

I understand the Liberal theoretical approach as the equivalent of ‘institutional’, ‘structural’ or ‘heterodox’ economics, one of the theoretical offshoots of classical economics. Its philosophical support gives a signification that oscillates between morality and instrumentality to the rationality that would characterize human nature, and, hence, the 'good' society that may satisfy this rationality. The Liberal approach – that has been historically associated with the growth of capitalism and demands for democracy and political liberties based on the moral conviction of the equality of all ‘men’ – is, nowadays, a main focus of Latin American debate. Can this school be ‘the’ unique alternative to the neo-Liberal hegemony of the 1990s, as some authors claim?

A sub-branch of this school associates the possibility of genuine development to the emergence of a Knowledge, and/or Learning Age, that would be articulated to contemporary 'Globalization' trends (Dosi, 1996). The common element of this literature is to attribute to the accelerated generation and diffusion of knowledge a key role in innovation and, therefore, in the degree of competitiveness attained by different economic agents. Information, knowledge, and work organization, optimized by, but not equivalent to, the generalized use of ICTs constitute the foundations sustaining the successful restructuring in production and services that took place during the last decades of the 20th Century, that would continue into the new century.
However, while information is assimilated to codified, structured data, knowledge is classified as either codified or tacit. Codified knowledge is that type of knowledge that can be transformed into a message and manipulated as information and, therefore, can be easily transferable using ICTs. Tacit knowledge is inherent to people, and to the accumulation of their lived experience in the world of productive (and reproductive) work, and to organizations and specific places that share a common action and language. Hence it is not available in the market, and requires a specific type of social interaction, that is assimilated to learning, in order to be transferred (Cowan and Foray, 1998).

Codified and tacit knowledge complement each other, and are embedded in practices common to each firm, sector, or region (network of firms). Hence, successful knowledge generation and transference cannot be ensured by discourse only. Innovations are based on knowledge originated in a social and collective environment, and the education necessary to understand the use of local codes can only be attained through a network of relationships, and the process of interactive learning. ICTs should then be viewed as essentially complementary to investment in human resources and skills (HLEG, 1997).

This perspective, by promoting the distinction between types of knowledge, and by insisting on the importance of learning for innovation, simultaneously legitimizes the new forms of work and productive organization based on the ‘Japanese model’ (‘Ohnist/JIT’ /Just-in-time). This is so because this model counts with mechanisms for the production and appropriation of tacit knowledge and aptitudes, which are structured (embedded) in the same process of capitalist production and circulation (Jürgens et. al, 1993).

The trenchant critique of neo-liberal thinking advanced by the structural school is translated to the emerging European ‘Information Economies’ by the High Level Final Policy Report to the European Commission (HLEG, 1997). It conveys a mature reflection on information-based European capitalism after the negative implications of neo-liberal growth policies applied in the 1980s and 1990s, and promoted by the Bangemann Report (1994) had already taken their toll.

Two focal points are pertinent to this article: Firstly, the critique of technological determinism sponsored by earlier reports that ignore the nature of the new, digitized ICTs-based technological clusters and their ‘social embeddedness’. Secondly, the excessive responsibility left to private sector interests should be corrected through adequate nation-state and European Union regulatory coordination including complementary investments in human resources and skills that are not yet forthcoming, to ensure that the Wise Society finally emerges.
To overcome those deficiencies, the HLEG suggests a continuum of policy challenges derived from the recognition that ‘Despite innumerable analyses on the subject, there is still insufficient recognition, in our view, that the new ICTs embody a radically different set of parameters for potential growth and development opportunities’. I stress the need to regulate the information society markets to tackle *abuse of market power* and; the coordinating regulation required to reduce the threat of market dominance and abuse in particular ICT market segments.

**Liberal Literature from the Perspective of Critical Political Economy**

Without dispute the Liberal (institutional) approach to socioeconomic growth and its corollaries proves to be a very useful theoretical and political instrument for overcoming a number of biases inherent in neo-classical thinking on development. However, critical Political Economy theorization as well as recent empirical evidence show the limitations implicit in any attempt to promote information-knowledge-based development on one unique foundation: the construction of Knowledge and Learning Societies defined exclusively according to Liberal tenets. Several reservations must, then, be posited to the institutional economic paradigm and to the viability of the Public Policies derived from this same approach, when applied outside the European Union. From current discussions on ALCA (Free Trade Area of the Americas)/MERCOSUR (the Common Market of the South), the following observations are in order.

**At the supra-national level**, the ‘heterodox’ approach takes for granted, but does not investigate, the origin, nature, concrete dynamics and implications of the regional ‘Globalization’ context whose accelerated transformations impose pressures not only to firm's behavior and competitiveness, but also to any broad conception of development. These ‘Globalization’ processes – while seeking regional markets and resources (such as the Latin American MERCOSUR) – have become key elements in the configuration of the contemporary world economy, thereby recreating and intensifying the Center, ‘developed’ vs. Periphery, ‘underdeveloping’ economies divide.

The above transformations in turn, are closely related to the supra national institutional construction (both 'de facto' and 'de jure') led by the United States, the Group of 7, the IMF, (International Monetary Fund), the World Bank and its Washington Consensus, and which has been formalized in Europe by the Maastricht Treaty and the WTO (Chesnais, 2001). These multinational bodies elaborate the context of liberalization demanded from
national economies, while also shaping the parameters of regional markets, such as the Latin American MERCOSUR.

At the national/regional level, Policies of Science, Technology, and Innovation directed to the construction of NSIs proper to the institutional approach take for granted that these national or regional spaces are often the site of MNCs headquarters, or of national-capital enterprises accruing innovation-based profits through effective competition in the industrial plane. However, the existence of innovative, national-capital industrial firms that could serve as platforms for the construction of NSIs in the already highly transnationalized MERCOSUR region is still to be shown. Another related issue concerns the limitations inherent to peripheral NSIs, taking into consideration the restrictions imposed by the enforced opening of these economies, that have been subject to successive structural adjustment plans by the WTO, IMF and other international organizations, and perhaps in the future, also from Agreements originating in the approaching WSIS, 2003.

In addition, the domination of financial capital endangers the viability of Public Policies in Science and Technology even in central economies. It is no surprise, therefore, that investments in R&D are among the most concentrated types of world investments and that information-knowledge privatization via intra-firm trade in manufacturing, but also in services, constitutes an inherent feature of Mondialization and, as such, a crucial part in the negotiations taking place in North American Free Trade Agreement (NAFTA) and ALCA and now the World Summit on Information Societies. We must therefore conclude that a process of global technological diffusion does not take place. Instead, there is a concentration of production of scientific and technical knowledge, and of strategic technologies, in very limited places (Chesnais, 1996), and the new competition between MNCs has intensified the centralization of knowledge at their headquarters, and in the economies of the Triad.

Last but not least, at the world, regional, national or local level, the institutional theory mostly ignores the conflictive nature of capital-labor relations, as well as its gender dimensions manifested in the concrete reality of capitalist work organization. That is, it does not raise the issue of the limits of what is to be deemed legitimate management practices concerning work organization, to the extent that the latter is functional and conducive to successful (profitable) innovations. Hence, it cannot examine the negative implications of the 'Japanese model', for society as a whole, and for women and men workers in particular.
Another offshoot of the Critical (Radical) theoretical approach can advance the examination of 'informationalization' processes, a complex dynamics deemed by some authors to constitute 'the' main feature of contemporary capitalism (Dantas, 2002; Castells, 2000). My reading of this approach is based on the work of Marcos Dantas, who re-semantizes Information Theory (IT) in radical, critical terms, to subsequently apply this renewed IT to the analysis of human labor and to the valorization and accumulation of capital. His objective is to explore and explain why central, developed capitalism is assuming increasingly informational-communicational features since the first phase of the Second Industrial Revolution (1880s-1920s), The following points are crucial to debate the polemical issues raised by institutional economics and to incorporate Dantas's main tenets into this article.

All human labor, Dantas (2002) argues, is informational labor, that is, labor devoted to perceive, process, register, and communicate information. Information, is perceived by Dantas (2002: 146), as ‘a process that gives orientation to the action (trabalho) performed by any living organism, in its efforts to recover part of the energy that it dissipates because of the laws of thermodynamics’ (my translation from Portuguese, emphasis added). Information is thus produced, when an object that conveys potentially significative signals starts interaction with an agent who is capable and competent, willing and interested to extract its significations. (Ibid., 2002). It is therefore, not a unidirectional process, but a bi-directional one. Information, therefore, is an activity of living labor, and should not be conflated with some result of the process of capturing and processing it (a book, electric signals, etc). Neither should 'data' or 'knowledge' (which are the product of past labor) be conflated with informational dynamics per se. 

In this fashion, Information Theory helps to clarify the nature of interaction that presides capitalist informational labor; and to delve into the nature of human communication in the world of toil; IT also illuminates the capacities and skills of the labor force, which assumes the existence of codes. Without communicative activities, workers would not know what tasks to perform. Communication is thus a constitutive component of the labor process, and an element for the negotiation of the use value of labor power vis a vis capital.

Simultaneously, this critical approach is useful to explain the growing magnitude of human labor over information itself in a new information-based division of labor in productive activities. This is because, in former times, the information necessary for the
performance of this type of activities was captured, processed, and communicated directly by the senses of the body, and that information was free to be captured by the mind and the body of the worker, in her/his own social and natural environment. Increasingly since the Second Industrial Revolution immediate production came to be congealed in the forms and movements of machinery systems, while living labor, continued expanding in the growing and more encompassing activities of processing, registering, and communication of social information. Hence, living labor, Dantas argues, i.e. labor endowed with knowledge useful for production, will never cease to be the type of labor necessary for capitalist accumulation. However, the value of labor for capital, the type of labor that allows for capital accumulation, increasingly becomes a function of information processing activities taking place along the productive chain, hence implying new international divisions of labor and suitable coordination mechanisms to sustain that growth.

**New Center-Periphery Relationships**: This division of labor takes place between firms whose value generating activities are based on labor connected to scientific-technological research, creation or innovation of products and processes, and firms whose value activities are based on repetitive, elementary, routine labor. Hence, informational capitalism does not count with a homogeneous labor collective (among countries). The extension of the productive chain signifies the concentration of creative labor in the *center* and of redundant, routine labor in the *periphery*. Thanks to the extended world networks of communication, firms linked via ICTs and working as a unit in real time, can locate labor where its costs are as low as its low informational level.

In synthesis, contemporary informational capitalism mobilizes labor to process and communicate information by means of adequate (digital) processing and communication means. The reductionism of previous approaches is corrected by showing that ICTs transport signals whose codes must be captured, and shared by 'recipients' for interaction-communication to be completed. But this capitalism devalues the use value of routine labor in new international informational hierarchies, with catastrophic consequences as shown by statistics on social exclusion globally.

**A Still Missing Feminist Agenda**

To my knowledge feminist scholarship in Latin America, outside the NAFTA region at least, has largely neglected the information-knowledge development problematic. This is
unfortunate for two reasons. On the one hand, Southern Latin America informational development perspectives can not be easily dissociated from the outcome of the world ‘trade war’ between North American, European and Asian MNCs suppliers of networks and services in the telecom business (among other sectors) that continue competing for the promising ‘emerging’ MERCOSUR region of the 1990s. This process persists in the current but still undecided fate of the ALCA vs. MERCOSUR dispute, and it is also reflected in the 2003 WSIS agenda and current WTO negotiations. An early Feminist intervention may influence *ex-ante* crucial decisions concerning the future development of the region. On the other hand, because women’s gender subordination in the spheres of production, (reproduction) and circulation has not disappeared but has probably increased in the last decades in the Latin American periphery with variations according to class and race/ethnicity.

Southern Latin American Feminist scholars, to the extent that they have examined issues related to the Information and Knowledge Societies debate, have carried out this task on an individual discipline basis only (mainly sociology, political and communications sciences, psychology, and anthropology) thus neglecting the underlying development discourse. As a result, Feminist intellectual and political project of liberation in the region, has so far not been able to confront the challenges that Liberal and Radical Political Economy raise in the still insufficiently explored field of information-knowledge-based capitalist development.

A recent example of ‘missed opportunity’ is the lack of contribution by gender experts to the WSIS PrepCom meeting, convened by Economic Commission for Latin American and the Caribbean (ECLAC) and other organizations, and held in the Dominican Republic in 2003. Unfortunately, no congenial Feminist text accompanied the male economic development experts’ contribution to this meeting. In my view, this example might well reflect the remnants of gender discrimination still pervading supra national organizations that are officially committed to gender equity, especially in the world periphery. An intra institutional division of labor that assigns engendered perspectives to a separate unit, always runs the risk of relegating Feminist social scientists to ‘dated’ issues once male economists have already given the theory (code) that defines the meaning of ongoing or future regional socioeconomic development.

Hence, this was not an opportunity for high level Latin American Feminist development experts to constitute a inter-disciplinary group to develop an *autonomous* Report on the subject, as illustrated by the European (mainly male) HLEG. At that time their
ECLAC male counterparts were already elaborating a very ambitious research agenda that resulted in a number of Documents, a book on the transition from the Industrial to the Digital Economy, plus the main official ECLAC Document written for the PrepCom meeting in early 2003! The proposals and recommendations included several measures including research into components of globalization, macroeconomic policies and gender, race and ethnic dimensions; establishment of data banks bearing on education levels, age, social strata and gender; promotion of women’s strategic uses of accessible technologies, specially ICTs. References are also made to the digital divide, telecenters, e-government and public services and to the most effective exercise of citizenship.

These are, of course, fair recommendations on their own right, but they are not preceded by an explicit discussion of the underlying theory and model of development it is engendering: the roots and dynamics of the private sector ‘export-led model of economic growth’ to which the same Report refers, and to which it attributes opportunities and restrictions as far as gender equity is concerned. An emphasis on this main theme would have allowed the examination of the structural consequences of the application of that economic model for the countries of the region, its linkages with ‘globalization’, and what categories of women would be willing and able to participate in the construction of information-knowledge-based development. Feminist scholars already have a menu of possible ‘transitions’ to address themselves to, each model involving theoretical assumptions and political challenges that can no longer be neglected.

Yet, if the neo liberal model of growth adopted in the region has already failed in terms of Human Rights oriented development by excluding the majority of the population of the area, no proper engendering could correct that outcome. On the contrary, one may then enquire into the meaning of gender equity in processes leading to underdevelopment. The experience of Argentina, to which I now turn, illuminates this effect.

**Constructing a Peripheral ‘Information Society’**

**Towards an Argentine Information Society?**

The construction of an Information Society as an instrument for development has been present in Argentine official government discourse since the beginning of the 1990s. Already in the 2000s, a National Program for an Information Society was drafted by decree 252/2000 during de la Rúa’s presidency, in the framework of the Secretariat of Science, Technology, and Production Innovation. This program continues the Argentine Internet for
Everyone Plan. The difference between both the schemes is that the latter Plan, designed during Menem’s presidency in the 1990s, did not have any social repercussion, while the Program explicitly states the need to coordinate a major goal, the social diffusion of Internet together with other objectives, to generalize the use of ICTs in all societal sectors; and to increase competitiveness in the production of goods and services; and to expand the use of telemedicine and tele education plans. The Program had almost no application and it is to be seen how it is continued or discontinued under the present administration.

A retrospective analysis with a focus on the context of origin of those Plans allow us to perceive the logic of this adverse outcome. I have referred in other texts to the extensive literature bearing on the orthodox application of the neo-Liberal model of economic growth in Argentina during the 1990s and to its New Public Policies (NPPs) involving the privatization of State enterprises, (including ENTEL, the National Telecommunication Network); asymmetrical trade opening, and selective deregulation of the economy. Concomitantly, and according to the inherent logic of the model, substantial changes in the regulation of capital-labor relations were introduced, highly restricting or abolishing the historical rights attained by the working classes. The expectations raised by the NPPs have not been satisfied. Once the initial positive shock in terms of rapid GNP growth due to the entry of capitals and inflation control disappeared, the long recession that started in 1998 became depression in 2001 and has only recently started to be overcome. Simultaneously, NPPs promoted the reprimarization of the economy, deindustrialization, and the generalized regressive restructuring of the remainder industrial sector, the concentration and general transnationalization of the economy, and capital centralization. Several of these ill effects should be highlighted in relation to the problematic of this article.

To start with, the institutional shock of the 1990s implied the consolidation of new sector regulatory frameworks leading to ‘disarticulated restructuring’, the disintegration of subcontracting chains, both between trade and industry, and within industry itself. (Kosacoff, 2000). In addition, the specialization profile of the country has become reprimarized. The Argentine profile, based on static sectors, seriously compromises its regional and world insertion, as it has become a country exporting natural resources, energy, and industrial commodities. Technologies that lead world expansion – such as telecommunications (that have been privatized), microelectronics, computing and new materials, biotechnologies, and specializations which are knowledge-intensive and demand creative labor – are absent from this list.
The above industrial picture is associated with a very low average investment in science and technology, and education during this decade. Public expenditure in Science and Technology comes close to 0.4 percent of the GNP (Aronskind, 2001). The estimated expenditure in all higher and university education is only to 0.83 percent of the GNP. Relating these figures to those referring to the dismantling of the productive linkages (suppliers linkages) it is possible to conclude with Nochteff (2001) that Science and Technology Policies in Argentina cannot be regarded as genuine State Policies.

Not surprisingly, this absence of State Policies in the crucial areas of education, Science and Technology and knowledge-intensive industrial growth has resulted in failure to advance towards information-communication-based development. The scant initiatives to construct a national Society of Information show a technological determinism already rejected by the HLEG Report (1997). Finally, it must also be stressed that the neo-liberal model of growth has been unable to generate positive impacts on wages and employment (with extremely high rates of unemployment and sub-employment) while at the same time it consolidated a distribution profile that became one of the most unequal in the world, and pushed more than half the population of the country below the poverty line. This evolution is even more devastating considering that, following the devaluation of the peso in 2002, the balance of trade improved (due to increased agricultural exports), but neither the economic model itself, nor the subordination to supra-national institutions (IMF in particular), has changed.

Towards a Regional Information Society?
How is the above construction reflected at the regional level, MERCOSUR? What are the implications of these processes in terms of engendered informational labor in the Argentine case? Regionally, the neo-liberal model of growth was expressed through the acceleration of the de-and re-regulation of MERCOSUR, under the assumption that trade liberalization emerging from the agreement would encourage Foreign Direct Investment (FDI), intra-firm trade and productive specialization. According to the Asunción Treaty of 1991, MERCOSUR may be considered a project to develop a common market. During the decade of the 1990s the progressive shaping of the automotive region (market) of Mercosur, through a new regulatory framework reconstructed the conditions for the sector's growth after the crisis of the 1980s. In other texts, I have referred to the historical linkages between domestic and regional (and/or bilateral) regulation that increasingly constructed the definition of that
automotive region, culminating in the New Bilateral Automotive Regime, between Argentina and Brazil, in March 2000, again modified in July 2002.

**Work Organization and Gender Dynamics in MERCOSUR**

**Car Assemblers Level:** Local recession, subsidies and the Brazilian devaluation attracted the greatest part of investments in the assembler industry. Production was adjusted to the international market strategies of MNCs on the basis of 'global' profit forecasts and intra-firm trade flows. Assemblers located in Argentina import complete vehicles and autoparts from external sources (outside the MERCOSUR area), and decide the production mix of cars and components; i.e. which 'interlinked' firms do enter or do not enter the intra-MNC circle, and the features of regional subcontracting, with negative effects on the balance of trade, of payments, employment and wages. ‘Containers’ carrying autoparts, parts and pieces imported from Brazil or from extra zone, common to the areas close to the assembly firms and, to the same plant, inclusively, also bear witness to the absence of that systemic search for time economies in the Argentine case and the consequent absence of innovation strategies on the part of firms located in the country. To this is added, in Argentina, the absence of effective Customs control, and prosecution of MNCs that violate present norms.

**Technological transfer and local innovations:** Lax legislation, high import content and level of vertical integration conspires against any virtuous dynamics. In the first place, MNCs practices do not comprise genuine R&D or the adaptation of technologies originating at headquarters, as it was the practice in previous phases of automotive growth. Whole engineering departments and previous advances in training and knowhow have been dismantled, negatively affecting crucial technical and social resources (Roldán, 2000).

In the second place, that virtuous dynamics had to be promoted by subcontracting networks connecting specialized suppliers (external JIT). However, car MNCs (assemblers) networks, do not behave according to Argentine expectations, but, rather, further shape new Centre/Periphery relations. The ‘network’ firm notion implies a learning circuit that stimulates endogenous positive externalities specific to the system of relations and, in this sense, they typically exhibit mechanisms promoting innovations and a higher speed of intra-network diffusion of newly generated knowledge (Vispo, 1999).

That notion, however, only applies to the center of the network, located outside the MERCOSUR area. The result is the extension of productive chain with concentration of
creative labor in the center and redundant (routine) labor in the periphery. The fate of the local branches of the car assemblers and subcontracting firms is associated, either to the partial transformation of those creations into material products, or to the delivery of imported products to the final market, with minimum, if any local value added, according to each firm’s ‘global’ strategies: that is in activities which are typical to the periphery of the network.

Thus, the possibility of positioning the country in a development path with dynamic competitive advantages supported by domestic engineering capacities have been relegated to the field of fairy tales. If no creative activities are assigned to Argentina, the call for engendering of nonexistent engineering and design practices does not constitute a feasible feminist goal, even if, occasionally, a few women university engineers could be found in charge of TQC (Total quality control).

Assembly work organization and gender hierarchies at car assembler level:
Assemblers’ strategies do not need to attain the high efficiency of 0 stocks and JIT production to satisfy the requirements of the national markets where the branch is located. There exists, it is true, de-territoriality of production, but creative activities, which are conducive to inventions, take place at headquarters, where important investments in R&D are located, and these operations redefine the limits of the right to communicate (Dantas, 2001).

Hence, in broad terms, it is plausible to argue the continuity of patterns detected in the second half of the decade of the 1990s, i.e., the absence of any genuine implementation of the logic of accumulation proper of the 'Ohnlist/JIT' model (Roldán, 2001; Vispo, 1999). The speed of capital rotation is decided upon according to the 'global' strategies of the MNCs involved, and not by the optimization of production of local (regional) branches. The above-mentioned transformations at world, regional, and national levels help to explain the incompatibility of theory and practice of the 'Ohnlist/JIT' system (including its dimensions bearing on creative informational labor with knowledge 'useful for production' when applied to a peripheral social formation such as Argentina).

Let us bear in mind that the goal of attaining an optimum flow of production by means of an adequate informational organization means that, under ‘normal’ circumstances this model facilitates the generation of new knowledge and the appropriation of previous knowhow of women and men workers. Hence it simultaneously facilitates communication
and interactive learning proper to the nature of informational labor. However, these expectations were not fulfilled in the Argentine examples.

The Center/Periphery divide is logically replicated at this level i.e. intensification of labor, attaining minimum ‘idle time’, very short work cycle time, team labor coupled to the cycle of production, and based on a 'summing up' conception of the skills of the personnel that prevents interactive learning, and leads to the predominance of routine informational labor with the disfunctionalities proper of *sui-generis* JIT supplying of parts and components without local productive linkages. The elements of control over labor coincide with those already detected by the literature critical of the 'Japanese model' while the traditional pattern of male gendering of labor employed at the assembly plants continues.

Training carried out in firms which specialize in 'low level decision making' tends to be restricted to relatively 'redundant' features of the labor process, those in which the personnel in charge of informational labor have not yet been replaced by machinery. There is no available evidence, hence, of instances of labor 'humanization' as it was promised by the best publicized representations of 'lean production' in the terminology of Womack et al., (1991), and the new literature relating knowledge generation, labor organization, learning and innovation for development. If ICTs and development of human resources are at the center of the new technological cluster based on these technologies, these clusters are absent from the Argentine landscape.

**Autopart Firms Level**

The evolution of the autopart industry reflects the same tendencies of transnationalization low production volumes, high percentage of imported pieces and components, and the drastic reduction in the number, production, and employment offered by small-scale national capital enterprises. This sector was practically eliminated from the market.

*Work organization and gender hierarchies in the autopart firm level:* Available evidence suggests the replication of the pattern of adaptation found at the level of assembly plants, i.e. the *sui-generis* and heterogeneous adaptation of elements of the 'Japanese model' in accordance to product, market, and national or transnational ownership of the firm. Also absent from this stratum, is the systemic search for time economies proper to that model. In addition, according to Yoguel, Novick and Marin (2001), technological transference between levels of sub-contracting is low due to the high imports content.
Although the technological dependence of subcontracting firms vis-à-vis assemblers is a proved fact, it has not yet been accompanied by in-depth studies exploring the creative-routine dialectics of informational labor at small scale autoparts firms, whose 'incremental' and hidden innovations may explain the invisibility of creative features not officially registered. (Roldán, 2000a). The engendering of these processes replicates historical patterns of women's insertion into this industry studied in depth for the period 1960-1990 (Roldán, 2000a). In other terms women and men are incorporated into (previously invisible) new or old hybrids of the 'Ohnism/JIT' model. An increased process of masculinization in the 'polyvalent' gendering of the 1990s seems plausible in the absence of relevant data.

Considering the labor processes involved in autopart production only, this general observation may be qualified at the level of type of labor processes involved: 1) whether these are processes previous to assembly, demanding the display of aptitudes pertinent to the broad spectrum of the 'Knowing how to do' variety, including those I called 'technical' skills for the operation and/or setting up of qualifying machines, and the 'Knowing how to be' variety, be they individual or group ones, according to the level of adaptation of given techniques; or 2) of assembly itself, which is generally manual assembly, among nationally owned firms that demands a display of labor 'with knowledge useful for production' in which redundant elements predominate. In addition we must consider the possible existence of different productive and articulated logics within the same plant. In the example of Roldán (2000a), one of them pursued economies of scale was based on processes with Taylorist/Fordist dimensions of maximum fragmentation and speed in individual operations. The second and crucial one is a logic of 'hidden sui generis Ohnism' pursuing economies of scale and variety, in the production of smaller lots, based on team labor organization for the operations of assembly and finishing of the family of filters called 'of nafta type'. This form of organization made possible the attainment of maximum efficiency, in a Just-in-Time hybrid that covered two complete work schedules, plus the integration of homework.

In other words, there does not exist one unique relationship between the model that is being hybridized, and its male or female engendering. Among the intervening factors we may mention (1) the product on which it is being applied; (2) the relevant processes involved in its execution; (3) the absence or presence of ICTs, demanding monitoring and problem solving abilities in real time; (4) what social actors offer needed aptitudes for its production including technical knowhow pertaining to the 'Knowing how to be' variety, and tacit (memory) skills; (5) the lowest cost and maximum performance potential; (6) the legitimacy
of the contract (Collective Agreement) applied; and (7) the historical moment and in the locality being examined.

Field survey shows that women in production may be incorporated into teams, operate ICTs and participate in ‘up-to-date’ teamwork lines. This very much depends on the evaluation each firm carries out about the economic and political (control) advantages and disadvantages of hiring women workers including the influence of the androcentric trade unions. Within this broad panorama, there are several interplaying elements: the gender composition of the restructuring experience (are these female or male sections), the conditions of the local labor market; the phase of the domestic cycle that potential workers are going through (in the case of women if they are young or mothers who offer ‘certainty of responsibility’); factory and trade union experience (or its absence) among others.

In a stage of 'crisis', such as the one of the period under study, the exercise of the diverse aptitudes of the 'Knowing how to do' and 'Knowing how to be' varieties displayed in teams, and the generation and appropriation of tacit skills (memory) of women workers, that in various stages were forbidden or ignored by the Metallurgical Collective Agreement, were made public. Firms can now hire (young and higher educated) men to display a broad spectrum of aptitudes comprising technical and non-technical skills, at no additional cost. To a certain extent, which operations are female and which are male have changed, but the gendering of space has extended down.

All men have more responsibilities than before and exercise skills that were previously considered women's skills. But, given the present mix of production, it becomes more economic and politically correct to 'bring down' 'men of the trade', who provide the whole spectrum of aptitudes needed, than to 'bring women up'. This would require additional training (that men already possess) at additional costs. Pre-existing gender relations are thus incorporated and re-composed in the capital-labor relation that is being re-constructed.

**Concluding Reflections**

From the outset, my main concern was with the contribution of information-communication-knowledge to capitalist development, and with the ‘battle of significations’ over that contribution ingrained in the transition from Information to Knowledge Societies debate. The debate on ‘transitions’ implies contending definitions of development and kindred Public Policies to make it come true. Hence the terms of the ‘battle’ had to be clarified from the outset to ascertain their coincidence or divergence from the notion of development adopted
in this article. The theoretical-conceptual recognizance exercise focusing on the neo-liberal and liberal (institutional) socioeconomic schools had that objective in mind.

Both schools concentrate on the dynamics of 'End of the Century' capitalist development, and highlight its informational, scientific, and technological features that a number of its adherents associate to the construction of Information or Knowledge Societies. Moreover, both schools require a congenial 'global', regional, national, and local regulatory framework deemed to be conducive to that development objective. In this sense, the Bangemann and the HLEG Reports are projects on regional growth that given actors – TNCs, nation-states, and/or supra-national bodies – sustain in their dispute on the future of the world economy with their North American and Asian counterparts. This requires developed regions to produce ‘global’ legislation to protect telecoms industry and operators business interests, their alliances, and regulate competition the world over. In this sense, neither of the two Reports supports a definition of socioeconomic growth leading to development as defined in this article.

Yet there are also substantial differences between both paradigms, derived from their philosophical underpinnings and conception of human nature. The institutional school promotes nation-state and EU Policies based on human resource development that should include those women and men still excluded from highly industrialized European societies. Moreover, the HLEG Liberal emphasis on production, its critique of the technological determinism of the neo-liberal school, and the privileged position of private sector interests in the transition are a necessary antidote to the neo-liberal tenets that characterized the Latin American scene during the 1990s. The European experience, and the critiques from Radical political economy both constitute the core of the Southern Latin American debate on possible ‘transitions’ from the mid-1990s to the present.

The Argentine experience is very instructive in this respect. In retrospect, it seems logical that in the absence of State Policies in the areas of science and technology, education and knowledge-intensive industrial growth, there would be no advance towards the construction of information-knowledge-based development. The initiatives concerning the official construction of a national Information Society reveal a technological determinism rejected in the HLEG Report, and lack of understanding of information-communication as a productive force in its own right; a diffusionist approach of the type ‘if access to ICTs is generalized, an Information Society will emerge’ is seen.

The embeddedness of the Argentine Information Society project into a neo-liberal paradigm, as applied in the periphery prevented the attainment of even the modest European
advances in this field. When applied in the European developed macro-region, the paradigm produced an Information Economy, whose transition to Knowledge and eventually to Wise Society is yet to be accomplished. In Argentina, instead, the same project made possible the reaping of record profits by the same mainly European MNCs in the newly privatized telecom industry and services operation sector, amidst the dismantling of the remnants of the former welfare State. If, according to the HLEG Report, many types of Information Societies will exist in the future, Argentina doubtless qualifies for a peripheral position in that race.

The new virtual value chain, work organization and gender hierarchies: The above finding is replicated by the evidence from case studies bearing on the construction of a new virtual value chain through automobile MNCs network in the MERCOSUR area. The concentration of R&D, and creative informational labor in the center of the network is a common feature of this trend. After a decade of fieldwork grounded research, it is a established fact that, be it in the automotive or in other sector, the 'Ohnist/JIT' model will be transferred if it constitutes the support of strategies of capital accumulation considered the most appropriate for a given oligopolistic supply, expressed in trajectories of multi or transregional internationalization. The incorporation of ICTs, and the subsequent replacement of human informational labor depend on decisions taken at the center of the network.

Its engendering in assembly plants and autopart firms studied, however, follow the hiring criteria and specific strategies of profitability and control adopted by the firms involved. Learning for innovation seems seldom in practice in the Argentine case. It is possible to conclude that the models which are hybridized are not the only ones possible and/or desirable, but that the existence or absence of forms of regulation of competition, in accordance to principles of labor 'humanization', (in their signification of growth of the capacities of the personnel and power for its exercise) constitutes a fundamental difference.

In sum, a potentially beneficial informational denouement from FDI in Argentina is neither easily constructed nor foreseeable in the immediate future. The neo-liberal 'institutional shock' of the 1990s did not implement a Virtuous Circle leading to development, but a non-Virtuous dynamics generating informational underdevelopment. It developed a context that prevented not promoted, the display of the human and productive potential of a society that would promote a Knowledge, and eventually a Wise Society to guarantee the exercise of the economic, social and cultural Rights of women and men workers inherent in the broad definition of development.
Given that the non-Virtuous concatenation itself is the product of a human construction, it is imperative to examine the possibilities of its engendered reversion in Southern Latin America. I will stress three dimensions related to national and regional Public Policies, feminist interventions, and the need for joint engendered informational labor in future theoretical–political endeavors.

In the first place, the reflection on information-knowledge based capitalist development allows us to detect a crucial focus of new Public Policies that remains invisible specially under the orthodox approach. This implies a new economic-political agenda placing Knowledge-based industry, education, science and technology, the democratization of communication, and the socialization of information, at the center of the debate. This to say, an agenda for the promotion of all the dimensions and conditions conducive to creative or 'artistic' labor: that labor which valorizes capital, as a necessary condition for the generation of development.

With regards to Active Industrial (Productive) Policies, it is paramount that any society's reservoir of interactive learning and new knowledge generation may be extended along productive chains being developed within the same country or region. Otherwise, in the near future, the only type of informational labor that may be relegated to the (male) periphery could be that of engineers, scientists, and skilled operators only trying to control machinery reproducing a given foreign model: be it of a car, a tool, or any other product. Let us not forget here the useful suggestions given by the HLEG Report in the sense that public information services could constitute one new engine of growth in the future Information or Knowledge Societies still to be created in Latin America. Employment creation, mainly in production-related and social/personal services is not inimical to information-knowledge base development. The generalized introduction of ICTs need not be a synonym for unemployment. But it certainly involves careful and life-long re-training of the able population and autonomous national and regional regulatory frameworks. These policies could confront the 'brain drain' of students and advanced researchers towards central countries, an exodus that represents a real subsidy to the developed world, and that compensates for its shortages in R&D investments.

However, are the above national Public Policies feasible in Southern Latin America? Policy articulation constitutes, in my view, a sine-qua-non condition to ensure the success of a much needed alternative, human rights-based development project, at the level of each Latin American country concerned, and, simultaneously at MERCOSUR level also, provided a new configuration of this regional scheme meets with success.
I have argued that the transition to regional growth in the context of contemporary 'globalization' is a product of complex processes excluding the majority of the world population. These are processes of internationalization of capital that, in spite of its origin in central economies, and in their macro-regional 'developed' expression (NAFTA and the EU in particular) find their 'custom made' space through lax, peripheral MERCOSUR norms. Hence, solutions raised at national and regional levels would remain 'good intentions' only if those causal linkages are ignored. This implies the examination of the world context and the restrictions that this context imposes on the domestic plane of each country involved, as well as on the concomitant regional evolution of the South.

In this sense Public Policies related to the construction of Information/Knowledge/Wise Societies meet special resistance from developed macro regions. The logic of contemporary capitalism, Brazilian economist María da C. Tavares (2002) argues, comprises an institutional context that is undergoing profound reforms in order to make possible the appropriation of information value through processes of privatization that deprives it of its social character. She also shows how inefficient our interventions in these matters have been, as they could not prevent the transformation of telematic networks into new instruments of domination and exclusion. We must make of information a public product, a public resource, that cannot be privatized or appropriated, she argues.

In this sense, only a congenial, and alternative international institutional context may provide the appropriate feedback necessary for the design of alternative macro economies, the 'natural' frameworks of the Virtuous Circle being promoted. The core of this virtuosity is the recognition that signical production (significative codes) is crucial, and that we are only at the initial stage of understanding how significative codes are generated and communicated in any social relationship, and in economic relations in particular. However, as a consequence of the privatization of information now in progress, indigenous codes (old and new theories and discoveries), are often internationally appropriated, while these same societies frequently lack access to developed societies' new codes. As a result, the human society is being divided into those who have, and those who have not, and this must be resisted. But if new active Public Policies to confront neo-liberal underdevelopment are required, these must be 'gender sensitive', a challenge to contemporary Feminism.

In the second place, the raison d'être of feminism has always been the abolishing of gender asymmetries that, articulated to class and race/ethnic hierarchies perpetuate themselves in the universe of labor and society in general. In effect, women – albeit in lower numbers than in previous decades in terms of 'formal' employment – continue incorporating
themselves into paid, mainly routine informational production, providing special nuances to engaged realities of work hierarchical organization.

To reverse this trend, predominant Southern Latin American Feminist implicit thinking on development ought to be revised. In effect, while rightly criticizing the WID (Women in Development) approach, the neo-liberal GAD (Gender and Development) literature sponsored by international donors has often proved even more limited, if not dangerous, for poor women’s survival. If WID was criticized because it represented modernism, GAD postmodernism has done even worse, by replacing the limitations of the nation-state with a voluntaristic logic of individual women’s empowerment, a politics that can only result in unheard of levels of deprivation for the vast majority of working women in the South.

Moreover, the role of ethics in feminism and particularly in economics and in practices and ideologies diffused by ‘feminist’ NGOs that sponsor a false dichotomy between market and the State, must urgently be re-examined. This dichotomy has been found a false one, manufactured to get governments ‘off the hook’ and particularly suited for consumption in the South, at times when it had already been corrected in the North. The intricacies involved in constructing an alternative agenda, based on the effective implementation of the ICESCR were incisively discussed by the Feminist contributors to WIDE (Women in Development in Europe) as early as 1998. Unfortunately, no comparable discussion has taken place within Southern Latin American feminism.

It is necessary therefore, that Feminists in this area have information-knowledge based development considerations in mind when approaching these issues, taking into consideration pertinent national, regional and also international regulations. How are those issues related to world capitalist development dynamics, network enterprises, the new virtual value chain, R&D investments, and its work and learning organization implications? The engendering may be local, but the contexts that allow or do not allow the possible practices to be ‘appropriately engendered’, are not created locally, and the active solidarity of our sisters (and brothers) in the North is urgently needed to change them.

To act otherwise, would mean to resign ourselves to struggles over redundant, routine labor that men are already resisting. Unfortunately, institutionalized Southern Latin American Feminism, has often assimilated ‘the salvation’ of a few women, to the accomplishment of gender equity in development. It is imperative, then, to be very careful about what Public and private policies we are engendering. Are they, by chance, policies to
enhance the business interests of industrialized advanced macro regions, that are simultaneously preventing sound, genuine, development policies in the periphery?

The often promoted insertion of women into the last fragment of the new virtual value chain, does not contribute to structural development in the area, and also prevents the exercise of women’s human rights. The incorporation of young women into *sui-generis* versions of ‘Ohnist/JIT’ practices taking place in industry, in services, in supermarkets and subcontracting chains, and presently considered legitimate and made public because of changes in labor laws cannot be considered a triumph of the women’s liberation movement from a perspective of development. On the one hand, the ‘Japanese model does not bring the long promised ‘humanization’ of work practices. On the other, as the model is hybridized in contexts associated with polarizations, exclusions, increasing unemployment, and trade union vulnerability, its negative features are exacerbated.

In coincidence with Marta Fontenla and Magui Bellotti’s (1998) critical Latin American feminist manifesto, it is important to stress that the mobilization needed to redress such practices is not exhausted by ‘lobbying’ before international agencies, such as the IMF, the WTO and the World Bank. Neither can it be limited to local level mobilization only. The articulation of levels of mobilization – including women’s and men’s agency exercised at the local level – for the vindication of human rights to development comprises joint solidarity action of women and men in the North and the South. Of course this means that without a generalized awareness of the indivisibility of human rights in the North, actions in the South will not be sufficient. Facing the challenges posed by possible transitions from Information to Knowledge/Wise Societies remains a major task for Southern Latin American Feminism.

In the third place, there exists the urgent need to acknowledge that a series of theoretical-political development themes have not yet been (sufficiently) elaborated through the lenses of Information Theory. In my view, top priority should be given to the analysis of the immediate social and communicative dimension of women’s and men’s labor, particularly in contemporary capitalist societies. A new perspective integrating Information Theory insights is thus urgently needed to confront neo-liberal and liberal *usines* of significations. This is so, because only through alternative theorizations (codes) the restrictions and biases imposed by those approaches could be effectively overcome.

**Towards development based on abundance?** If countries of the periphery forget the lessons of history, they might find that the informational subordination now in progress,
could be much more difficult to break than any other merely economic-productive, or simply political-colonial linkage, proved to be in the past (Smith, 1980).

This leads to the question: is economics the science of scarcity or of abundance? This is a question that institutional and critical social scientists have raised, that is still awaiting for a suitable scientific reply. Neo-Liberalism, although tempered in some places, is still predominant. But a theory based on the conception of final equilibrium cannot originate neguentropic work, or disequilibrium. It will lead instead to entropy, chaos, death. This does not mean that, ultimately, the laws of thermodynamics might not prevail (Dantas 2002). However, in the meantime, information as a productive force can open an enormous field for the production of wealth, progress, and the general improvement of humankind, now being hampered by capitalist surplus appropriation.

Nobel Laureate, Ilya Prigogine (1993) has written extensively on the needed interdisciplinarity of science at a time when a new dialogue between men and nature is being born. I suggest, therefore, that before men only are involved in this dialogue, women and men scientists, should concentrate following Prigogine’s invitation on the examination of the theoretical, methodological, and political paths that are open in case one assumes the relations between 'noises', uncertainties, growth and informational labor (neguentropy) as a basic economic factor, embedded in the very origin of humankind evolution, history, and perhaps the definition of its future fate.

This is an urgent demand because human rights to development continue to be violated worldwide. I would argue that this is, perhaps, the greatest and most urgent challenge that the still evolving region of the South must face. Yet, is it feasible to establish macro Virtuous Circles leading to development in countries that do not control the regulation of their own accumulation? So far, however, voices of dissent, are few in number, and are not organized. The emergence of new forms of mobilization, integrating world and local forms of agency and struggle, is crucial. I will finally argue that theory and scientific research – as a source of significations of development based on the vindication of women and men indivisible human rights – has a fundamental role to play in these liberation struggles, given that theoretical frameworks, as significative codes, do not only give meaning to reality, but actively shape its very construction.

NOTES
I am referring to the rights upheld by two International Covenants. These are the International Covenant on Civil and Political Rights, General Assembly Res. 2200 A (XX1) adopted for signature and ratification on December 16, 1966 and the International Covenant on Economic, Social and Cultural Rights, General Assembly Res. 2200 A (XX1) adopted for signature and ratification on December 6, 1966. The former Covenant was to enter into force on March 23, 1976 and the second on June 3, 1976. See Mariama Williams (1998) for an illuminating account on the politics and economics involved in the different fate accrued to both Covenants (the first one on civil and political rights is applied, but the ICESCR was forgotten) and on the challenges and problems involved in the elaboration, and measurement/monitoring issues of the Economic and Social Rights.

I am stressing the importance of the ICESCR because it refers specifically to a number of rights that bear directly on the subject of this essay: the right to work (article 6), the right to the highest attainable standard of physical and mental health (article 12), the right to education (article 13), the right to participate in cultural life, to enjoy the benefits of scientific progress and its applications, to benefit from the moral and material protection of authorship interests due to scientific, literary or artistic productions (article 15, para 1, Items a, b, and c) among others, are essential dimensions of the economic, social and cultural rights. Hence, the multifarious search for information-cum-knowledge development paths necessarily involves the design and enactment of 'humane' forms of work organization, i.e. those able to meet the demands of the human right to mental, emotional, and physical capability growth and the power to exercise this enhanced capability including the right to inform-communicate (Roldán, 2003, 2000) or agency of workers in the production of knowledge and information and control over both. This is the signification I give to the articles 6, 12, 13 and 15 of the ICESCR (1966), quoted above.

See Brenner, 1998; Chesnais, 1996; among others, and statistics from a diversity of international sources such as the World Bank and the UN. See in particular ECLAC (Economic Commission for Latin America and the Caribbean) Reports for this area.

The significant term 'information' originates from the Latin *infomatio*, -onis, and refers to 'the action of forming', hence the verb *informare*, meaning 'to shape or to model' (Dantas, 2001, Part I, Chapter 1). However, he reminds us, it was from the Middle Ages onwards, that the value of this type of information was acknowledged in the discourse and practices of economists, employers, investors, and bankers who paid handsomely to those that provided them with 'news' of what was happening in different regions in Europe and the Mediterranean.

In the neo-liberal management conceptual framework devised by Womack, Jones and Roos (1991) ‘mass’ production is superseded by the ‘lean’ Japanese-born model of production organization, a transition that the liberal literature calls from Taylorism/Fordism to Ohnlist/JIT (Just-in-time)
production system. As elaborated in my other texts, both models (Fordist and 'Ohnist/JIT') have in common ‘the search for time economies in the use of circulating capital and machinery and in the application of labor, and the search for dynamic economies as product and process evolve’ (Sayer and Walker, 1994: pp.163-164). Very briefly both models are based on assembly line production in which the structures of the process, the speed of the line, the machine cycle and the 0 stocks principle in the case of the Ohnist model, determine the work rhythm. The differences between them derive from their own logic of time economies – and, consequently, related skills requirements, communicating abilities (or type of informational labor ‘with knowledge useful for production' demands) and ‘typical’ mechanisms of labor control – and from the specific regulatory context that legitimates their successful implementation. Let us remember that the JIT system pursues a goal of increasing the flow of production, but this is a perfected or much improved flow, since it also includes circulation time before and after production. JIT deliveries and distribution and subcontracting linkages become, as a result, crucial elements of the 'Ohnist' model (See Roldán, 2000 a for a detailed elaboration of this topic).

Notice here that neither model requires, per se, the utilization of ICTs (Information and Communication Technologies). Yet, the generalized incorporation of these technologies in the advanced capitalist economies, since the 1980s and 1990s, in particular, certainly influences the potential productivity increases and control mechanisms implicit in both models, while it also implies changes in the construction of labor skills and related learning practices.

5 With regards to skills, that spectrum comprises a continuum of skills ranging from the ‘Knowing how to Work’ to the ‘Knowing how to be’ (‘right behavior’) varieties. The exercise of aptitudes proper to the function I called ‘Delegated Management of Production Flows’ – comprising the ‘administration of production cycle time, of space, and of materials’; ‘reprogramming of production and communication’; ‘self-control of defects’ and ‘problem solving’ types of skills constitute a crucial dimension of Ohnist design. Several features also contribute to this same effect; of communication and interactive learning 'on the job training', the use of kan ban cards (as elements of a labor code and as a mechanism for the decentralization of informational labor and, hence, as a means of communication, within a totally centralised planned system); the 'continuous improvement' principle, Quality Circles, the enforced duty to 'volunteer' improvement suggestions, among others. Finally, let us not forget the mobilization of the knowing 'pulsión' of the personnel, through the stimulation of 'creative thinking'. These are all mechanisms that influence the processing of the creative elements of the same labor process.

6 See Chesnais (1996) for examples of the critical political economy tradition, based on Marxian development thinking (also called 'radical' economic thinking in the USA). Brenner, 1998, and some of Boyer's texts can also be considered among those pertaining to this school. See other texts by
Chesnais for an elaboration of the concept of Regime of Accumulation with Financial Domination that would be prevailing in the USA and the UK.

7 The following ‘Mondialisation’ features are directly relevant to the shaping of the context within which our problematic is embedded: the hyper mobility of financial capital; the increasing importance of FDI (Foreign Direct Investment) instead of foreign trade as the main axis of internationalization trends; the emergence of intra-sector and intra MNCs or TNCs (Multinational or Transnational Corporations) trade as dominant forms of foreign trade; and the concentration of monetary, FDI and commercial flows in the central economies, among other trends. These processes are commonly associated to the restructuring dynamics of industrial MNCs on the basis of ‘network’ enterprises combining the centralization of capital and the decentralization of activities; through new forms of management and control; modes of subcontracting; and the possibilities offered by the incorporation of ICTs, particularly if they are accompanied by the adaptation of the ‘Japanese’ and other flexible models of work organization.

8 Chesnais (1996) argues with reference to Science and Technology in the USA: ‘A financially dominated Regime of Accumulation does not produce Science and Technology’. Its goals are very short-run and seek immediate profits. Financial domination also implies that investments in R/D previously undertaken by MNCs are no longer sufficient. In the case of developed economies, such as the US one, the most important mechanism to counteract this trend is the intense and continuous in-flows of students and advanced researchers that have benefited that country during the decade of the 90s. The inverse situation is found in the peripheral countries, which suffer the brain drain, deemed to be higher than the financial drain and the payment of the services of the external debt.

9 Of the 12 ECLAC documents and publications on the theme ‘Information Technologies’ written between June 2000 and January 2003, only one is engendered. This document, from the Women and Development Unit, focuses on Women and ICTs, and does not deal with Information and/ or Knowledge Societies debate or with development issues. The Women and Development Unit of ECLAC (Women and Development Series) produced 44 texts between September 1989 and February 2003. Of these, only 2 bear any connection to the Information Society debate. The first one on Women and ICTs, was written in 1991 and is not available online; the second one is the one mentioned above.

Although the ECLAC sponsored Experts meeting does not focus on Information or Knowledge Societies as such, I mention this brief text (a 15 page summary) to underline some themes related to the subject matter of this article. To start with, the meeting was called to identify the most relevant aspects of the opportunities and restrictions that processes of economic globalization and
technological change raise, in order to reach a higher degree of gender equity’, and, ‘to debate and propose an organized research agenda in these areas’. (Item 13. Emphasis added. My translation).

10 See Becerra, 2003 for a useful account of the history ‘Information Society’ projects in Argentina as well as for Science and Technology legislation bearing on this topic. See Azpiazu, Basualdo and Schorr, 2000 on the changes of the Argentine industrial Establishment, and its association with financial capital; the evolution of the fractions of the power bloc, of the industrial 'top' enterprises (cúpula), and external trade of the same 'cúpula'.

REFERENCES


Sayer, A, and R. Walker, 1994 The New Social Economy. Reworking the Division of Labor, Cambridge; Blackwell
SCANS Report (1991) The Secretary’s Commission on Achieving Necessary Skills US. Department of Labor, June


