

2. EDUCATION AND ECONOMY

2.1 Stages of economic development

Describing where our society has been, its current condition, and its most likely future is the task of social historians. Daniel Bell, professor of sociology at Harvard University, has written extensively on this topic, and the material that follows is based on his work. [3] To place the concept of a post industrial society in perspective, we must compare its features with those of pre-industrial and industrial societies. [6]

Pre industrial Society

The condition of most of the world's population today is one of subsistence, or a *pre industrial society*. Life in pre industrial society, is characterized as a struggle against nature. Working with muscle power and tradition, the labour force is engaged in agriculture, mining, and fishing. Life is conditioned by the elements, such as the weather, the quality of the soil, and the availability of water.

The rhythm of life is shaped by nature, and the pace of work varies with the seasons. Productivity is low and bears little evidence of technology. Social life revolves around the extended household, and this combination of low productivity and large population results in high rates of underemployment (workers not fully utilized).

Many people seek positions in services, but of the personal or household variety. Pre industrial societies are agrarian and structured around tradition, routine, and authority.

Pre Industrial Society life: a struggle against nature

Industrial Society

The predominant activity in an *industrial society* is the production of goods. The focus of attention is on producing more with less resources. Energy and machines multiply the output per labour-hour and structure the nature of work. Division of labour is the operational "law" that creates routine tasks and the motion of the semiskilled worker. Work is accomplished in the artificial environment of the factory, and people tend the machines. Life becomes a game that is played against a fabricated nature - a world of cities, factories, and tenements. The rhythm of life is machine-paced and dominated by rigid working hours and time clocks.

The standard of living becomes measured by the quality of goods, but it is evident that the complexity of coordinating the production and distribution of goods results in the creation of large bureaucratic and hierarchic organizations. These organizations are designed with certain roles for their members, and their operation tends to be impersonal, with persons treated as things. The individual is the unit of social life in a society that is considered to be the total sum of all the individual decisions being made in the marketplace. Of course, the unrelenting pressure of industrial life is softened by the countervailing force of labour unions.

Post industrial Society

While an industrial society defines the standard of living by the quality of goods, the post industrial society is concerned with the quality of life, as measured by services such as health, education and recreation. The central figure is the professional person, because rather than energy or physical strength, information is the key resource. Life now is a game played by persons. Social life becomes more difficult because political claims and social rights multiply.

Society becomes aware that the independent actions of individuals can be combine to create havoc for everyone, as seen in traffic congestion and environmental pollution. The community rather than the individual becomes the social unit [1,6].

*An industrial society is a world of schedules and
acute awareness of the value of time*

Bell suggests that the transformation from an industrial to a postindustrial society occurs in many ways [1]. First, there is a natural development of services, such as transportation and utilities, to support industrial development. As labour-saving devices are introduced into the production process, more workers engage in no manufacturing activities, such as maintenance and repair. Second, growth of the population and mass consumption of goods increase wholesale and retail trade, along with banking, real estate, and insurance. Third, as income increases, the proportion spent on the necessities of food and home decreases, and the remainder creates a demand for durable goods and then for services.

Ernst Engel, a Prussian statistician of the nineteenth century, observed that as family income increases, the percentage spent on food and durables drops while consumption of services that reflect a desire for a more enriched life increases correspondingly. This phenomenon is similar to the Maslow hierarchy of needs, which says that once the basic requirements of food and shelter are satisfied, people seek physical goods and, finally, personal development. However, a necessary condition for the "good life" is health and education. In our attempts to eliminate disease and increase the span of life, health services become a critical feature of modern society.

Higher education becomes the condition for entry into a postindustrial society, which requires professional and technical skills of its population. Also, claims for more services and social justice lead to a growth in government. Concerns for environmental protection require government intervention and illustrate the interdependent and even global character of post industrial problems.

*Post Industrial characterised by development of services,
mass consumption, and demand for durables.*

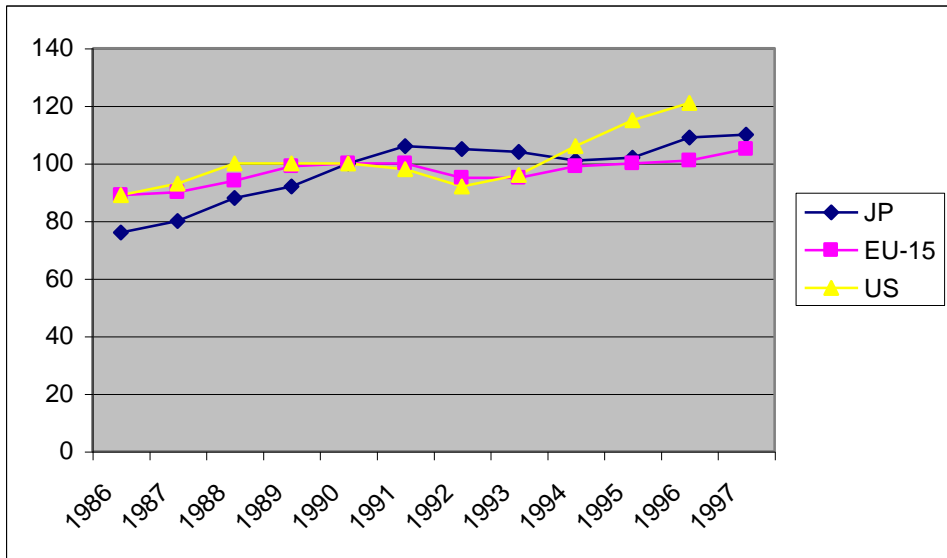


Diagram 1 - Development of the Industrial production (1990=100) Including energy and construction. (Eurostat)

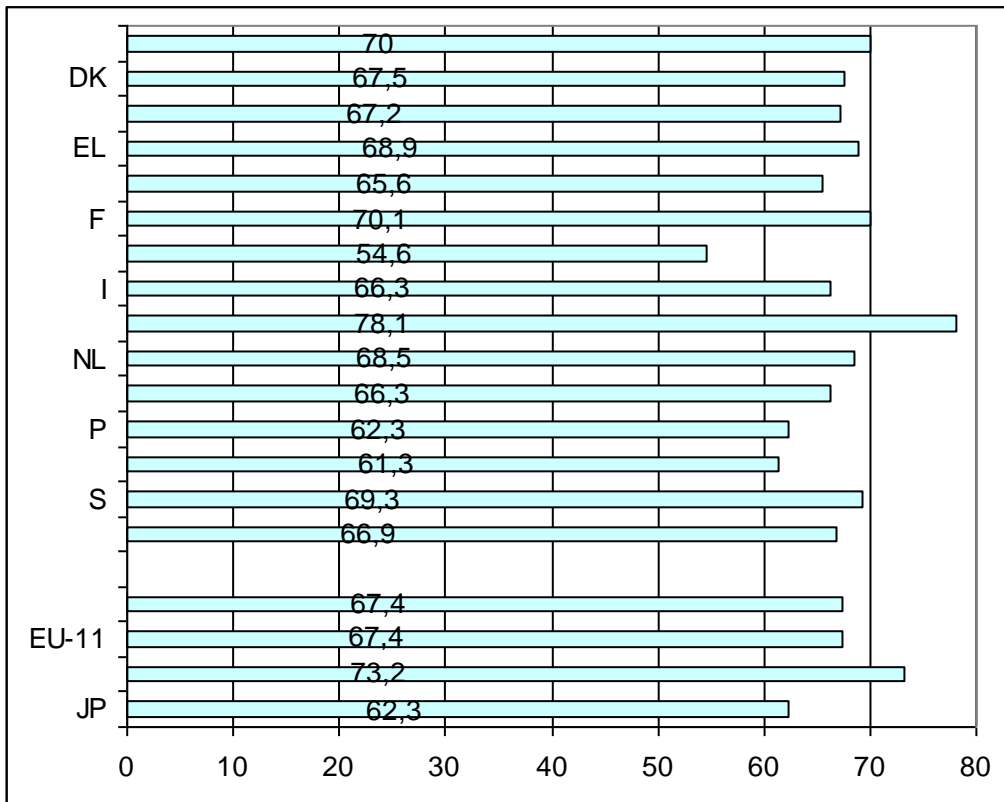


Diagram 2 – Percentage of services in gross added value (% , 1997, Eurostat)

Table 1

summarizes the features that characterize the pre industrial, industrial, and postindustrial stages of economic development.

Comparison of Societies

Features

Society	Struggle	Predominant Activity	Use of Human	Unit of Social Life	Standard of Living Measure	Structure	Technology
Pre-industrial	Against nature	Agriculture, power	Raw muscle household	Extended	Subsistence	Routine, traditional authoritative	Simple hand tools
Industrial	Against Fabricated nature	Goods Production	Machine tending	Individual	Quantity of goods	Bureaucratic, hierarchic	Machines
Postindustrial	Among Persons	Services	Artistic, creative, intellectual	Community	Quality of life in Terms of health, Education, recreation	Interdependent, global	Information

2.2 Education as a parameter of economic development

From the Lisbon meeting with the prime ministers of the European Union (23/03/2000), it was concluded within e-Europe initiative that the world of education has to contribute with different ways in order Europe to become the most competitive and dynamic knowledge based economy in the world, capable of sustainable economic growth with more and better working opportunities and greater social cohesion.

By changing needs of economy, the education system will not react to it. Traditional forms of education and continued education systems will remain the same. Education has to adapt the changes of the labour market, in standard education as well as in an increased postgraduate education because education and postgraduate education never ends. A company in the high tech field will utilize 80% of new technologies in 5 years. Employees have to be trained in these new technologies, as due to fluctuation and retirements only 20 % new employees will enter a company.

Influence of market in the modern society is extremely strong. We can agree that the market will do dissect and discriminate. This puts a particularly strong pressure on all institutions.

Universities, which form knowledge society [18] and are essentially knowledge providers, can no longer function as cottage industries in such an environment. Given the ubiquity of digital and information technology, they will become more learner-centred than faculty-centred.

Like business, they will have to evolve into multinational consortia ,form partnerships in a number of creative ways among themselves and with various kinds of enterprises that were not traditionally linked directly to higher education.

Education will be one of the main parameters for economic development in the new economic environment

Since globalisation will not disappear but will continue to predominate, the opportunities that it offers must be seized by higher education.

Another important factor is the provision of flexible forms of courses, which will be made possible when unit-level structured courses of study are introduced.

Education institutions are multi-product business firms. Their most important output is the development of “human capital.” By this way and through direct consumption benefits, students gain from the benefits of higher education.

But others may benefit as well as from higher education. When such externalities exist, society is presented with the choice between underproduction of higher education services or with the government intervention in the market to promote the optimal amount of scarce resources used in the production of higher education. How can these externalities be captured without limiting individual choices – economic freedom?

The basis of economic costs is the opportunity cost principle. It is essential to understand it and also the concepts of explicit and implicit costs. It may come as quite a surprise to learn that the largest cost component of our higher education is not what we pay out from our pockets or for that matter what taxpayers pay from their pockets.

What, then, is the largest component? Our income loss while we are in university. This is the largest component. No wonder it is overlooked. We never see it, nor does anyone else, but it is nonetheless a cost of our education. Our time and ability have alternative uses. To use them in their next best alternative would generate income.

We do not forget that income and society forfeits the output that income represents. If the rate of return on education is not to be overstated, the opportunity cost of higher education has to be calculated.

*The output of the education Institute has to be
the added value of the human capital.*

Under these cost concepts and the other economic principles at our command, we are ready to analyse the problems of higher education. It is essential to determine the explicit and implicit costs to a society of providing educational services.

Finally, by applying our economic tools of analysis to the problems of higher education, we should examine critically the institutional structure that we have today and the means of financing it. Do they give us the kinds of educational services we desire as a society? Are they responsive changing societal needs? Are they conducive supplying the economically correct amounts of educational services? Is “free” or “low-tuition” higher education an effective way helping the children of the poor?

An alternative higher education institutional structure might make greater use of the price system in the production of higher educational services. With the tuition rates large enough to cover all the explicit costs of providing educational services, many of the problems facing higher education might be reduced significantly if not eliminated.

*Economic methods should be applied to analyse
the problems of higher education.*

2.3 Investing in Education

The main important role in the education sector belongs to the government. The government has the ability to regulate and deregulate the sector of education. The introduction of venture capital and the creation of for-profit education depend also when the legal status permits, on universities forming partnerships with private corporations. In other words, it is rare for private corporations to act on their own.

The previous centralised wage-setting system resulted in a weak connection between wage and personal success, on one hand, and education, on the other hand. It should be noted also that previous system of education was mostly directed to the training of narrow-skilled specialists for particular industry. As a result workers were less mobile and highly attached to one job and occupation during the life-time horizon. Although the general level of schooling was relatively high, this narrow education did not provide skills and knowledge, which are demanded now by the market economy. The current situation in the labour markets is characterised by the large discrepancy between the structure of available educational capital and the structure of market demand for skills.

Post-communistic economies are undergoing adjustment processes. One of such common processes is supposedly represented by the increasing wage differentiation. New market-oriented wage setting practices should evolve along completely different path than it used to be under socialism. Some expectations are obvious: qualities like party membership should not be rewarded anymore; seniority and manual work-load should be looked at differently; new qualities like, for example, creativity, language skills, and education, should be rewarded.

However, some expectations cannot be formed ex-ante. For example, it is difficult to predict what happens to gender differentials, how the investment into human capital made during the old system will be rewarded in the new one, whether experience and firm-specific experience matters. Answers to these questions have to be found under research of human capital information.

Investment in human capital is particularly important for countries

The idea that acquisition and development of skills embodied in human agents of production could be treated as a form of investment originated in the works of W. Petty, A. Smith, A. Marshall. They stressed how it is important for national economy to invest in education.

At the beginning of the 20-th century the Russian economist S. Strumilin and English economists L. Dublin and A. Lotka presented the first empirical results of returns to education by using the discounted earnings procedure. However, the idea came to professional forefront in the late 1950's and early 1960's with empirical results of Schultz (1961, 1971), Denison (1962) and others showing the importance of education for productivity and economic growth. All these developments were organized into a coherent theoretical structure by Becker (1964), a landmark work which raised virtually all the major questions and which in turn stimulated an incredible number of studies in the area of human capital.

Mincer (1958) also developed an important study. He was one of the firsts who applied human capital concepts directly to the personal distribution of earnings and used the standard earnings function for estimation of rates of return to education and experience.

One of the most influential contributions within the ensuring global 'education economy' debate was Robert Reich's book "The work of nations" [5].

Reich argued that industrial societies were entering an area of education-led economic growth and that national education and training systems, rather than national economies, would determine the fate of nations. From Reich's perspective, globalisation placed an enormous competitive pressure on established industrial societies. Reich suggested, therefore, that established industrialised societies were confronted with an economic and educational challenge. Economic prosperity in the twenty-first century would involve continuous innovation and the production of specialised goods and services that other nations were not capable of producing.

Priority must be given to learning

Moreover, he argued that if advanced industrial societies were to realise such economic ambitions, they would have to find ways of giving learning a priority in the economy as well as in the education system. It was Reich's contention that innovative knowledge-based forms of production required workers to have the capability to think in 'system' terms in order to make connections between different areas of learning and different kinds of work; to be able to work effectively within and across different organisational contexts and to take risks and learn from mistakes.

The massive upsurge of interest in the “educational” potential of information and communication technology further fuelled the vision of “education-led” growth. It was argued that the future of education and the economy would be “technologically-driven” [26], since it was claimed that “information skills” would be critical to future economic success and educational success [27].

It was argued that the IT technologies and World Wide Web could be used, first, to extend access to education. This will be received, especially among those groups who had traditionally not participated in formal education and training [28], second, to free learning from the physical boundaries of classrooms and schedules [25], and third, to support the creation of new sites for learning within society; for example, local communities, user-groups, families [26].

This would help to break down the barriers between those institutions (i.e. schools, colleges and universities) that had previously specialised in learning and those for whom learning had not been a priority [22,25].

Information and communication technology, however, have the potential to be used either to automate or inform teaching and learning practices [29]. Schools, colleges and universities will have to decide whether to rethink the pedagogic basis of learning and support students participating in “distributed communities of practice” to produce new knowledge [27,30], or whether to simply ensure that students have access to drill and practice activities so that they acquire narrowly conceived information processing skills.

The creation of learning islands is essential and can be achieved by using the Information Technology.

Although educational institutions appear to have recognised the need to provide students with access to information and communication technology to prepare them for the emerging demands of the 'knowledge area', they do not appear to have reconsidering the relationship with pedagogy. Instead, rather depressingly, many educational institutions seem to have simply automated their existing approaches to teaching and learning. [31] Yet, there is evidence that, in future, the ability to connect networks that have not been previously connected in order to extend individual and communal socio-cultural resources will be a prerequisite for effective communication. [32]

*Communication between individual and conceptual
Socio - cultural resources should be extended*

2.4 Organizational effectiveness

Rapid technological changes and their applications in many sectors of the economy demand and create qualifications that can be extended over the life cycles of hardware and software.

To a much greater extent, qualifications that emerge among the administration of processes are system eminent which implications do this have in high-tech industry and in the service sector? How can new knowledge both be adopted and be skilled? What is the current state of those qualifications that are shorter than the life cycles of hard and software?

The classical argument that the organizational structures of enterprises could be seen as constant can no longer be seen as acceptable, since other parts of the respective life of an enterprise incorporate more and more external parameters. Whilst talking about how technical pictures emerged, Flusser argued in 1985 that they could be transferred in a symbolic way, and in our case, into the classical acceptance how the enterprises' environment has developed.

Connecting this with the working environment we can detect three main phases, namely:

- a) the embedding of huge masses of humans into the working process, in which the work can be seen as a constant and the working environment as a variable. The variables were the tools and the executive human power.
- b) the second phase was developed and shaped based on the dynamics of the first process and converted the human to a variable. The human was the executive power, of course dependent on the constants of the enterprises' organization. The systematic Taylorism, as well as other management and organization theories, had standardized the inner life of the enterprise.
- c) the third phase which is supported by a maximum technological equipment, takes with itself humans and tools in the position of variables. It left the continuously changing organization, the macro system, to look like a constant.

*The model of constant organizational structure cannot be acceptable
in modern environment of organizations.*

According to that, the organizational structures of an enterprise follow a dynamic model, in which permanent compatibility allows the increasing mechanization to set root in the firm. As an example, the highly computerized office forced the various activities towards certain standardization. Wobbe (1986) emphasized this by saying that:

The social power of macro systems is very important since new organizational structures still incorporate the whole view of the market, technology, and personnel, so that strategic competition can build up further. The transformation of the enterprise strategy is successful within the human component. Consequently, the human function is responsible for success and establishes one of the important sources of enterprise strategy.

An organization is compatible by these means or successful if it is not static, or, if we go back to Tuerk (1989) organizations are only rudimentary, and stable only in the long term, it is more usual to perceive them as being permanently in motion; they never reach their surface stability, neither by balance nor static, but only by movement. New organizational images produce a constantly changing social reality because their duties, due to the changing market variables, must be redefined every time. On the other hand, these processes head for the working class with determined effect.

Much attention has been paid in the past years to the so called “effective implementation of technology” (Adler and D. Helleloid, 1986, Majchrzak, 1988), or the meaning of local knowledge systems in advanced technology organizations (Bada 1990).

On the other hand, approaches like skill-based design which leads to organizational effectiveness are becoming more and more respected when considering how to turn technologies into tools (Salzman 1989), or, organizations using symbolism as an emerging asset of the creation of realities within the firm, based upon their own professional histories, personalities, value systems (Astley, 1985) etc.

The organizational structures of enterprise follow a dynamic model.

Furthermore, the aspect of the social construction of technological systems (Pijker et al 1987) arose among technologists, and many more people now know that culture, language and ideology are definitely terms of management. Uncertainty of technological systems has the same effect on organizational concepts, because organizational structures should become more organic and less mechanistic (Kolodny 1990). Flexibility, on the other hand, replaces efficiency as one of the key objectives of both the manufacturing and service sectors.

EDP is a way of organization or of organizing technology. At the same time a political discussion emerged due to the creation of employment generated by that, during the process of mechanization and in particular by organizational changes, different groups of workers and working interests will be automatically affected.

As the courier of the new technological system, the hardware sector, after viewing the evolution in the software sector and loosing its monopoly, decided to catch up using flexible and user friendly systems in order to be more accessible to the user. Small and medium sized industries were more flexible and quicker to react than the larger manufacturers (Silicon Valley Fever).

Friendly and accessible system will contribute to organisational effectiveness.