The Constraints of Exchange and Sharing of Spatial Data[1]
By

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Abstract

A new threshold has been reached in obtaining, processing, structuring and presenting spatial data particularly as a result of progresses achieved in information technologies. At this threshold the importance of spatial data is being almost rediscovered. A new period has begun in which all thoughts concerning space depend on examining and analyzing of spatial data in the broadest scale. This process requires that we review our approach to space. On the other hand, continuous increase in the number of spatial data users has put on the current agenda the formation of a huge market.

Particularly, the demands for setting up the Geographical Information Systems (GIS), and the steps taken in the analysis of spatial data have made these data necessary almost in all areas of communal life. While these progresses are emphasizing the importance of spatial data on the one hand, they, on the other hand, charge new missions and responsibilities to relevant authorities. In matters related to making such data useful and their sharing and distribution both globally and on the basis of countries.

In this paper, after putting forth the importance of spatial data in our times, and after, examining the new possibilities in the process of obtaining, processing and structuring of spatial data, the problems in the process of distribution and sharing of data and the constrains in these matters shall be examined. This examination shall be made on the basis of specific conditions of individual countries, sharing constrains in general , approaches of institutions of professional authorities and behaviors of individuals. It will be put forth that comprehending the importance of spatial data will be possible only if more correct and up-to-date data are produced and the obstacles in sharing these data are removed.

Key Words: Review on Space, Importance of Spatial Data, Market Concept, Obtaining Data, Processing Data, Distribution and Exchange of Data, Problems

Value of Spatial Data

The technological development also means, in a sense, the diversification of data production means, enrichment of data resources and enhancement of quality… New developments have always taken place in above fields in parallel with the development of communities and historical progress of civilization, and shall continue to take place. Such developments are of nature that charge us with new duties and responsibilities but, at the same, start new evaluations and discussions on the subject.

The field of spatial data has been getting its share from these developments as well. The importance of new spatial data has been increasing steadily day by day, resulting in more intensive uses of such data in relevant areas of social life. While the importance of "Geographical Information Systems" is particularly emphasized, it has almost become a standard remark to state that "80% of the data of certain institutions is related to space". This high percentage indicates that the mankind has recognized again over a different plane the importance of space relations.

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[1] Written in 2004, but has not been published.

Along with this increased importance, however, while new opportunities have arisen in the fields of data exchange, management of data traffic, access to data, using of data and generating information from data, new risks have also arisen. Therefore, the basic issue I wish to discuss here is: "Has a medium of use of spatial data compatible with such importance been really developing in parallel with the increased opportunities and means?"

When we look at the spatial data market, we observe that the share of the field of spatial data in the sector of informatics has been increasing steadily. What needs to be question here is whether or not this increase has been in parallel with its increased importance.

The efforts spent on the technical, technological and logical aspects of structuring the data and offering them to use have increased the process required to overcome the difficulties. But no matter how well solutions are introduced in these fields, when it comes to the social field, certain constraints are encountered. While the technologies constraints could be overcome more rapidly, the social constraints could not be so easily overcome.

Aspects of Data Relevant to People

Egoism is defined as "the performing of a person's activities solely with the purpose of meeting his own personal interests". If we consider the person here as "the person producing the data", then we may qualify it as "the using of data produced by a natural person or legal entity by that natural person or legal entity solely to meet his own interests". If this phenomenon is perceived in this form, the egoism may then be said to constitute one of the building stones of monopoly. Egoism and monopoly are usually one within the other and embrace each other. In this sense, the egoism and eventually the monopoly shall mean "the keeping of data by the person, who has produced them, and not disclosing them for public use but storing, locking and making them inaccessible by that person".

As a result, we will eventually encounter a natural person or legal entity who produces his own data and is the sole owner of that data, but who does not share them with others by forgetting or ignoring that the value of any data will increase only by use. The reasons of such egoism may be different, but the result is the same: The data are not opened for widespread use. The doors of the cabinet are opened only as long as the data are used to serve the interests of their producers, otherwise they are kept closed.

It is not very important here to make a distinction between "natural persons" and "legal entities" because in the final course the activities of legal entities are governed by natural persons. It is observed in some legal entities that although the rules favoring sharing of data have been introduced, the natural persons employed there fail to realize sharing. In this case, the person's own ego has been transformed into a caprice of that institution.

Moreover, the decisions regarding the sharing or not sharing a certain data will be the natural persons serving as an upper staff member in the legal entity involved. As a matter of fact, the policies of a country are also determined and governed by the boards, institutions and parliaments composed of natural persons. Therefore, in the consideration and evaluation of data sharing, factors such as the level of training, intentions and inclination toward universal values of natural persons are of significant importance.

Aspects of Data Relevant to Professional Groups

Production of data is not easy. When I say this, I should not be thought of approaching it only from the standpoint of cost. If any data said as "produced" are correct, sound and reliable, then these values cannot be bought solely by money. The human factor, processes and methods will be involved. Every professional group will produce data within the frame which has caused its existence as a professional

group. In the final course, the neighbouring professions embracing that profession will be waiting for the production of such data. Under this situation, if a particular professional group is tempted to become passionate or fall in melancholy over its data, no sharing will result. In other words, professional fanaticism and conservatism may lead to embrace the data and to conceal them.

But a bird eye view will show that every profession uses certain data but at the same time produces data for other professions. Consequently, a process of changing places between resources and recipients will be experienced in the theoretical sense of communication.

From time to time, inter-professional fights over fields of activity may be experienced because of uncertainties with regard to the boundaries of fields of activity of different professions. Especially, in our times where the professions tend to be diversified by dividing themselves into new professions, such fights are observed to be more frequent. In cases where such cases of uncertainty create an erosion of self-confidence among professions, a problem of snatching certain fields is likely to arise, and has actually arisen.

In the meanwhile, if transformations compatible with contemporary requirements could not have been realized in the organization and institutionalization of the profession as well as in the distribution of duties and powers, such problem will transform into institutional complexes within the sector. Since it would be contrary against the theory of systems for a profession which locks clarity of structuring within itself to be strong against other professions, a medium of weak and in effective sectors will eventually arise.

In such mediums, the contradictions between persons and institutions with regard to statements – actions will reach extremes. Everybody wants the realization of good things. But, what is actually realized is usually bad. For example, while everybody wants automation, as a concept so called traditionally, or the processes based on information technologies in terms of current usage, when it comes to production, the classical methods are practiced predominately. This situation may well be likened to this: When we take a look at the world, while everybody tries to market democracy, the cases of dictatorship are swaggering about…

We have to free ourselves from the wrong attitude of seeing the data produced by a particular profession as "the indispensables of its professional existence". In the final evaluation, every profession is one of the parts of a whole, but not the whole itself.

Social Aspects of Data

One of the most important factors to consider in the production and sharing of data is the social conditions existing in the countries where they are produced. A high level of social development not only provides certain advantages to some countries but also enables them to have dominance in determining the conditions governing the sharing of data. To put it in a more correct way, the development countries consider such dominance as a natural right for them. How much justifiable is this? It is no doubt that the developed countries are more developed also with regard to the infrastructure of data production. They have made investments in this area and continue to do so. This naturally causes an increase in the data production costs. The scientific and technological investments are being built on investments of many years. Thus, such communities are evolved into information societies, and they qualify their structuring as such. But, in the evolution of world family of mankind into information societies, the share of today's developing or underdeveloped countries with rich natural resources should not be ignored. This fact is sometimes forgotten, or cause to be forgotten, and as a result, the developed countries consider themselves to have claims over the world's natural resources, continuously.

When examined and considered at global scale, the utterances of opinions inviting democracy to be more participating are observed to be getting more widespread. But, while democracy needs to be

more participating by virtue of its definition, it is observed to be pushed into a more insisting course of approach. Do the developed countries defend a more developed democracy or their understanding of democracy? On what basis of objective criteria do they recommend "more democracy" to the developing countries? Disputes of concept are also experienced in that area.

In fact, such international alienation seems to transform into a significant parameter of dependence of developing or underdeveloped countries to developed countries. While the adoption of an understanding of more sharing has been getting more and more compelling and indispensable in solving global problems, this process is observed not be actually experienced. So, it becomes more difficult to speak of a family of mankind. Reasons of smaller dimension seem to obstruct the process of integration.

Under such conditions, the intercommunity data communication, mutual assistance, and solidarity fail to help the development of civilization. The increased rate of commercializing taken place in relations has strengthened this event.

National Aspects of Data

A significant factor here is perhaps the concept of "interest". The reflex exhibited by every nation to protect its "national interests" plays a role also in the sharing of data. The "reflex of protection of interests" may have justifiable aspects. But especially after the declaration of Helsinki Document in 1975, the more and more digressing taken place from the policy of "living together in peace" has led countries adhere more to national interest and hegemonic approaches.

Moreover, as a result of increased "lack of confidence" experienced in the global medium, the national security policies have become more strict, leading to conservatism and restricting the circulation and sharing of data. While defending an "open community", the doors are closed. The discussions on the subject are restricted on grounds of national security. Any defending to the contrary would constitute a critical threshold bearing the risk of imposition of an "offense of high treason".

Undoubtedly, an emphasis should be made on the judgement of national values as well as on the history and historical relations of communities in this context. The hostilities between nations which have been lasting for many generations hinder the sharing of data. Actually, rather than the hostilities between the people, but the alienation arising as hostilities between the dominant ideologies administrators, and the benefits expected from the continuation of same, are observed to eventually cause the removal of any efforts of cooperation.

National requirements and characteristics may of course justify the keeping of many data closed and not to open them. But what we are trying to refer to here are not such specific data. It is the problem of a concept created and used as a means of refuge in case of data not furnished although they could be freely furnish. Such concept is generally associated with the most important values concerning a country, such as "national interests", "national security" and "national values"…

International Medium of Data

The level of international relations is the most important determining factor regarding the circulation of data. The periods of calming in relations are observed to strengthen the inclination toward sharing while the periods of stiffening in relations are observed to strengthen the inclination toward confinement.

An illusion like "the new technologies cause the widespread sharing of data" also seems to be created. Although the radical transformations brought by internet to the human life in our times have made

communication more global, it is a reality that the volume of data shared is far behind that of the data produced. The phenomenon of "covering" and "concealing" information is highly widespread.

The process has been developing in the direction of exclusion of many countries from the family of information societies. While in the past the communities used to be classified on the basis of certain parameters or contradictions, now they are grouped according to the "digital divide". And the abyss between the societies has been getting more and more wider. We should perceive correctly who is favored and who is disfavored by this process. While the contradiction between north-south is continued, a process is experienced where such contradiction is strengthened by the digital divide.

Indeed, this division has led to the creation of new relations of dependency in the sharing of data, too, as in many other areas of life. The countries not able to produce technologies but are dependent on the technology-producing countries consequently exhibit a relationship of dependence in the process of data production, as well. Particularly in the field of satellite technologies, for example, a full dependence and monopoly dominates. In the existence of such a medium, how can one talk about "freedom" and "democracy" with regard to exchange of data?

The academic studies, discussions and evaluations of goodwill carried out in professional mediums and scientific circles seem to be rather "naive" when compared to the intentions of administrators and those producing technology under the conditions of globalization. This is because of the fact that the efforts directed toward maximizing profit point out to a phenomenon where the element of goodwill has been considerably reduced.

The documents issued as a result of meetings held at Rio de Janeiro (1992) and Johannesburg (2002) and by such organizations as European Union and United Nations Underline the problems to be faced by mankind in the future, the underlining continuously becoming more and more intensified. The settlements of people, forests, water resources, climatic changes and poverty are all underlined. The inventories of no longer existing natural riches and resources are prepared. But despite all these efforts, the problems have shown a tendency of increasing instead of decreasing. Obviously, there must be something wrong somewhere. In diagnosing the problem correctly a correct starting point need to be established with regard to deciding whether to analyze the causes or the results.

Furthermore, the continuous increase experienced in the "exchange value" of data has given rise to the consequences not facilitating the exchange and sharing of data but rather making them more difficult. Without the existence of a medium of competition, where the monopoly plays a dominant role, only a freedom of exchange proportionate with the power of payment may result. It is anticipated that many sectors would not favor the talking and writing on issues of such kind. But, if we wish to inquire about our future status concerning the exchange and sharing of data, then we need to point out to certain issues in a more courageous way.

Culture of Data Sharing

Mankind should construct a new culture of data sharing on such a vast experience and accumulation. Could it do so? The author well recognizes that this is a rather abstract approach. But as our lives continue "on the intersection of imaginations and realities", would there be any other way of exit than maintaining that hope, and expanding the intersection?

"Culture" is one of the words having the greatest number of definitions in dictionaries and encyclopedias. The term "culture" has been derived from the verb "colere" in Latin. The term "colere" has a very rich implication covering a combination of many meanings such as "to cultivate, raise, arrange, repair, build, maintain and care, grow and harvest, improve, train" etc. The term cultura derived from that verb was first used to define agricultural activities. The Romans used the term cultura to name the plants grown in the field by the efforts and hands of people in order to distinguish them from the naturally grown plants. Since the times of Cicero, that is 1st century B.C., up to the 18th

Century, the term "culture" is observed to be used in the meaning of "individual culture". In the 18th Century, due to the importance attached to "intellect" by the philosophy of enlightenment, a person who has acquired the necessary information, capable of using his intellect, capable of acting according to the rational principle, capable of controlling one's self and has thus acquired a "personality" in this sense was called an "intellectual". Toward the end of 18th Century, that term is observed to be used in plural sense besides its use in singular sense. According to its new meaning, the "culture" is defined as a combination of all intellectual, artistic, philosophical, scientific and technical production means and values constituting the union of feelings thought and values of a human community, a particular people, a nation and more and more of a union of nations. Thus, by virtue of its use under this definition, not for single individual but for a community of individuals, the term has been imported a new meaning, which might well be called sociological meaning. With that new and broadened meaning, the "culture" has been imparted plurality from two aspects: It is an integrated whole of the characteristics of not a single individual but of a community, a particular people and a society. Besides the term civilite referred to in association with the Greek term "polis" (urban) constituting a part of the term "cosmopolitism", a slogan of the Enlightenment Period, the use of the term "politicite" is also observed. Moreover, we also observe the using of the word "urbanite" derived from the word "urban" (city) in the same sense.

Among these terms, the widespread use of the term civilite (civility) is observed, and starting from this point, we observe the adoption of the term civilization expressing (and wishing) the development of the whole mankind in a direction characterized by cosmopolitism and progress under the universal/humanistic approach of the Period of Enlightenment.

Besides the application of the term "culture" in singular sense for nearly one thousand years and its application in plural sense starting from the beginning of 18th Century, the introduction of the term "civilization" in the last Century has led to he starting of a discussion on terminology, which is still continued today. In the western languages the term "culture" has continued to be used in its traditional singular sense, that is, as "individual culture", but has also found application in its plural sense by being used to define the moral characteristics built up over a society's physical/technical accumulations.

In view of information presented above, the mankind may and has to, create a new frame or a medium of sharing for the future, based on all the values it has accumulated since its first appearance in the scene of history. The critical threshold now arrived with regard to the relationship of mankind with space, that is, the reality that our future is under threat, serves as a fundamental reason why a new base of culture should be created for the sharing of spatial data. This is an issue which must be put on the current agenda without underestimating or overlooking.

Even if it would be a repetition of certain details, it would be useful to see the explanations provided on the concept of culture as an element constituting the backbone of the process of data sharing.

Issue of Consideration of Space

As we are approaching the end of the paper, we need to return to its beginning.

A well-known proverb of American Indians says: ***"The world is not a heritage left to us from our ancestors, but a trust to be left to our children"***. The world, the earth, the geography where we are living, the spaces where most of the human activities are carried out… Our environment, the soil that we step on, the air that we breathe, the water that we drink… To what extent we have used, and are using them with the logic of a trustee? More correctly saying, are we using them with the logic of a trustee or with the profligacy of a prodigal? To what extent we have developed this trust, these environment-related values that we are going to leave to our children?

One of the most fundamental characteristics of our living areas called "space" is inherit in their being limited and not capable to be increased. Excluding the very special cases of increasing, the size of a space or spaces is definitely determined. They cannot be moved from one place to another, either. In other words, the spaces are scarcely available resources. These characteristics constitute the fundamental reason why they should be carefully used, well managed and well protected. Indeed, as a person who has struggled throughout his life to ensure careful usage of this scarcely available resource, the space, **Prof. Fehmi YAVUZ** stated many years ago in one of his articles as follows*: "Hemen tüm geri kalmış ülkelerde toprağa bakış açısı, kasabın kuzuya, koyuna bakış açısından farksızdır. Bunun kökünden değişmesi gerekir. Toprağa, bir müzisyenin, resamın, heykeltıraşın kuzuya baktığına benzer bir açıdan bakmak, yalnız çıkar bakımından değil, kendimize ve başkalarına saygı yönünden de gereklidir."* But unfortunately, the mania of acquisition, the exaggerated meanings attributed to the concept of ownership, and the micro-ownership coming to the fore have led to a kind of stolidity manifested in tolerating all kinds of misuse of space. Whereas, the space, whoever it belongs to, is associated with society, and its use will lead to consequences associated with the society. Many wrong decisions given with regard to our spaces so far have resulted in undesirable consequences from the standpoint of society. Just to take a glance at the world will be sufficient to prove this… The number of examples available seems to be inadequate to emphasize on the point we have come today.

We are face to face with the obligation to use such scarcely available are in the best possible way. And not on the basis of individual countries but on a global scale, because we are experiencing a process where the problems have been globalized, too. The topics of AGENDA 21 demonstrate very nakedly the point we have reached today. The thinning of ozone layer, warning of atmosphere, decrease in forests, pollution of seas, reduction in natural resources and agricultural land, intensive use of spaces in urban areas etc. are not issues to be considered on the basis of individual countries but on a global scale. Then it follows that the global policies related to the use of spatial data and spaces a must be put forth and the solutions devised must be implemented. Again, in developing said policies, the concept of "interest" must be taken into consideration. It will not be possible to derive a "global social interest" by taking the arithmetical sum of the social interests of individual countries. Then, the issue of "global social interest" has to be taken up and discussed on an international platform concerning the use of spaces.

Don't you think that time has come to revise our consideration of a space? Aren't we at the threshold of questioning the eye-glasses we use in looking at the space? We must do so because the position of individuals as well as professions is going to be shaped according to the space… A medium of producing and presenting data shaped by it is going to be created. The choices of technology are going to be based on it. And the conditions of data sharing are going to be defined according to it.

The choice of technology is obviously important. As a matter of fact, certain constraints imposed at national scale with regard to access to data are being overcome in practice through the use of advanced technologies. Thus, such constraints imposed just remain as something written on paper with no implementation, and worse than that, as rules subject to humor. This, however, should be considered as a favorable development.

In fact a certain degree of uncertainty is presently experienced with regard to the future of the issue of using advanced technologies in determining spatial data. What I am trying to point out here is not a scenario of catastrophe, it really can't be. I am just trying to start a discussion… But, when we consider such widespread application of both the GPS and remote sensing technologies and the means offered by them, don't they actually lead to the realization of conditions causing dependence to those holding the switch in their hands?

The realization of wide spreading of spatial data production is not an aim by itself, and it can never be. The concept that we must talk on this the widespread application of the "use of spatial data" rather than the "production of spatial data"… And this is where the problem shows up, because this is a

concept overlapping with the freedom of data exchange. How could it be possible to achieve the first one without achieving the later one?

Such concepts of recent date as Geomatics (Geoinformation), Land Management, GIS and GPS serve as messengers for the new period related to spatial data… They have started a new period on this issue. More correctly saying, these concepts have been derived under the conditions of a new period. This must be underlined. The waves, however, seem to remain as local waives. The duty of creating a global wave again remains to be assumed by the surveying engineers and spatial informatics specialists.

In considering the requirements related to this duty, it we limit our thinking solely to such concepts and values as "market", "spatial data market", "status of market" and "size of marked", I am afraid the problems underlined many times in international documents will continue to grow. As our spaces, our earth and the areas where we live and can live remain limited and restricted in size, and cannot be increased, the problems will be growing both quantitatively and qualitatively.

The concepts such as the "value of data", "commercial value" and "exchange value" are expected to show up as the tools of new relationships of dependence under the shadow of monopolistic tendencies. The tempting increase experienced in the values of use of spatial data will cause the attention of new actors to be directed toward this area. But the motive of making profit solely will not unfortunately lead to the result of loading the value of use of these data in the sense of "global social benefit".

Conclusion

I have tried to take up and discuss the constraints related to the use and sharing of spatial data in terms of their general dimensions. The difficulties and constraints experienced in this sharing of data, particularly the spatial data, due to the reasons. I have tried to enumerate also limit the use of such data. This, however, doesn't faster the importance nor increase the value of such data as expressed in terms of figures.

The problem is a question of "the purpose of production of spatial data and what is actually expected from it". The answer to this question must be provided on the global as well as on the national scale.

We are of a threshold requiring urgent steps to be taken up. The value of use of spatial data should be increased while their value of exchange should be reduced to tolerable limits. When this is achieved, a reduction in the problems experienced will start, leading to more encouraging developments with regard to our future. The problems faced by mankind on global scale oblige us to generate solutions based on spatial data. The enlightening of our future is closely related to the steps to be taken now…

Shouldn't it be our aim to start gaining our future right from today?

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