HIGHER EDUCATION IN THE KNOWLEDGE ECONOMY

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INTRODUCTION

During the last two decades starting from the industrialized countries, transforming higher education systems for the changing socio-economic structure, i.e. moving to post-industrial society, has gained a central role in the policy papers for economic growth and increasing competitiveness. These policies have been highly embraced and imposed by OECD and World Bank not only to the developed countries, but also to the less developed countries almost as the only way for development and competing with developed countries in a global knowledge economy. Following the goals of Lisbon strategy for becoming the most competitive knowledge economy in the world, the EU also increased its programs on establishing the necessary higher education structure for knowledge economy. Despite it did not emerge as an EU policy, including non-EU members, Bologna Process increasingly gained that function by promising to establish European Higher Education Area.

In meantime, the academic studies on higher education from management sciences, educational sciences and economics among others have been focusing on internationalization of higher education; governance, financial structure and accountability of higher education institutions; new teaching methods, use of technology in education, new pedagogy (i.e. constructivism, lifelong learning, student centered learning), curriculum reform; government-industry and university cooperation and so on. These studies have been useful for the governments and the higher education administrator to specify and realize their strategies for implementation of such reform process, which is still in place for many countries. These studies seem to have already taken granted the shift in the socio-economic structure of the societies and have accepted their role in serving to the new needs of through restructuring the education systems. Thinking, otherwise, i.e. their unawareness of the context these reforms are taking place would be at least, pessimistic for the scientific community. However, observing limited number of studies that provide a broader perspective to this reform process by taking into account the history of higher education, the premises and actors of the socio-economic change, arguments for the changing function of education etc. from the perspective of political economy or social sciences in general, increase such pessimism. This should be an outcome of increasing dominance of positivism in those fields leading them to limit their studies on the concrete facts they observe and policy-oriented research.

The aim of this paper, then, is to attempt to explain the context behind the demands for transforming the higher education systems mainly, on the basis of political economy

perspective. As such, the current debates on higher education reforms definitely fit under the dominant discourse on creating global knowledge economy underlined by the premises of neo-liberal ideology and should be analyzed as the policy implications of it in the higher education area. Accordingly, the study will begin with outlining the theoretical basis of the discourse on knowledge economy based on the works of Hayek, Bell and Drucker who have been influential in development and spread of the ideas emphasizing the new central role of knowledge in the post-industrial or knowledge society. Following this theoretical background a history of knowledge society and the role of actors towards realizing it will be presented.

The second part of the paper will focus on the challenges and implications of such framework on the higher education policies and in the conclusion the possible positions against the pressures on the higher education systems will be evaluated.

A. THE DISCOURSE ON KNOWLEDGE ECONOMY

The post-war settlement in Europe from 1945 to 1970's was based on the Bretton Woods monetary system, industrialization, Fordist mode of production, Keynesianism and welfare state, briefly. This consensus came to an end in the period of oil crisis of 1970's giving way to a new ideological order lead by US and international organizations of IMF, World Bank, OECD, and WTO to provide new mechanisms for capital accumulation and expand capitalism globally. These mechanisms included flexible exchange rates, expansion of financial market, idea of a minimal but strong state, opening up new external markets, government cuts on social expenditures and so on. This period connoted revival of classical liberal arguments of individualism, entrepreneurship, competition, productivity, effectiveness with neoclassical economy, against social democratic principles of equity, social justice, full employment. Despite these policies have been implemented starting from Chile under Pinochet (1973), and followed first by Great Britain under Margaret Thatcher (from 1979) and the United States under Ronald Reagan (from 1981), its dominance under the label of neo-liberalism have been marked since 1990's.

The socio-economic transformation in such context have been named by various phrases of post-Fordism (Amin), post-modern society (Lyotard), post-industrial society (Bell), Late Capitalism (Mandel) from different perspectives. If these are considered as discourses towards constituting the new regime or labeling it, neo-liberalism proving to be the dominant one, the discourse on the knowledge economy can be read under the neo-liberal framework. Thus, it is not a coincidence that the policies towards constructing a global knowledge

economy have gained significance especially for World Bank, OECD and UNESCO among other international organizations. In this part, the theoretical background and policy actions towards constructing global knowledge economy will be examined.

a. Forecasting knowledge economy: Theoretical underpinnings

The aim of this section is to analyze the development of the arguments for a knowledge economy in parallel to the rise of neo-liberal hegemony. Our analysis will be on the works of Hayek, Bell and Drucker to outline the main arguments strengthening the claims for emergence of a knowledge economy. These writers are chosen due to their contribution to idea of centrality of knowledge in the market and new socio-economic structure in a new meaning and function. Hayek (1899-1992) is a rather early theorist of such ideas, who is well known as giving the first inspirations for neo-liberalism. Daniel Bell (1919-), is an influential sociologist who was among the first to announce the *'End of Ideology' (1960)* and the *'Coming of Post-Industrial Society' (1973).* Finally, Peter Drucker (1909-2005) is a writer and management consultant who wrote plenty of books on management and new economy, contributing to development of principles of management in knowledge society and the concept of *'knowledge worker'*.

i. Hayek: Economics and Knowledge

Hayek was a member of the Austrian School which is distinguished from the classical school of political economy pioneered by Adam Smith and David Ricardo, on their 'subjective' theory of value, as opposed to the 'objective' one, questioning the notion of perfect information that was seen to underlie *homo economicus* by both classical and neo-classical economists (Peters 2003, 157). In his article titled *'Economics and Knowledge' (1937)* Hayek discusses the role of knowledge in sustaining equilibrium in price system and rejects the idea that equilibrium is reached by the deliberate decisions of the individuals based on objective data. On the contrary, he argues that it is subjective foresight or *'social mind'* that sustains equilibrium spontaneously. Here he makes a distinction between two concepts of "data". Objective real facts, as the observing economist is supposed to know them, and, the subjective sense, as things known to the persons whose behavior is tried to explain and the prominence of subjective data in analysis of equilibrium makes the statistics provided on objective data rather irrelevant. To him then, the central question of all social sciences should be:

> …To show that in this sense the spontaneous actions of individuals will, under conditions which we can define, bring about a distribution of resources which can be understood as if it were made according to a single plan, although nobody has planned it, seems to me indeed an answer to the problem which has sometimes been metaphorically described as that of the "social mind." (p.11.)

He concludes that, the assumption of a perfect market, then, means nothing less than that all the members of the community, even if they are not supposed to be strictly omniscient, are at least supposed to know automatically all that is relevant for their decisions. The question follows as how much knowledge and what sort of knowledge the different individuals must possess in order that one may be able to speak of equilibrium. Respectively, he introduces the concept of 'division of knowledge' analogous to the problem of division of labor.

Later in his article *'The Use of Knowledge in Society' (1945)* following the emphasis he made on knowledge in his earlier article, he defines the problem of a rational economic order as *utilization of knowledge* in the sense that it would secure the best use of resources known to any of the members of society, for ends whose relative importance only these individuals know. This brings him to the discussion on whether central planning or free market can provide the best practice of utilization of knowledge. He is not against the idea of planning, but rejects the central planning on the grounds that the necessary knowledge, mainly subjective one (for example, availability of a certain resource or demand for it at a specific time and place), cannot be summed in the hands of one single person or authority, since statistical information cannot provide it. As equilibrium is sustained by spontaneous decisions of individuals based on their subjective data, it is competition that works more efficient by de-centralized planning. If the main issue in economic life is to adapt to the changing conditions in time and space, the decisions should be left to the individuals who best know about the conditions or their active cooperation. (The similarity between this idea for the market and construction of reality or truth by inter-subjectivity spontaneously according to postmodern thought should be noted here). Expectedly, these arguments of Hayek were targeting the Soviet system and the rise of government intervention, central planning and bureaucratization in Europe.

Finally, once again, connoting the postmodern critique on scientific knowledge, while pointing that it is almost heresy to it is almost heresy to suggest that scientific knowledge is not the sum of all knowledge in his time, he emphasizes the importance of unorganized

knowledge of particular circumstances of time and place which cannot be called scientific, in the sense of knowledge of general rules. This type of knowledge, left outside the conception of general scientific knowledge, including practical knowledge of doing things, experiences, communicating information etc. gains a central role in construction of knowledge economy and by shifting the meaning and function of knowledge in society, challenges the role of scientific institutions, i.e. the universities; the knowledge producers and disseminators of modern society.

What Hayek emphasizes is the role of knowledge from the competitors' side in the market mechanism and its efficiency for utilization of knowledge to reach equilibrium. This role explains the significance given to the improvement of communication technologies and information systems as the infrastructure of globalizing both the market of goods and services and the financial markets. Furthering this argument, as distribution of knowledge will also be on the competition basis, the commodification of knowledge as a good or service will be justified, proving the tendency in capitalism towards earning profit from any necessity.

ii. Drucker: Post-Capitalist Society

Claiming the end of the socio-economic characteristics of industrial society Drucker announces the coming of 'post-capitalist society' in his book with the same title (1994). Towards this conclusion Drucker lists three revolutions in history based on the changing function of knowledge; industrial, productivity and managerial. He argues that till the 18th century knowledge had been related with existence but not with 'doing'. Both in the ideas of Socrates and Protagoras in ancient Greece and Confucius, Zen and Taoism in the East knowledge has been the way for knowing the self, wisdom and enlightenment; intellectual, ethical and spiritual maturity of the self. In ancient Greece, the practical knowledge of how to do specific things was named 'téchne', which was respected but not accepted as knowledge. In 18th century, this word have combined with 'logy' to sign its unity with organized, systematic knowledge on purpose. It has been the industrial revolution to signify the practical knowledge of doing things. Consequently, with training of such knowledge peasants were transformed into the factory workers. Drucker repeats two typical liberal arguments here. First, with a technological determinist approach, he defends the inevitability of the emergence of capitalism originating from technological change and new technologies, based on the demand for capital, intensive production, organization of production at factories and as a

consequence of the need for energy; steam power (p.47). Second, against Marxist thesis on exploitation and alienation, which are observable in the working conditions of the factory, he points the willingness of peasants to become workers in the factories to have better! living conditions. The same argument is currently used to legitimize the exploitation occurred mainly in South Asia and other regions of the world due to the organization of production in global scale for increasing capital accumulation.

The second revolution, productivity, have risen with Taylorism. By using knowledge for organizing work for increasing efficiency and productivity, Taylor invented scientific management. For Drucker, this was much revolutionary than Marx's works, as Taylorist management would be common interest of the worker and capitalist, diminishing the essence of the conflict between the proletariat and the bourgeoisie. The output of increasing productivity have been used for improvement of life standards, purchasing power and entertainment facilities from which working class have benefited more than the capitalist. The same idea of self-seeking individual works here; workers have kind of a deal with the capital owner to share the output of his/her work, disregarding the reality of exploitation and alienation.

To increase productivity, Taylorism have improved the ways for vocational training, training at work, apprenticeship and learning by experience. When this revolution have reached its limits to increase the productivity of physical labor; it became necessary to increase productivity of non-physical labor by applying knowledge on knowledge. This has taken place by managerial revolution, leading to post-capitalist society.

According to Drucker, the management revolution begun from 1945 already but its supremacy in the world took place in 1990's. The peculiarity of the post-capitalist society rests in the core of the discourse on knowledge economy; knowledge is the only meaningful factor of production as labor, capital and natural resources lose their significance existed in industrial/capitalist society. Here, knowledge is used as effective knowledge for reaching social and economic outcomes. As an outcome of the change in the factors of production, the social structure shifts by creating new social dynamics and policies. Management, both in public and private institutions, in this new society should focus on how to use the existing knowledge for getting results and forecast which new knowledge is necessary. Knowledge is to be used systematically for getting useful knowledge. Compared to the earlier stage, the manager is not responsible for the performance of the workers but the application and

performance of knowledge. In other words, the non-physical labor of this stage is provided by knowledge workers, who receives, organizes, processes information; designs and develops it is for its use in a specified area.

This is the basis for the arguments for a knowledge class in knowledge economy/society that is composed of specialists and professionals who are able to manage the available information (also in Bell's framework). It is claimed that this new class, owning the main factor of production in the new economy/society, will have the power to create a new social system departing from the profit maximization ambition of the capitalists. The defenders of the idea of knowledge society, like Bell, who predicted the sociologization of knowledge in this new society, assumed knowledge as a public good, production and use of which would be utilized for the benefit of all citizens. Some critical writers on the other hand, have conceptualized this new knowledge class as the new working class of the age (for example, Ergin Yıldızoğlu and Ünal Nalbantoğlu). The struggle on defining and manipulating the new social dynamics of the emergent social formation especially on issues like calling knowledge as a global public good, governing the production and dissemination of knowledge (private or public), the position of knowledge workers, applications of new information and communication technologies (ICT), redefining citizenship (cultural, multicultural, technological…) and so on. These debates are influential in our topic on higher education, since similar questions like whether higher education is a public or private good, can it be privatized, how can equal access to higher education be sustained, role of universities in democratization of global society are all going on as a policy debate on above theoretical grounds.

As will be discussed, the developments however show the realization of Drucker's arguments under the discourse on knowledge economy especially in the labor market and education related to it. Drucker, suggested to developed countries to invest on knowledge economy instead of manufacture industry. His idea was, the need for employment of blue color workers is decreasing and can be sustained from the less educated people of developing or underdeveloped countries. To compete in the knowledge economy, states should give priority to creating knowledge workers to be employed in expanding service sector, and provide measures to increase their efficiency. At this point, it becomes necessary to reform all levels of education for sustaining the necessary (non-physical) labor power for the knowledge economy.

As a guide for knowledge economy, Drucker has propositions for this field as well. In knowledge economy, the schools should be included in the society rather than being owned by it. Serving for all age groups (lifelong learning) and being accountable for their performance and results (as an enterprise) are outcomes of such inclusion. Schools should rapidly adapt to the technological change in education and develop new techniques to provide necessary knowledge for its students. Computers will play the role played earlier by press machine in spreading knowledge and increasing literacy rates. The new beneficiaries of schools should become lifelong learners who are able to learn by themselves. It is the responsibility of schools to support knowledge economy with the knowledge workers who are experts of 'téchne', but also a global and multicultural knowledge class of managers and intellectuals.

Concluding Drucker, his influence in introduction of the concepts of knowledge worker, knowledge class, managerial revolution are clear in setting the background the discourse on global knowledge economy, today. His prepositions also give us the clues on the relation between development of knowledge economy and resulting demands from education policies for creating a new type of person which will be dealt in the section on higher education.

Before passing to Bell, the irrelevance of the label 'post-capitalist society' should be noted. Drucker, insists that this society will still be based on the free market mechanism. Then, it is only the change in the factor of production that Drucker finds enough to go beyond capitalism. This is because he equalizes capitalism with the industrial age, and limits Marxist position to the same historical era. Doing so, when he gets rid of the industrialists' ambitions for profit maximization, he assumes that the struggle of the working class will lose its meaning as well. He is absolutely mistaken first by isolating free market, the core of capitalism in his analysis; second, by assuming capitalism as an ideology of industrial era, third, by degrading the position of the laborers to beneficiaries of the improving productivity of their own labor and new technologies. The list can be furthered. Mainly, Drucker, disregards the main distinguishing characteristic of capitalist mode of production; which is production for exchange value. If the free market is prevailing in the post-capitalist society, thus will capitalism. The shifts in the factor of production, if that's the case, would imply only a new phase of capitalism, call it late capitalism (Mandel) or neo-liberalism which generates new mechanisms for capital accumulation and spread of the logic of exchange value to all spheres of human life.

iii. Bell: Coming of Post-industrial Society

Daniel Bell is well known for his conceptualization of post-industrial society. He also accepted to use the term 'knowledge society'[1] in some of his later works. It is not the concept but the content to be examined and the society Bell defines in his book '*The Coming of Post-Industrial Society: A Venture in Social Forecasting' (1973)* is not far from the one foreseen by the supporters of knowledge economy.

He classifies societies historically in three titles. First is *pre-industrial,* which is extractive, having an economy based on agriculture, mining, fishing and other natural sources. Secondly, the *industrial society* is fabricating, using energy and machine technology for the manufacture of goods. Finally, post-industrial society is processing where telecommunications and computers are strategic for the exchange of information and knowledge (Pp. xi). Trying to escape from technological determinism, Bell notes that he is not taking the influence of technology as an autonomous actor but he uses it analytical element to see the social changes come in the wake of new technologies. The centrality of technological change in his forecast on the characteristics of post-industrial society, and the lesser emphasis on the processes leading to technological changes puts him closer to technological determinism.

If major structural features of industrial society have been labor and capital; information and knowledge[2] are those for the post-industrial society, at the same time bringing intellectual technology as the counterpart of machine technology of industrial society (Pp xiii). Accordingly, he argues, if production is not based on labor in post-industrial society, then one cannot argue for labor theory of value, which should be replaced by knowledge theory of value. The unique character of knowledge compared to labor and other factors of production are that; knowledge is a social product and not consumed or used up, it is the codification of knowledge that becomes directive of innovation and even when it is sold, knowledge remains

[1] The terms of 'knowledge economy' and 'knowledge society' are used interchangibly by many. But some scholars distinguish them deliberately; knowledge economy being used for knowledge capitalism and knowledge society being used for socialization of knowledge and spread of its benefits to all, equally. Also, the difference of the terms can simply be due to the disciplines they have emerged; i.e economics and sociology. Bell, prefers to use 'knowledge society' in both senses.

[2] Bell defines *information* as the storing, retrieval, and processing of data, as the basis of all economic and social exchanges. And *knowledge* is defined as organized set of statements, of facts and ideas, presenting a reasoned judgment or an experimental result that is transmitted to others through communication media in some systematic form (Pp. xiii).

with its producer. Thus, he claims, ‘economics of information’ is different than ‘economics of goods’.

Despite arguing for such radical shift in the factors of production, he is not arguing that the post-industrial society will displace the industrial society, as an industrial society still has the agrarian sectors of the economy. The strength of his forecasting is on the expected outcomes of the change in the factor of production to characterize the new dimensions of the society which are:

- *Economic sector:* the change from a goods producing to a service economy
- *Occupational distribution:* the pre-eminence of the professional and technical class
- *Axial principle:* the centrality of theoretical knowledge as the source of innovation and of policy formulation for the society
- *Future orientation:* the control of technology and technological assessment
- *Decision making:* the creation of a new “intellectual technology” (p.14).

Most of these early assumptions have become reality, however his optimism for emergence of a knowledge society based on socialization and democratization of knowledge did not become true, under the hegemony of discourse on knowledge economy. In his paper on the implications of knowledge economy on higher education Jessop (2008, pp.13-14) discusses three predictions made by Bell and explains why they have failed. The first is that, as noted earlier, knowledge would become the dominant factor of production. Being part of the hegemonic discourse on knowledge economy and its self-representation, this argument fails as it misrepresents knowledge as a ‘factor of production’, understates the extent to which every economy is a knowledge economy, and thereby mistakes one societal self-description for a more complex discursive-material reality. Second prediction is that, the intellectual technologies and a ‘sociologising’ orientation concerned with intellectual planning and the public good would prevail in post-industrial societies contrary to economic calculation based on cost-reduction and cost-recovery in the industrial society. However, growing knowledge capitalism in the knowledge economy have dominated the production and uses of knowledge with a ‘economising’ logic oriented to profit-and-loss calculation. Finally, Bell has predicted that the university would be the dominant institutions in the post-industrial society taking the place of industrial enterprise of industrialism. Similar to the second prediction, this expectation did not come true as in last decades universities are subject to greater or lesser financial, administrative, and ideological pressures, to act more like economic enterprises that aim to maximize revenues, market their education, research, and knowledge transfer capacities, position themselves competitively vis-à-vis other types of supplier of these

services at home and abroad, and, additionally, serve the demands of various local, urban, regional, national, or even supranational knowledge-based economies.

Bell's predictions for a knowledge society and realization of a knowledge economy on the contrary; imply the need to investigate the history of the discourse and policies on constructing global knowledge economy. Without acknowledging the positions of the actors, the role of politics, the economic basis of the transformation process discussing the perspectives on knowledge economy or society would remain as theoretical debates. Relieving the significance of the theoretical positions in establishing the discourses and providing the policy frameworks, the questions on what happened in social reality in socio-economic terms to end up with such concrete outcomes should not be dismissed. The next section is an attempt to provide such framework in brief, mainly based on the work of Mattelard (2001) on the history of knowledge society.

b. Constructing Global Knowledge Economy

As Peters notes, the new global knowledge economy is not just a universalisation of capitalism after the collapse of actually existing communism, it also involves the rise of finance capitalism, supported by the emergence of new information and communications technologies, and a series of international agreements concerning the liberalisation of world trade (2007, 14). This quote once again supports the idea that 1990's with establishment of global capitalism under US hegemony through international organizations and expansion of manufacture and financial markets globally, point a new regime for capital accumulation under neo-liberal ideology. To provide the necessary conditions for functioning of the free global market, and increasing their competitiveness in the new economy governments (of minimal but strong states) have implemented structural adjustment policies, limiting the government intervention, privatizing all available markets, cutting welfare state provisions guided by the credit mechanisms of IMF and World Bank. All these policies, however, could not achieve the expected economic growth globally, compared to Keynesian period, and in the last instance, worked for redistribution of wealth from the lower classes to the rich, increasing the inequalities in income distribution between classes and countries, contradictory to the expectations of liberal writers (Harvey 2007).

For the scope of this paper two points have priority in this context. First is the key but not determinant role of the new ICT in creating information economy and knowledge economy by

providing the necessary flow of information/knowledge signified by Hayek earlier. Second is the development of positions of governments and international organizations in governing and shaping the policies towards constructing global knowledge economy. These aspects will be briefly discussed in this part, briefly. Thanks to the kind of chronological work of Mattelard (2001) the path through knowledge economy can be easily read historically.

- **A history of knowledge society**

Mattelard begins his analysis by noting the significance of standardization of language for uniforming the world, as is the case with the discourses on globalization and knowledge society. Despite the fact that utopias of a universal language have born long before; it has been the informatics language that have strengthened the possibility of realizing it. ICT's availability worldwide creates a standard language of signs and symbols through informatics.

Digitization and countability of things has become possible with algorithms and statistics. This made it possible to collect and manage greater number of data. Starting from industrial society, using this system in production processes and administration of society increasingly presented as a sign of forwardness (i.e. for Fordism and Taylorism). During the Second World War, decoding the enemy codes, improving air forces supported the development of primitive informatics and communication technologies. From 1960's onwards these technologies were used for digitization of knowledge production and dissemination with the contributions of Machlup, F. and Porat U. With these developments, the usage of instrumental knowledge, which is statistical and gains meaning only through technological machines, for policy making have been issued. Contrary to arguments of Hayek against the availability of data for a central authority, US established its National Information Policy in the end of 1970's. This policy was based on the work of Porat (1977) on the data of the National Accounting Office where he classified the computational tasks under six areas: knowledge, industries selling commodity and services, public bureaucracy, private sector bureaucracy, productive public sector, private productive activities and household sector. According to this analysis, knowledge was composing the 46 % of US gross national product and 53 % of the productive sectors already in 1967.

In 1969, Brzezinski wrote a book titled *Between Two Ages: America's Role in the Technocratic Era.* The book recognized the significance of the emergence of technical electronical age and forecasted the role of US in the new age in international relations. His core argument is that; with the failure of communism in uniting humanity universally, and the

diminishing intellectual primacy of ideologies of religion, nationalism and Marxism, US should become the leader of universality project by spreading techno-scientific innovation and mass culture of an advanced consumption model; i.e. a new life style. Its leadership in this techno-electronic revolution (reaching space etc.) will inevitably move other less developed countries to receive its techniques, methods and management applications. With the leadership of US, for the first time in history, whole knowledge of humanity will be available globally and the answers will be received just after the questions. For the necessity of a Global Political Planning, US should restructure the state ministry and establish undersecretaries for "Global affairs" and should reorganize the scheme for international cooperation through founding the community of developed countries.[3] It seems that this perspective have been influential in shaping US foreign policy, towards achieving a global society lead by her.

It was not only US to recognize the potential of ICT. Japan Computer Usage Development Institute have already prepared a project declaring "knowledge economy" as the national goal for 2000, in 1971. The project focused on the use of new technologies for data banks, medical systems, computational education, information systems for small and medium size enterprises, centers for re-educating the workers and the model of "Computercity" where traffic, markets, railways, temperature were all controlled by computers (Mattelard 2001, 78). In France also, the Nora-Minc report (1978) on the computational society was submitted to President Giscard d'Estaing. Recognizing the risks in the new technologies, the report suggested the construction of their knowledge database as a necessity of "national sovereignty" threatened by IBM, and proposed the understanding of public service to guide challenges of computational society by regulating the networks, issuing new satellites, creating databases for allowing a new development model.

So, the debates on regulating the use of ICT globally had already started in late 1970's. OECD first announces the term 'knowledge society' in 1975 and initiates a research group on liberalization policies for ICT. In 1984, divestiture of American Telegraph and Telephone (ATT) and privatization of British Telecom are the first steps towards liberalization. In 1993 US initiated the National Information Infrastructure program followed by Global Information Infrastructure next year to establish global *"knowledge highways"*. The Bangemann report

[3] Under the presidency of James Carter (1976-1980), Brzezinski became the advisor for national security affairs. And the undersecretaries for "Global affairs" have realized under Clinton administration.

published in 1994, called for the liberalization of telecommunication within EU countries, giving priority the efficiency benefits, improvement of technological innovation and cultural plurality. In 1995, G7 welcomes the concept of global information society and repeats their willingness to achieve liberalization of telecommunications immediately. In 1996, OECD published the document titled *The Knowledge-Based Economy*, followed in 1997 by guidelines for competitiveness in the form of *National Innovation Systems*. Finally, in 2000 with the Lisbon Strategy, EU announced its goal of 'becoming the most competitive and dynamic knowledge economy'.

Liberalization of telecommunication created a niche market for global technology companies like IBM and Microsoft. Adding the enforcement of 'ICT for Development' strategies by OECD and World Bank for the less developed countries, it is not difficult to imagine the dimensions of the opportunity for the development industry for capital accumulation. The *endogenous growth theory* arguing for the centrality of education and technology for economic growth contributed to implementation of development policies towards improvement of ICT infrastructure and the educational policies for betterment of their 'human capital'. The emphasis on human capital and technological innovation for economic growth by OECD and World Bank, have prepared the ground for reforming the higher education for the needs of global knowledge economy. The four pillars of knowledge economy defined by the World Bank (2003, p.2) indicates the new role of higher education:

- A supportive economic and institutional regime to provide incentives for the efficient use use of existing and new knowledge and the flourishing of entrepreneurship.
- An educated and skilled population to create, share, and use knowledge
- A dynamic information infrastructure to facilitate the effective communication, dissemination, and processing of information.
- An efficient innovation system of firms, research centers, universities, consultants, and other organizations to tap into the growing stock of global knowledge, assimilate and adapt it to local needs, and create new technology.

As Peters puts it correctly; in the age of knowledge capitalism the next great struggle after the 'culture wars' of the 1990s will be the 'education wars', a struggle not only over the meaning and value of knowledge both internationally and locally, but also over the means of knowledge production (Peters 2003, 165). The framework of this struggle at the universities will be discussed in the coming section. To conclude the first part on evaluating the theoretical and historical dimensions of knowledge economy, a successful summary of the arguments on this new society by Drew-Witheford (2004) is presented:

- Computers and telecommunication, plays the role played by steam power and railways in transforming the agricultural society to industrial society, towards a new phase in human history.
- Techno-scientific knowledge and technological innovation are the vital sources of social transformation. Power and wealth have become dependent on knowledge.
- The impulsive force behind the new age is the invention and spread of ICT.
- Creation of wealth has become dependent on information economics.
- Due to these techno-economic changes, the undeserved characteristics of industrial society; i.e. purposeless work, giant institutions, strict routines, hierarchies and alienating rural life styles are all dissolved; and diversity, flexibility, locality, creativity and hope for equality are incepted instead.
- Information society have covered the globe and it is assumed that the rest of the world will follow the leadership of the West.
- The increasing power of smart machines has the tendency to create synthetic life.

These arguments strongly rest upon technological determinism, taking technological development as an original cause. Writers like Mc Luhan and Innis among others, have already announced the new communication technologies as bearers of a new civilization. The Marxist analysis on the other hand investigates the role of technology in society in historical and social context of class relations where, technology works as an enabling factor in capitalism for increasing productivity and efficiency, capital accumulation, control over individual productivity, alienation of worker form production process. In this analysis technology is far from being an original cause, autonomous force or determining agent but has an, instrumental role in capitalism. (Bimber 1994).

B. UNIVERSITIES IN KNOWLEDGE ECONOMY

Universities are among the long lived institutions of human history like state and church. Its heritage and the specific characteristics of the scientific community, however, have not been enough to sustain its autonomy. These institutions had to struggle or have deals with monarchy, modern state, church, and the market to keep its relative autonomy. Similarly, universities are not isolated from the socio-economic transformations in society, and have had to adapt them. Şimşek's study (2006) correlating the four large-scale education reforms with Kondratieff cycles proves this relation between economic structure and education:

> The Kondratieff cycles of capitalism coincide with the four large-scale educational reforms in most of the Western industrialized countries: 1830-1850: the common school movement and invention of vocational-technical education; 1885-1915: the progressive pedagogy and high school movement; 1940-1960: scientification of school curriculum, behaviorist pedagogy, massification of higher education, Fordist organization, and equality of educational opportunity; 1973-1995: neo-liberal market approach to education, decentralization, post-Fordism, and constructivist pedagogy.

Accordingly, when looking at the current reform processes due to knowledge economy, the newly emerged challenges should not be shocking. And a romantic position defending the old would not mean much, as that was also a deal with the nation-state. In this part, an outline of the challenges and policy implications derived from knowledge economy will be presented to come to terms with what is going on at higher education systems in last two decades. In the conclusion part alternative positions available against these challenges will be discussed.

From modern university to knowledge economy

Secularism and scienticism have been among the main pillars of modernity. Given the specific role of universities strengthening these pillars, and the significance of critical mind for enlightenment thinking, the modern university had the opportunity to gain a space for academic freedom and organizing its own administration, teaching, and research, although these activities were funded by the nation state. This was succeeded by a deal with the nation-state; i.e. with the Kantian idea of reason, while it is one of the functions of the university to produce technicians or men of affairs for the state, the state must protect the university to ensure the rule of reason in public life. And, philosophy, as the tribunal of reason, must protect the university from the abuse of power from the state and must act to distinguish legitimate from illegitimate conflict, that is, from the arbitrary exercise of authority (Peters 2007). The university also served to the nation-state with technically useful knowledge and the preservation and reproduction of national cultural traditions. Due to such deal that, despite

universities have always been ways important sites of intellectual resistance to power; the great social movements of modernity- the workers' movement, the anti-slavery movement, colonial liberation – had little to do with the ivory tower of the academy and its posture of splendid isolation (Delanty 2001, 2).

The student movements in 1960's aimed at abolishing the position of the universities at the ivory towers of privilege and demanded their scientific work to be relevant to larger community. These took place in the context of liberating universities form capitalism. Today, the same discourse against ivory tower of privilege is used, but in an ironic context of subordinating universities to capitalism by codifying the notion of relevance to that of the market (Callinicos 2005, 15). This shift have taken place under hegemony of global knowledge capitalism. The challenges it put on higher education systems, with reference to the theoretical framework discussed in previous section, mainly rise from the changing function of knowledge, postmodern condition, and new needs of the labor market and has concrete implications for reforming higher education. Peters (2007, 2) summarizes these implications observed in the transformation of higher education in many OECD countries from a universal welfare entitlement into a private investment in 'human capital'. *First*, as noted earlier by Bell and Drucker, is the alignment of the university system to reflect the needs of an emerging 'post-industrial' economy, with increasing demands for highly trained, multi-skilled, tertiaryeducated workers. *Second* is corporatization of the university systems with an emphasis on establishing accountability structures. This is what Drucker asked form schools to be responsible for their performance and products (i.e. quality and excellence of teaching, research, graduates) to the society/market. Following this corporate managerialism, strategic planning is introduced as the *third* aspect, as an 'ownership monitoring' to reduce the financial risk of the State. Fourth, under neo-liberalism, there was an attack on faculty representation in university governance and the general attempt to discredit democratic forms of university governance on 'efficiency' grounds. Finally, the introduction of user-charges, student loans, and the creeping privatisation of the system as a whole took place to varying degrees. Before going into details of these implications, it is crucial to recall the main challenges in the knowledge economy for the higher education systems that have put it under crisis and legitimated implementation of certain policy measures under neo-liberalism.

i. Challenges

- ***Endogeneous growth theory***

In an economy where knowledge is taken as the only factor of production, the endogeneous growth theory emphasizes centrality of education both in the sense of creating human capital and knowledge accumulation (replacing capital!) for economic growth. As Peters puts it:

> In short, while the evidence is far from conclusive there is a consensus emerging in economic theory that education is important for successful research activities (e.g., by producing scientists and engineers), which is, in turn, important for productivity growth, and; education creates human capital, which directly affects knowledge accumulation and therefore productivity growth (2007)

Under this hegemonic discourse universities are expected to serve as the coal mines of industrial era (Callanicos 2005), since it provides all the resources for the well-functioning of new economy; i.e. knowledge (capital), human capital (labor, knowledge worker) and research for new technologies.

- ***Changing function of knowledge***

Clearly specified by Drucker and Hayek, the meaning and function of knowledge have shifted since industrialism[4]. For Drucker, knowledge of doing specific things in a specific way, which can be gained mainly by experience and practice, téchne, or technical knowledge have gained superiority against the moral and cultural meaning of the term that is related to emancipation of human beings. For Hayek, subjective knowledge has superiority over the objective knowledge for its vital role in functioning of the market for reaching the equilibrium by constructing social mind. The main problem of use and distribution of resources, then, turn to be the problem of utilization of knowledge, which can best be achieved by market.

In the case of the dominance of computerization and spread of information, knowledge becomes a product of the analysis and procession of the available data for achieving certain social and economic goals. The digitalization and codification of information makes knowledge something only reachable by technological products. Dissemination of huge

[4] The popular usage of knowledge categories in the knowledge economy is presented by Ernst&Young is as follows: *Know-what*, or knowledge about facts, is nowadays diminishing in relevance. Know-why is knowledge about the natural world, society, and the human mind. *Know-who* refers to the world of social relations and is knowledge of who knows what and who can do what. Knowing key people is sometimes more important to innovation than knowing scientific principles. *Know-where* and *know-when* are becoming increasingly important in a flexible and dynamic economy. Know-how refers to skills, the ability to do things on a practical level. Source: http://www.med.govt.nz/templates/MultipageDocumentPage____17263.aspx#P70_16613

amount of information through new ICT overcomes the obstacles of time and space, but leaves information unprocessed by human mind. In which case, both critical thinking and even pure intellectual curiosity are absent (Mattelard 2001, 125).

In all cases the scientific knowledge (be it abstract or concrete), assumed to be critical and emancipatory loses its dominance which has been the case in modernity. This post-modern condition (Lyotard 1984) has been influential to degrade the position of university in modern society by underlying its unquestionable premises in modernity and so to say, democratization of truth or knowledge.

- ***Post-modern condition***

In the introduction to his book *'Challenging Knowledge: The University in the Knowledge Society' (2001, 4-5)* Delanty provides the changes in the modes of knowledge in knowledge society. Other than the changes discussed earlier he points the changing role of the nation-state which had been the sole guardian of knowledge production. He argues that due to its depersonalized and universal nature, in process of globalization knowledge production cannot confine to the nation state. Also, as a result of mass education, social protest and the new social movements, the rise of new kinds of information technologies, and the relative democratization of knowledge; 1) knowledge is more spread through society than ever before and is no longer confined to elites but is more publicly available, 2) as more and more actors are being drawn into the field of knowledge production, the self-legitimation of the older knowledge elites becomes less certain.

These points indicate the end of the deal between the nation state and modern university, and the weakened position of scientific knowledge in society. Lyotard, who is well-known with his report titled *Postmodern Condition (1979)* presented to the Quebec government on the influence of technology, announces radically the end of university together with the collapse of grand narratives (Marxism and Enlightenment), universalism, scientism, the quest of truth and unity of culture. What Delanty calls '*democratization of knowledge'* turns to *'commodification of knowledge'* in Lyotard's work, justifying the arguments provided by Hayek on the function of knowledge in economy:

> The relationships of the suppliers and users of knowledge to the knowledge they supply and use is now tending, and will increasingly tend, to assume the form already taken by the relationship of commodity producers and consumers to the commodities they produce and consume – that is, the form of value. Knowledge is and will be produced in order to be sold, it

> is and will be consumed in order to be valorised in a new production: in both cases, the goal is exchange.

The contradiction between Delanty's framework and Lyotard's is similar to Jessop's argumentation against Bell's prediction of a 'sociologising' orientation of intellectual technology. If *'democratization of knowledge'* corresponds to such sociologising function of knowledge being produced and used by society in a participatory way; Lyotard's position reflects the dominant logic on knowledge, i.e. economizing one, leads to commodification and instrumentalization of knowledge, and subordination of university system to market principles and academic capitalism.

In both cases, the deal between the modern university and nation-state is over, and universities are losing their positions at ivory towers. Now we are in a phase, where universities have to negotiate with the neo-liberal governments, international corporations and the business sector for their autonomy, in the context of global knowledge economy. So far, such autonomy (to act freely in the market) seems to be granted on the condition that the universities are governed by corporate managerialism, quality assurance and strategy planning: in other words by accepting the rules of becoming an enterprise and competition, which does not make any sense of becoming an autonomous academic institution.

Finally, contrary to the Lyotard's rejection of grand narratives, since 1970's neo-liberalism has already become the dominant grand narrative with its abstract and universalist assumptions of individuality, rationality and self- interest. And its implications for universities have been substitution of the state by the market at every opportunity in education policy and now students are clients or customers and teachers are providers (Peters 2007, 13).

- ***Labor market***

Probably the most concrete impacts of neo-liberalism on individuals are faced through the changing characteristics of the working conditions and competitive labor market. Contrary to the commitment to full employment in the Keynesian state, in the new economy, it is the responsibility of the individual to acquire the individual skills, competencies, flexibility, adaptability and personal dispositions to enable them to compete for jobs in national and global labor markets. They may be largely responsible for this as enterprising individuals investing in their own human capital or as equal citizens entitled to support from the state and social partners to improve their skills. In all cases there should be increasing cooperation

between colleges, universities and other learning providers and the world of work. (Jessop 2008, 31)

The story is not that simple, as neo-liberalism does not only need skilled workers, but also low-paid workers, many with little or no job security, some illegal migrants. This fact brings the concepts of *proletarianisation* and *precarity.* The first, is defined as the process of being reduced to a wage labourer,dependent on her ability to sell her labour power on the market and subject to managerial power at work. The latter, precarity, is the condition of insecurity experienced by increasing numbers of workers and would-be workers of being permanently on the edge of unemployment, having to make do with casual, temporary, perhaps part-time work, or combining several jobs. By forcing university students to become casual wage laborers while they are studying, neo-liberal education prepares them to the conditions of the labor market. (Callinicos 2006)

In terms of philosophy of education and curriculum reforms, the changing expectations of the labor market have begun to shape the curriculum and teaching methods at universities. The paradigm of *'lifelong learning'* gained significance at all levels of education to provide new type of workers. Decisions for opening new departments and governance of university are increasingly done in cooperation with the representatives of the business and other "external partners" of higher education.

More or less these are seen as the main challenges in the new era on higher education institutions. The implications rising from these new conditions will be evaluated in coming section.

ii. Implications

- **Internationalization of higher education**

Increase in internationalization of higher education is very visible in last decades. This development includes growing number of mobility of students and academic staff, international cooperation agreements between universities, introduction of joint degrees, new funds for international projects, international journals, conferences and so on. The university of the global age, feels the necessity of acting international to compete in the global market of higher education. Priority of internationalization is also reflected in the administrative structure as almost every university has an international office, and a vice rector for responsible for increasing the quality and amount of the activities under internationalization.

Academic staff benefit from these activities mainly to increase their international experience, join into international networks of scientific research, contribute to and gain from growing knowledge accumulation. For students, it is both an academic and cultural experience to be mobile. Approving the contribution of the mobility experience to students' personal development, in a broader meaning, these experiences can be read together with creating global citizens and workers for global labor market; as these students improve their language skills and capabilities to work in an international environment when they are abroad.

The statistics of OECD show the dramatic increase in mobility of students in last 20 years, coupling the number to 1.6 million. The rates of international students accordingly are 30% in US, 14 % in UK, 13 % in Germany, 9 % in France and 7 % in Australia (YÖK 2007, 15).

- **Massification and marketization of higher education**

According to the reports of World Bank, UNESCO and OECD the rise in the number of university students in the world is as follows: 20 million (1985), 26 million (1990), 38 million (1995) and 85 million (2001). The current number is estimated over 100 million and expected to reach 200 million by 2020 (YÖK 2007, 14). These numbers prove massification of higher education in global world. The main derive behind this dramatic rise in the demand for higher education can be explain by acceptance of higher education diploma as a necessity for employment and the belief of governments in improving the countries' human and social capital for economic growth and social integrity. As Callinicos (2005) notes, following his earlier remarks on the neo-liberal labor market, the expansion of the number of students in 1960's was related to the need for professionals and engineers, in 1990's it is happening for flexibility in the job market, precarity and short term contracts.

Such increase in the demand for higher education did not escape from the investors who aimed at making profit of the situation. As neo-liberal ideology has the tendency to provide any service as a commodity, and GATS is used for regulating international trade on that purpose, education have been defined as a tradable service, as well. This created the international market for higher education where universities compete for receiving increasing number of (international) students. Marketization also brought *'product diversification'* in higher education sector. In addition to state universities, privatization of higher education rose with emergence of different type of institutions like non-profit foundation universities (Harvard, Stanford), for-profit institutional universities (University of Phoenix, Devry

University), corporate universities (Motorola University, Oracle University), transnational universities (Nottingham, The Appollo Group) and virtual universities (Tec de Monterrey). (YÖK 2007, 21). Various online certificate programs, short-term courses for specific skills or professional subjects that are provided by universities through 'continuous education centers', that serve to the improvement of specific skills that are trendy in the labor market (especially IT skills, project management etc.) can be added to the 'product list' of this market. The increase in student contribution to the university budget and creating such alternative short-term programs has to do with the changing financial structure of the universities under neo-liberalism. Before moving to this issue, one final and crucial problem for student side should be emphasized.

Experiencing the increase in the cost of higher education, decrease in financial support opportunities for students and acceptance of higher education as a necessity has contradictory outcomes. There is nothing wrong in opening up higher education for greater number of people. But doing it in such neo-liberal way has no justification for the ideas of equality of opportunity and social justice, as students from lower income groups are highly excluded from university education and are forced to *proletarianisation* and *precarity.* Debates are going on to emphasize the continuation of higher education as a public good and part of human rights, so that governments should have the responsibility to provide university education to any student who is willing to. Despite its entrance to certain official documents, like the ministerial conferences of Bologna process, policy measures are not in place in most of the signatory countries.

- **Changing financial structure and corporate managerialism**

The trends in financial structure of higher education institutions can be summarized as; adoption and increased sophistication of institutional formulae-founding; greater financial autonomy and market freedom for institutions; an increasing proportion of income from student fees; sharper distinction between funding of research and of teaching; an increased proportion of public funding to be 'bid for' by the institutions; and the encouragement of a diversification of funding sources with the promotion of partnerships with business (Peters 2007, 3). On the state's side, the share of R&D in GDP tends to increase in developed countries due to its key role in endogenous economic growth. Through these funds the governments acquire the opportunity to govern the priority of the scientific fields to be researched on and increase the competition between universities and even departments on

these funds. This is also a way for minimizing the risk of its investment in science. On the other hand, teaching function of the university is left secondary, despite its importance for creating human capital. The lack of finance in teaching is transferred to student fees as a burden. So, individuals are not only seen responsible for increasing their human capital for the labor market, but they are also forced to pay for their education which is presented as an investment for their future career, especially in the logic of US system. Considering the unemployment rates of university graduates, and the anticipated unemployment for flexibility of labor market, such logic of investment does not make sense even in economic meaning of investment. For the principles of equality of opportunity and social justice, there can be no justification of increasing the student fees.

The major change, however, came with increasing the relationship between the university and the business especially for R&D activities. As coal mines of this new economy, universities established techno-parks and consultancy mechanisms creating spaces for sharing the relevant scientific knowledge with business and receiving alternative funds. Patenting, technology transfer, external fund raising are all indicate a move towards the idea of an entrepreneurial university.

The management of university as such is expected to be similar to enterprises. Rectors, for example, are acting like CEO's rather than representatives of the academic community. Corporate managerialism, together with strategy planning is issued at universities to guarantee the quality of processes and products, and to minimize the risks of the money given to universities. This implementation has several aspects. First, as higher education has become a commodity in the global market its quality should be measured and guaranteed as a product for its consumers, i.e. students. Second, the government and the business sector should be able to audit where their money is spend. That's why, only after establishment of these corporatist mechanisms, universities are given autonomy to compete in the market. Moreover, national and international accreditation agencies for higher education are founded to evaluate and label the quality of processes and products in higher education; i.e. administrative mechanisms, teaching, research, student services, campus facilities and so on.

Some institutions have accepted this corporate system and left administration of universities to professionals, excluding academicians from the decision-making processes. On the other hand, the Bologna process for example, foresees a governance model for higher education in a

relatively participatory way, including the internal (faculty and students) and external (business, NGO's, local government etc.) partners of the university into the decision making. This idea of external partners is an outcome of the argument that the universities should be included into society leaving their ivory towers, and should become responsible to the society they exist in.

- **New pedagogy (lifelong learning)**

The changing conditions in the labor market demand a new type of workers, thus university graduates. In a context, where technology changes rapidly, and knowledge accumulation is widespread, the job market asks for highly skilled graduates in specific fields like ITC, and a wider group of workers for the service sector who can adapt the technological changes and new environments easily. As educated people would adapt easier, changing the pedagogical approach gains significance. These new type of workers should have skills of decision making, problem-solving, continuous learning, learning by their own and basic ITC knowledge. Education reforms starting from the curriculums of primary schools are based on constructivist philosophy and lifelong learning for creating such new workers. Briefly;

> A lifelong learning framework encompasses learning throughout the life cycle, from early childhood to retirement. It encompasses formal learning (schools, training institutions, universities), nonformal learning (on-the-job and household training), and informal learning (skills learned from family members or people in the community). It allows people to access learning opportunities as they need them rather than because they have reached a certain age. (http://www.techknowlogia.org/TKL_Articles/PDF/476.pdf)

iii. European response: Bologna Process

As noted earlier, EU's recognition of the significance of knowledge economy was announced in the Lisbon strategy by defining the goal of becoming the most competitive and dynamic knowledge economy in the world. Not surprisingly, in achieving this goal, the main expectations were from the European universities in the context of this new economy. Considering the heritage of European universities, being the continent that the idea of university has born and spread, reforming these institutions has been a dramatic and difficult task so far. Despite the fact that it did not originate as an EU project, Bologna process become the compact mechanism, a overarching framework guiding the higher education reform policies in EU and non-EU member countries of the process.[5]

[5] The Bologna Process originated independently from the Lisbon Strategy, in 1999, in a meeting in Bologna by 29 countries' ministers of education. The number of member states has reached 47 by 2010. The European

The main goals announced in the Bologna Declaration and the following official documents (www.bologna.yok.gov.tr) are as follows:

- Restructuring the European Higher Education,
- Establishing the EHEA according to socio-economic needs of European community
- Achieving easily readable and comparable degrees organised in a three-cycle structure (e.g. bachelor-master-doctorate)
- Facilitate mobility of students, graduates and higher education staff;
- Prepare students for their future careers and for life as active citizens in democratic societies, and support their personal development;
- Offer broad access to high-quality higher education, based on democratic principles and academic freedom.

To achieve these goals Bologna reforms are run under the action lines like quality assurance, qualifications framework, mobility, employability, lifelong learning and social dimension. Other than reflecting establishment of European dimension in higher education, the framework presented by the Bologna process is not much different from the dimensions discussed above. But, it can be said that this process is an attempt to find kind of a third way between the traditions of modern university, especially of academic freedom, autonomy and critical social functions of the university; and the pressures from knowledge economy. As it is argued in the beginning of this second part, universities do not have the chance to isolate themselves from the socio-economic transformations in the society. So, the challenges rising from knowledge economy have to be dealt by the universities in one way or other. There are issues that make one rather optimistic for Bologna process, so that it can form a university structure in a relatively democratic way for the knowledge society (contrary to university of knowledge economy). The emphasis on social dimension, i.e. claiming higher education as public responsibility, struggling for equal access to university, defending students' participation into decision-making, is an example. The outcomes of the process depend on the broader developments in European politics. If neoliberal hegemony continues to prevail against the earlier goals of establishing social Europe, it is hard to expect European universities to resist against challenges from knowledge economy for long. In any case, the developments in European Higher Education, seems to be influential on higher education systems of other regions of the world.

Commission is among the partners of the process together with European Universities Association (EUA), European Students' Union (ESU), Council of Europe and European Association of Institutions in Higher Education (EURASHE).

C. CONCLUSION

This paper aimed at displaying the theoretical and socio-economic background of the arguments for transforming the universities in the knowledge economy. First, through evaluating Hayek, Drucker and Bell's analysis the role of knowledge in the new phase, foreseen characteristics of the emergent society and the potential role of education in this new society is presented. Second, on the basis of Mattelart's work, a history of knowledge society is investigated to emphasis the actors' role in establishing this new society contrary to technological determinism. The second part of the paper focused on the universities in the knowledge economy by providing the challenges and its implications on the modern university. In the conclusion part, possible ways to come to terms with this transformation process will be discussed. Delanty, Peters and Callinicos' works will be the ground for this discussion.

To me, three positions can be outlined in this framework. First is the easiest; accepting the premises of the knowledge economy following Hayek, Drucker and Lyotard, and welcoming the new functions of university as an enterprise. The details of this position have already given. Second, combining Bell, Delanty and Peters, is keeping on at distinguishing between the knowledge society and knowledge economy, and struggling for knowledge society in global politics, and a type of university in that context which would have a central function in democratization of knowledge and furthering Enlightenment culture, and expand its premises for solving the problems of global world. If this is a strand of social democratic perspective, the third position would be the socialist one, exemplified by Callinicos. The developments at universities cannot be separated from the wider struggles in the society. Accordingly the struggle at universities against the reforms towards academic capitalism and privatization of higher education should unite with struggles against neo-liberalism and global capitalism.

For Delanty (2001), if the university is not to degenerate into technocratic consumerism by which students become mere consumers of knowledge and the university a transnational bureaucratic corporation legitimating itself by the technocratic discourse of "excellence", it will have to discover another role. For him, the function of the university should be giving society a cultural direction, which was done by the church and nation-state earlier and is lacked in the post-modern condition. To this end, rather than seeking the unity of culture, a consensus-based community of communication; the university should institutionalize dissensus and make university a site of public debate, thus reversing the decline of public

sphere. Such university, going beyond social citizenship, would become the defender of cultural and technological citizenship, for realizing new rights emerging from being member of a cultural community, concerning new terrain of rights relating to the forces unleashed by technological rationality in the media, environment, the internet and information technology, biotechnology, food and water, health. Delanty's position, especially on institutionalization of dissensus and emphasis on cultural function might be inspiring for re-organizing the universities in post-modern condition. When comes to the new rights emerging from cultural and technological citizenship, considering that social citizenship is hardly been realized and its premises are undermined in neo-liberal hegemony, achieving such rights seems to be far away. Thus, universities at most can be sites of this struggle which would be unexpected from rising 'entreprenual universities'.

Peters (2007, 23), also remains in the cultural realm by introducing the term 'knowledge cultures'. This argument is related to knowledge production and dissemination, defending the knowledge cultures; based on shared epistemic practices, embodying culturally preferred ways of doing things, often developed over many generations. He proposes a form of institutional socialism defining trust, reciprocal rights and responsibilities between different knowledge partners, institutional regimes and strategies as the cultural conditions required for exchange of ideas. In this way, he aims at combining the Kantian university's idea of reason and idea of culture (*Bildung*[6]) of Humboldtian university in a new context.

From Delanty and Peters, we can conclude the need for redefining the meaning and function of knowledge to claim democratic cultural leadership of universities, to protect its 'knowledge culture' and to further Enlightenment principles. This emphasis is vital to struggle against the dominance of technical knowledge and even mere information in knowledge economy. The universities are already in process of losing their function of being spaces for critical thinking, intellectual curiosity and intellectual resistance against power. Increasingly, their survival have become dependent on accepting the new competitive rules of the game. This takes us to the last position.

Perspective from political economy suggests looking at the developments at universities from a wider analysis on the socio-economic analysis and changing capital accumulation

[6] He redifines *Bildung* as self-cultivation and moral self-formation to learning processes (pedagogy) based on an ethical relation of self and other; and from national culture to *cultural self-understandings* and cultural reproduction which implies a recognition of indigenous cultures and traditional knowledges, an awareness of 'nation' as a socio-historical construction, and an acceptance of the reality of multiculturalism.

mechanisms. That's why; putting the higher education reform processes into the context of constructing global knowledge economy has crucial relevance. In a similar way, the struggle for a democratically organized scientific community is part of the same struggle for the whole society. Inspired by the student movements of 1968, Callinicos (2006) is optimistic about the student protests occurred in France, Spain and Greece in last ten years, mainly against such transformation of higher education and the new conditions of the labor market. He considers these as a new light for coalition of workers and students against neo-liberalism in a broder sense, and mentions the significance of European and World Social Forums' for becoming the ground for getting together various anti-capitalist movements. Realization of these expectations will be observed in time. His position, however, gives us the main idea;

> But I don't attack these changes out of nostalgia for an idealised past. I have no desire to return to the much smaller and more privileged university system of earlier years. Opposing neoliberalism in higher education should be part of the struggle for a society that really does give everyone an equal chance to realize themselves. Accordingly, my theoretical framework is provided by Marx's analysis of the capitalist economic system. What neoliberalism ultimately represents is a particularly pure form of the logic of capital. Therefore, the struggle for better universities can't be separated from the movement against global capitalism itself. (2006, 7)

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