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## **Changes in the Human Activities during the Industrialization**

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### **Abstract**

During the Preindustrial Era the production of goods and services was done in small scale by cottage industries and crafters. The SMEs of that time could then form coalitions, cooperations, or collaborations, small or big, due to the specific demands of the time. Also the different specialties came together in unions, which acted then as consultants to the Rulers or Governments, in order to legislate the rules, the standards, the specifications etc. In this way, the preindustrial SMEs were able to adjust to the changes of their environment. The small measures and the locality were in harmonic balance with natural and technical environment. Additionally the cottage industry owners and the crafters had ensured the feedback of the results of their activities, as they had the direct contact with the consumer-users of their products or services. The quality control of products and services was also direct, and additionally fair, according to the consumer-users' needs and wishes. All these characteristics changed dramatically, following the evolutions of industrialization. At the end of the Industrial Era, as the locality was replaced by the globalization, the changes reached their apogee and predispose an explosion. We can now go forward, though, with ideas and proposals for postindustrial prototypes - models, by analyzing the facts that brought the changes. After such, the comparison of the preindustrial and the industrial models can guide us this postindustrial prototype-model.

### **Keywords**

cottage industry, crafters, harmony, balance, environment

### **1. Introduction**

Our paper focuses on a definite differentiation in the spirit of the activities of people in the Pre-Industrial Era, with that in the Industrial Era. This differentiation is definite because up to the stage of industrialization of all human activities, humans functioned like all the beings of nature along with the primordial rules and natural ways that still exist today. Humanity has distanced though from these rules of the nature, after the completion of industrialization, and humans follow now their own technocratic rules, different from all other beings of nature.

The changes in human activities are separated today into the social and technocratic ones. Nowadays it is also a fact that the industrial spirit of technocratic functions and activities of humans is dominant in a global level. It is paradoxical, though, that globalization is essentially responsible for the ending of the Industrial Era, bringing along the ever-worsening crises.

The distinctions between the eras and the stages of the mankind's evolution might be clearly defined, but the beginning of an era or a stage defuses deep in the end of the previous one. Thus, the beginning of the Industrial Era spreads deep in the time of the Pre-Industrial one. So maybe the first steps of the Industrial Era can be traced back at 300 A.D., when the first standard product came into production. That was the production of standard mortal bricks in Mesopotamia.

As far as the social evolution of mankind is concerned, this is evident by the conscious effort of humans to develop systems. This social evolution of humans, as effort to create systems, reached its highest point in Ancient Greece by the creation of the social system of “Democracy”. The ancient Greek term “Democracy” is translated as “power to the people”.

The system of Democracy, though, is not only social but also economical. The social part of the system demonstrates the evolution of human societies. The economical part, on the other hand, is a kind of system in between society and technology. Ancient Greece is also the place where the technology began to be developed along with the society, especially during the time of Alexander the Great, which was named by historians "Hellenistic Era".

In the begging of the Hellenistic Era, while before that the technology was evolving along with the human societies, its role was their eventually becoming greater. While social systems were fluctuating between highs and lows, technology followed a steady developing course. After the Hellenistic Era, from Rome to Byzantium and the Era of the Crusades, until the Industrial Revolution, technology was developing in an increasing rate in comparison to the ages before the Industrial Revolution.

## **2. Description of the Human Activities during the Preindustrial Era**

The first Industrialization Activity of mortal bricks has some basic characteristics of the Pre-Industrial Era. One of those was that the size of the product, its dimensions and its weight, were indeed circumstantial, but they were based on the human capabilities and limits. One even more basic characteristic was the standardization, which was also circumstantial but it was born out of the prevalence of the average human capabilities, taking into account the difference between human from human. In this way the more powerful ones could always participate in the activity, and the only difference appearing was the amount of effort they had to make. Meaning that the only difference in the standard was the amount of the effort it took.

Maybe the most important characteristic, though, was that of the production involving small enterprises that could by occasion increase, reduce or form cooperation, as the activity followed common rules and was standardized. That made the production intertwined with the demand. Thusly no products were left behind as rests of over productions. On the other hand, if shortage arose occasionally, and after that need for more products, the small enterprises could immediately replenish them.

## **3. Record on the Variations in the Human Activities during the Beginning of the Industrial Era**

After the overwhelming developments of the Industrial Revolution, the evolutions in technology were frenetic. That is why the historians gave it the title "Industrial" in order to differentiate a revolution that happened in technology from the one that happened in the French Society during that time.

The English and the French Revolutions took indeed place in different fields, but they had one common root. This common root was more social than technological, and it was the development of the European thinking during the Enlightenment Era. The European Enlightenment was followed by the Scientific Revolution, the latter being the cause of both European Revolutions.

The Scientific Revolution happened at the field of European Sciences, which were of course both social and technological. This happened in the West Europe at the time where West European nations were slaughtering each other in decade long wars. All European scientists, though, in both social and technological sciences informed each other and continued each other's work while cooperating in the spirit of the democratic Enlightenment.

In this manner, the European scientific world created in Europe a continuation of the Ancient Greek Democracy's social system that was in this way reborn there during the Enlightenment. The flamboyance of the social system of democracy as well as its influence and the power it grants to the human activities, kept the social supremacy in Europe in a relation to the technocratic one, for a long time after the Industrial Revolution. In the starting phase, it was even theorized that the Industrialization would universally establish the social system of democracy, since machines would allow humans to be deliberated from manual labor, and instead provoke the development of their mental capabilities.

## **4. Evolutions in the Human Activities in the Balkans during the Preindustrial Era**

All that we know about the Balkans in ancient times, it is what has been recorded by the Greeks and the Romans. The most interesting of these might be that which Arianos narrates about the Agrianes, a

Balkan tribe that lived in the mountains of Thrace and eastern Macedonia, current areas of FYROM and Bulgaria.

At the time of the Greek expedition against the Persians, the Agrianes followed Alexander the Great and were up to the end the most faithful part of his army. Although local tribe, they were considered (and they considered themselves) Greeks. Because they were keen horsemen, they were exploited by Alexander in the cavalry division of his army and were reported by the Greeks as "Ippomachi", which means "fighters on horse". This title is probably the origin of the name of the Balkan Pomaks, who now live in eastern Thrace.

According to this, the Balkan Pomaks race is an exemplary case of the changes that came out in the Balkans during the pre-industrial era. The glance of the Greek civilization, which civilization was created by the social system of Democracy, was such that even not-native Greeks considered themselves as Greeks and followed the Greek prototype-models more loyal than the native Greeks.

As far as the records of the Greeks are concerned, they start with the Greek mythology and Homer and cover a period of more than 2,000 years BC. Since then the Greeks, colonized the Mediterranean coast, from the Aegean, the Black Sea and the Adriatic Sea, up to Gibraltar (then called by them "Hercules Columns"), starting from the cradle of the Greek leaves, Macedonia and Thessaly.

The rarefied in habited cities of Greek colonies kept constant contact with their metropolis, thus forming the first European network. Through this networking, and the interactive relationship of the colonies with the Metropoles, the Ancient Greek civilization was created and the cultural foundations of Europe were set.

The unique greatness of the ancient Greek civilization had a so strong radiation that went deep in European inland and the European coast and impressed the people who lived there. In the Balkans apart from impurities, occasional alliances or submissions after wars, the ancient Greek civilization had created such a profound connection of the Balkan people that had common models with those of the Greeks. In this way, a network was created in the Balkans, centered on the ancient Greek democracies with common models, rules, standards and specifications. Some Balkan sheets actually were so much embedded in that Balkan network that considered themselves Greeks as the Pomaks did.

During the Roman Era the Balkans were degraded to a simply part of the Roman possessions. In this way, the Balkan people operated strictly under the Roman law as everybody else throughout the Roman territory. This new situation had major differences from that of the Era of the Greek influence. In the Balkans there was no more a networking acting under common democratic models and voluntary standards, which were formed by the local communities and adapted to local conditions, needs and requirements. Conversely, all activities followed the same mandatory rules, specifications and standards in a homogenized environment by the Roman governing system.

This situation of the Roman Era passed actually unchanged to Europe during all the periods of the Pre-industrial Era. After the Roman period thought, there was a change in the formation of the models by the government, which turned over to a religion-oriented conception, Christian at the beginning and then Moslem.

## **5. The Third European Revolution and Its Influence to the European Evolutions**

The spirit of ancient Greek Democracy, which was the common starting point for both European Revolutions, had a side impact. In the regions where the Ancient Greek spirit was developed, lived a nation that realized then the value of its ancestors. The rebirth of the ancient Greek spirit caused the rebirth of the national conscience of modern Greeks and it reasoned the revolution of the Greek Democrats against the despotism of the Ottoman Sultan. At the definition of the vision of the Greek Revolution by Rigas Feraios, it was described as a peaceful coexistence and cooperation of the Balkan nations in a democratic system. The Greek Revolution began in this way as an initiative for a Democracy in the Balkans.

The history and its intricate details of the evolutions and the changes, resulting from the Greek Revolution, as well as its influence in the Balkans is a rather big subject, which is unfortunately very poorly researched. Because of its length, though, it cannot be detailed in this paper. So we recommend, by the occasion of the 13<sup>th</sup> International Conference, for it to become a subject of research by Balkan

scientists, after a coordinating initiative by BCC. We will only mention here, in this paper, the changes that the Greek Revolution brought in human activities during the Industrial Era.

The Greek Revolution might have at the beginning as a theoretical initiative that of the democratization of the Balkans, right after though it became a struggle of a small nation against a huge Empire. In this way, the Greek Revolution differentiates from the other two European Revolutions since its motives did not originate from the social and technological evolutions after the Industrial Revolution, like those in France and England did. From another perspective, though, the Greek Revolution signifies the restoration of the human measures during the beginning of the Industrial Era.

The national proud of the Modern Greeks caused right after the Greek Revolution a nationality-feeling uprising in all Balkan nations. In this way, the (mainly Orthodox) Balkan people raised their nationality pride over the religious feeling. The most obvious result of these evolutions was the breaking down of the monolithic shape of the Orthodox Church under the Greek Patriarch. Following this, the control of the Sultan over the Christian Balkan nations by the Greek Patriarch, disappeared. After the national revolutions, and the interference of the European Great Powers of that time, a new situation was established in the Balkan during the late Industrial Era.

## **6. Description of the Human Activities during the Industrial Era**

The beginning of the Industrialization Era extends essentially from the first Industrial Activity of mortal bricks' chain production, up to the Industrial Revolution in the 18<sup>th</sup> century. As it happens, though with all era's beginnings, industrialization involved a long process of fluctuation between inactivity and rapid evolutions.

The characteristic element of the beginning of the industrialization ages was the alternation of the evolutions in the human societies with the evolutions in technology. The developments in human societies were up to then equivalent of those of the rest living beings on earth. In those of technology, though, they involved only the humans, as technology was an exclusively human activity.

The axis direction of the developments in the Industrial Era was to a gradual weakening of the pre-industrial elements, which at the end resulted to an opposite to the starting point direction. The first field that industrialization brought changes was the variety. The variety in nature is controlled by the law of survival that is indeed arbitrary, but its practical result is a direct adaptation to environmental changes. In this way, the variety of nature has no unnecessary parts or modules, as in the complex system, formed by the arbitrary determinism; each part is supported by a plurality of combinations and interactions. On the other hand, the law of nature defines that everything that is removed, upsets the balance in unpredictable extent.

The industrial production required right from the begging the restricting of the variety, by using methods of simplification. The aim was to achieve uniformity and standardization of "requisite variety", by removing "unnecessary variety". In fact, one of the initial terms provided the industrial standardization was "Unification". In fact, the problem, the size of which was highlighted at the last part of the industrial Era, was that no limit was set for the maximum "unnecessary variety". The devastating effect of the theory of unnecessary variety was a complete reversal of balances both in nature and human activities.

Another feature of industrialization is the requirement for the highest possible accuracy. Accuracy is an element required solely to industrial production, and achieved only by technology and automation. The human factor is here considered insecure, and the greatest possible limitation of his presence is sought. Even the disappearance of the human factor is considered a means of total accuracy. The requirement for absolute precision in conjunction, in parallel with the afford to unnecessary variety, gradually reduced the role and the place of humans in the whole range of the daily activities. As "human factor" were then only meant the multipliers of the industrial culture with a high specificity. The specialization has led to changes in many fields of human activities, with the more marked one the education sector. Some educational circles have even formed the view that education should go directly to specialization without any general knowledge.

One consequence of this attitude was that essentially education and training were equated. The education and training simulation phenomenon appeared at all levels, and substantially has lengthen

the time of courses of higher education with postgraduate studies, theses etc. But as the rhythm of changes in the environments is nowadays extreme frenetic, frequently when the studies have finished they are already outdated. They have been retracted or, as the areas of activities to which they refer are degraded, they have redundant manpower or have disappeared.

The common denominator of the developments in human activities during the industrial Era is that, the human factor was marginalized and the machines have entered in his position. The thinking man, he who like Eratosthenes of Antiquity measured the earth axis by using only his mind, turned into a qualified operator of technical tools and ceased to be thinking. Losing all contact with nature, humans learned to live only in their own artificial world, ignoring how much danger they were exposed to.

The developments in the Industrial Era have shown in this way that the evolution in the technology sector inactivated the intellectual human activities. On the contrary, the small sizes of traditional small sizes of the enterprises and industries, which were activated by manual activities and the human brain, helped to develop the manual skills and competencies. With notable exceptions, of course, which are not contradicted in substance, the intelligent men throughout the course of the Pre-industrial Era was developing his mind with a blend in the natural system, thanks to which it he developed his physical abilities, in the Pre-industrial Era. Besides the production, the transactions were done also harmonic incorporation, which is the most important factor for the known quality in transactions.

The other important factor that was differentiated is the accuracy in measuring weights and measures, which is of course performed better in the Industrial Era. Here accuracy is definitely one of the major required elements, which ensures the accuracy of the transactions. The advantage of such an improved accuracy is often undermined through by the large sizes that have prevailed in the trading also. The large sizes exclude in practice the accuracy in the relations between the parties in every transaction activity.

It is a fact that during the Industrial Era the consumer-user direct contact with the manufacturer or trafficker was interrupted and by this way the two-way bilateral communication and information. In this way, the consumer-user could easily fall victim to fraudulent and frivolous advertising, during the dealing in industrial way. Besides these, the producers or traffickers have lost during the Industrial Era the advantage of data feedback, which is essential for production and transaction activities- planning.

Small production's-trafficking' and transaction's sizes have of course some weaknesses but at the Preindustrial Era most of these have even proved to be advantages. The limited necessarily available means for instance, have led the manual enterprises of the Preindustrial Era to the exploitation of natural resources, to find the multiple uses of the media and to the reuse of the materials. So the Preindustrial enterprises were able to adapt easily and promptly to the changes of any environment.

Maybe the most important differentiation, thought, in the determinant factors, was the evolution of professionals in the preindustrial Era. A professional, then, was evolving from the rank of learner to the rank of connoisseur-master ensured in a way the positive results of his activities. These insurances are not provided by the educational systems of the Industrial Era. At the same time as the pre-industrial development from the one stage to another secured promotion on the basis of attribute able capacity, it was ensured that occasionally the right people were in the right place.

## **7. Conclusions as Proposals**

The basic conclusion after those which are referred up to now, is that the continually increasing measures (which have reached globalization) in the industrial production-consumption-contribution is the main cause of those socioeconomic cries which revoke in praxis the advantages which has in theory the industrialization. Although relative crises occurred also at the Preindustrial Era, they had never the less much smaller duration. Besides, the adaption possibility of the enterprises by correcting their actions was bigger, due to the small sizes.

Consequently, the proposal for a prototype-model of the Postindustrial Era, which arises after that conclusion, is that a system should be then built, which would provide to the small measures the advantages of a mass production-consumption-contribution, without having the disastrous effects of the evolutions in the Industrial Era. The general figure of such a Postindustrial socioeconomic system could arise after the positive and the negative, signs of the Postindustrial as well as the Industrial Era.

The reported positive signs of the Preindustrial Era were:

1. The direct relationship between the production-trading and the consumption-use that comes out of the direct relation that the small measures have.
2. The role of only a register and coordinator that the governance of all levels actually had, although it had typically the unique province of legislation.
3. The feed-back possibilities from distribution-consumption-use to the production-contribution or the government and the other way around, due to the small sizes and the direct relations, which minimize the time measures.
4. The axiocratic life-thought development of the professionals that ensured the completion of the items knowledge, as well as the continuous updating of it.
5. The immediacy in dealings had also as a result the right validation in situ of the producer or the contributor by the consumer-user as well as the diverse. In this way, the whole dealing was also advertised rationally.

As negative Preindustrial signs are indicated:

1) In the knowledge sector.

1.1) The cognizance was limited and it was not based in a scientific research, because the learning was mainly after the application in action. This fact indicated indeed some problems, but as the needs of that Era were limited, those cases were rare. Nowadays this lack is an important fault.

1.2) The knowledge from the whosoever findings was difficult to diffuse, due to the limited means of communication. So the knowledge of such kind of research was compulsory transferred to a small local circle of learners and it was rarely written down. In this way, the "lost knowledges" of that Era were many. One part of this lost knowledge, thought, is regained today by the archeological research.

1.3) If the procedures having to do with guarantee are considered as knowledge, it is confirmed that during the Preindustrial Era there were intrinsic preferences to provide such learning services. So, as the defected products, or even services, which cannot be confined at first site show their defects after some time, the art form of dealings of that era did not allow their tracking on time. So the producers-providers of defected products could also not be located and expelled.

1.4) As knowledge could correspondingly be considered the data that come out after the controls and inspections. During the Preindustrial Era, controls and inspections were done by the guilds by rule, mainly on the products. There were not any mechanisms though, which could allow controls or inspections for the faulty services.

In general we can say that both the facts of control and inspection's shortage, in comparison with the absence of guarantee means, resulted the defamation of the whole relevant national production and made the consumer-users of it hesitant. As an antidote though, the immediacy in all the activities at that time, activated the guilds on time, which guilds were in the position to segregate and expel of those entrepreneurs who defamed the branch, and by extension that nation.

2) In transactions, the lack of accuracy, mainly in measuring. Accuracy is nowadays an important factor, even more than during the Industrial Era. It is the main technological means for the building of networks in production, trading, education and governing, as well as for the networking of all these activities between them.

This negative factor can be faced, though, in the Postindustrial Era by exploiting all the means that modern technology provides. Modern technology in general is yet much cheaper than in the longer part of the industrial Era. Especially electronics provide ideal means for the networking's building.

3) In the measuring sector, the inaccuracy that occurred by dispersion of the small enterprises, as well as by the poor means, is considered to be a negative figure of the Preindustrial Era. This negative preindustrial figure presented indeed a severe problem of measures' and weights' diversity, but mainly in transactions, due to the limited needs for accuracy in the production at that time.

All the referred negative preindustrial figures can be today eliminated by the exploitation of the Industrial Era's knowledges and experiences. Specifically in the education-research, accuracy and control-inspection sectors, all the positive figures that emerged here during the Industrial Era can be utilized today.

By utilizing the industrial positive figures, the postindustrial prototypes - models in education, training

and research could be created. As far as measuring's accuracy is concerned, for the cases that such is needed, could be achieved by utilizing the industrial experiences and knowledges. In parallel, a practical rationalism could be prevailed by parlaying the preindustrial experience for the cases where a major accuracy is not needed, but on the contrary there is a need for a possibility for estimations as appropriate after the local and the environment conditions.

We conclude our presentation with a proposal for the operation of this postindustrial system that we have in mind. The desideratum of such a postindustrial system, in order to operate effectively, is to get today the interconnection of the production-distribution-consumption with the research and education-training, which has been achieved to a degree internal in the big enterprises of the global system. Such an interconnection exists by nature in the industrial multinational enterprises.

The interconnection of the postindustrial small measures in-between them, as well as with education and research, can be achieved by their networking. This will bring-out better practical results on this field, than those of the industrial big measures. ENEPROT has planned such a network, and promotes its application. If and when this, planned by ENEPROT, "Rationalization's and Quality's Network" is applied in Greece we consider that it will for sure result the rapid socioeconomic development of the country. At that point, Greece could constitute again a development prototype-model for the Balkans and Europe, as it was in the past.

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