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# **THE SOCIAL USES OF THE INNOVATION CONCEPT. A QUALITATIVE APPROACH TO THE DISCURSIVE LOGICS FOR THE ACCESS TO AND USE OF INFORMATION, COMMUNICATION AND KNOWLEDGE IN ANDALUSIA.**

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## **Abstract**

In the semantic architecture of the society of the knowledge the innovation concept is the fundamental brick. It is an adobe that allows to construct very different discourses frequently opposed between them, in what the purpose of its social use concerns. In the present communication we introduce the motivations for the access and use of the information and the knowledge on the part of the different social sectors in the Andalusian society. The analysis of the efforts of the Andalusian administration to promote the economy of knowledge supposes an opportunity to show the contingency in the reduction of the digital divide on the ground of citizen participation. It proposes a qualitative approach to the knowledge production, management and socialization in Andalusia derived from an research performed by means of personal interviews. Our conclusions indicate how the link with the social development is a priority in the case of the small and medium-sized enterprises, as well as for the social organizations and social movements. It underlines the logic of the economic development in the great companies oriented to the technological innovation, in the European Union research laboratory, and in the Andalusian government organ dedicated to the innovation, science and business. In the university, and the public research institutes area the main point is research. Three positions are identified, the traditional that is reluctant to the processes incorporating information and knowledge, the one that finds in the innovation concept the main motor of the Andalusian system of knowledge and the one that is closely connected with the equality and the social emancipation.

## **Resumen**

En la arquitectura semántica de la sociedad del conocimiento el concepto de innovación es el ladrillo fundamental. Es un adobe que permite construir discursos muy diferentes y a menudo contrapuestos en cuanto a la finalidad de su uso social. En la presente ponencia presentamos las motivaciones para el acceso y uso de la información y el conocimiento por parte de los distintos sectores sociales de la sociedad andaluza. El análisis de los esfuerzos de la administración andaluza por promover la economía del conocimiento supone una oportunidad para evidenciar la contingencia de la reducción de la brecha digital en base a la participación ciudadana. Se trata de una aproximación cualitativa a la producción, gestión y socialización del conocimiento en Andalucía a partir de una investigación realizada mediante entrevistas personales. Nuestras conclusiones señalan como la vinculación al desarrollo social prima en el caso de las pequeñas y medianas empresas, y en el de las entidades sociales y movimientos sociales. Destaca la lógica del desarrollo económico en las grandes empresas orientadas a la innovación tecnológica, el laboratorio de investigación de la Unión Europea, y el órgano del gobierno andaluz dedicado a la innovación, ciencia y empresa. Lo principal es la investigación en el dominio de la universidad y los institutos de investigación públicos. Se identifican tres posiciones, la de tipo tradicional refractaria a los procesos que incorporan información y conocimiento, la que encuentra en el concepto de 'innovación' el principal motor del sistema andaluz del conocimiento y la que se vincula a la igualdad y a la emancipación social.

## THE RESEARCH PROJECT

The research untitled "Motivations for the Access and Use of Information and knowledge in Andalusia", budgeted by the Committee for the Andalusian Knowledge Society (Comité Andaluz de la Sociedad del Conocimiento, CASC), involved a qualitative approach to the problem of the communication and knowledge society in Andalusia, through open interviews. The interviews were performed between June and October of 2008. Seven 'key' agents in the knowledge Andalusian system were selected, on the base of their definition by the Andalusian law on science and knowledge (art. 2). Namely:

Organizations that generate knowledge

Networks and structures that transfer, adapt and apply knowledge

Management entities that support the coordination and administration of knowledge

To correctly situate the coordinates of our research and its conclusions, it is better to begin by pointing out its main limitation: the scope of the performed interviews design were not all the actual positions at work between the 'agents of the Andalusian knowledge system', for that a further extent and better funded research project would be necessary. In spite of that, it constitutes a first approach to this field. A contact that was performed with highly specialized informants, situated into four central spaces of the process of production and application of the information and knowledge society in Andalusia:

a) The space of the research and the production of basic scientific knowledge. Public universities and institutes in social research. Interviews nº 4 and nº 5 (Annex I).

b) The space of the application, transference and adaptation of the knowledge and the information to the economic development. Great enterprises linked to the technological innovation. Interview nº 7.

c) The space of the application, transference and adaptation of the knowledge and the information to the social development. Small and medium-sized enterprises in social economy and social entities and citizen movements. Interviews nº 2 and nº 6.

d) The space of the management, coordination and administration of the knowledge and the information for the economic and social innovation. European Institute for Prospective Technological Studies (IPTS) and the Observatory of Innovation and Participation of the Andalusian Regional Ministry of Innovation, Science and Enterprise. Interviews nº 1 and nº 3.

THE THREE SEMANTIC FIELDS. The analysis of the performed interviews show how the opinions, the attitudes, the motivations and the expectations of the representations of the knowledge society is constructed from the conjunction of three semantic fields (Conde 2010), three discursive and motivational logics, differentiated but interrelated between them. We display them hereafter

## THE THREE SEMANTIC FIELDS

## **KNOWLEDGE AS AN INSTRUMENT PRIMARILY AIMED TO THE KNOWLEDGE PRODUCTION BY MEANS OF RESEARCH.**

In this first discursive logic, primarily present in the universities and the research institutes, the knowledge process is performed through the processes of pure or basic investigation. For the social actors, predominantly located in this discursive logic, the main motivation for the access and use of the knowledge is to produce more and better knowledge. In our investigation, this discursive position predominates at the field of the natural scientific inquiry, as illustrates interview nr. 5. The prevalence of this discursive position, although in a more nuanced way, is as well exemplified by interview nr. 4, from the field of the social scientific knowledge.

From this position of the basic investigation, highly specialized, that works in the public university, the main motivation for the knowledge production is the generation of knowledge by means of research. From an historical perspective, the process of development of the knowledge society in Spain and Andalusia is described as a clear progress:

“but in addition the level has risen much, but not only in Andalusia, but in Spain. Clearly, the thing is of generation, the thing, we are speaking when I began in 63, the Francoism, because in a few months nothing could not be done ... everything was very precarious then, but little by little, little by little, it has been changed and above all with the entrance of Spain in Europe other projects were started to be made. But people began to move and obviously, now the thing is radically different, if I now receive requests of foreigners to enter into my laboratory, when then that was unthinkable.” (I. 5. P. 75)

Nevertheless, continual difficulties are detected to take this process ahead. Some seem surpassed, like those that prioritized in the universities, the teaching over the research, for the funding of employments:

“now by law, a part of the public financing comes for investigation, but during many years for example it was practically impossible to secure any professor post except by increasing the number of students... that is the definitive demonstration that teaching was the unique thing that was of interest, no? well and in the inauguration of the courses the rector said, research without excuses ..., but that, it was a lie, no? Then, clearly, but all of that, it was united, I think, to the economic question.” (I. 5. P. 77)

Others that have made notorious advances, like the relationships with the central administration. But there are still others, like the relationships that are held with the autonomic administration, which in spite of been perceived as better, they suppose once more serious difficulties:

"Yes, but it is not either a line of hope (the Ministry of Innovation, Science and Enterprise)... Domingo de la Escala, he is a first class scientist, an engineer, a scientist; then, an infinity of complications, isn't?, this is the feeling that it gives, and that there are many political factors, for example the aid to groups, the sensation is that each one must receive a something so that nobody complains. Then clearly, to go with the same rhythm than everyone, the fact already becomes less doable, isn't? or the invention of absurd criteria, like for example: A research group must have three people, if it does not have three people it does not receive its annual subsidy". (I. 5. P.81)

These difficulties are associated, in accordance with what our interviewed person points out, with the priority of the political and electoral interests, and its consequent clientelism, that are contrary to the scientific research very interests. Here are the main difficulties to go ahead with quality with a authentic research:

"let us see, the set has improved but also it gives the feeling, of failing to take advantage of many resources, that quality is not promoted, that it appears a tendency towards a policy in which the slogan would be "everyone gets their share", that the intervention or the management is incredibly complicated, it gives the feeling that, for example, one could say, the funds are under influences that are unknown. I do not know if Domínguez does what he can, nor if the Regional Minister does it, that he is a person very (Vallejo)... that on him, he is an engineer, he does not know science, but I believe that he really wants to impel science. But it gives the feeling as if, namely as if this people would not be as free as they should be, I do not know, as if the party, I do not know, I do not know...(I. 5. P.82)"

Also these political differences and their consequent interests prevent to take maximum advantage of the potentialities of the research and their connections with other international scientific organisms:

"No, the opportunity is not seized. Here there is a lack of that dimension. That is to say, that... and in addition it is not seized because the people exist, namely there they are... this failure to seize the advantage is produced because I believe, namely, the politicians often do not realize, they live too much in their world... then clearly, so there would be more than one scientist. But there is a series of people in diverse key positions that could create so a series of connections which would be very interesting. In my case it is an example, but I can say to you fifteen more immediately. Because Andalusia, namely, indeed, luckily, we have said it at the outset, this has improved infinitely. For example there is very good people, for example in Cordova, there is Maria Isabel González Roncero, she is in tremendous tasks of genetics, in Cordova Jose Ignacio Cubero, he has been FAO representative, an FAO cereal specialist. Ignacio Cubero is a genetics university professor, is on the verge of retirement and now he is pursuing a career in history. He knows much the Near East ... because he has been traveling to Iraq, Syria and all this... that is, examples. Who in the Andalusian regional government knows Jose Ignacio or knows that through him he could meet another people...? On the contrary, I believe that even he annoys them because Jose Ignacio is a partisan of sustainable agriculture and sometimes he has criticized enormously as it must be done, so some things. Then he has the feeling of not being even well-seen." ...(I. 5. P.85)"

The application in the enterprise of the produced knowledge is not either an easy subject. The own idiosyncrasy of the researchers is an obstacle as far as the scientist career prioritizes the research on any other dimension (economic or

social). From this perspective, for the creation of companies, the activities regarding firm management, are perceived like major difficulties:

"The relation with the companies is not easy. But it is not easy because we the researchers, we do not make it easy. Me, the first one who do it. For instance, I have a biotechnology company, I am going to close it, yes... here in Seville. I am going to close it, simply because it has not covered my expectations; that makes me waste long time, and in addition because the research in laboratory interests me more. And I want to dedicate myself to it. And then clearly, that is an example of what the researchers often are or, you find a partner, and he opens a space for your enterprise, or it is very difficult to mobilize the researchers, and that is a problem, I recognize it, and it is one of our problems, isn't." ...(I. 5. P.83)

The patents continue raising difficulties, the creation of the Offices of Transference of the Results of Investigación (OTRI) are not perceived as a significant improvement:

"With a great deficit (the patents), but, that is a consequence of what I have before said, an absence of implication of the researchers in enterprise initiatives, and of the failure of the models that have been used. That is, for instance me, I say it is my own guilt, however, the OTRIS have been created many years ago, and well, the situation has not so much changed either. I believe that it has not been made well, me I am guilty, perhaps, but there are more causes, isn't?. Perhaps that lack of implication, patents exist that could... there are many potentially patentable things that are not researched, what is not do, isn't? and I have already said it to you, I include myself between the reproachable people..." ...(I. 5. P.86)

The excellence and the hyper-specialization that accompanies the motivational logic that prioritizes the scientific knowledge as research reduces its relations with the society to the possible benefits of its future applications. Even so is perceived the necessity of an effective scientific spreading: "a pending subject". The questions regarding the democratization of the scientific knowledge and the active participation of the citizen movements in the debate on the planning of the directions of the public research and in the decisions on their social uses are outside this registry, the average citizen is perceived as "missing" in this process:

"It is complicated, and we must not miss the point; the technical knowledge of the average citizen often, is not enough to explain him, well, what must be explained, I mean, that is the reality. Clearly, in science, there are things that can be simplified... isn't? I believe in that. I, in 2001, I have written in the diario de Sevilla an article about the prions, and it seemed that everybody had understood what is a prion, although often I am convinced that I do not arrive, because someone does not know what I mean, what makes clear that what is in need is to understand ..... (For example, the Principle of Precaution). Clearly, by all means. For example, Monsanto has provided arguments to the ecologists, I say the radicals, this is the reality. It is that I also put myself of the side of the radicals in that sense... (Laughter) Clearly, because it cannot be that you make a plant, that in addition needs the fertilizer that you do, and that who you sell... what a thing!... that is all. Then clearly, surely... it is complicated, the average citizen is lost." ... (I. 5. P.88)

Unlike the natural research of the public universities, the social scientific research of the institutes of social research has, from its own conception, one more applied perspective. In fact, this conception of the research contains the dimension of the basic knowledge, own to the natural-scientific research, but it also contains, explicitly, a dimension of applied knowledge. The demands of empirical knowledge of the social reality that receive the social research institutes are not only for knowing more, in academic terms, but, mainly, to be able to take part in the reality, in the present times, in a pragmatic way. This dimension, locates this perspective, much close to the social development positions. That yes, a social development that, using these instruments of knowledge, must go ahead with the autonomic public policies::

"Which is our contribution? Many things. The empirical information, this yes, because clearly in a debate these are the subjects that knock out them. We have a great faith in our work as producers of very rigorous social data, and we say... well the data are these ones, people thinks this... and we see that we give much information by the route of the data, surely, always the data are very debatable also, but well... I see that therefore, yes, we contributed something. My conclusion on this is, as there are domains where information is looked for... like applied technological data, in cases like the physics, chemistry... in the social world I believe that it is not the case. Now, yes, the IESA experience, yes, it is right as much as the Andalusian public opinion, has been, I would say that a mutual feedback has occurred, we have produced much knowledge, this has been convincing and, it has influenced us by generating still more demand and by being now in a privileged position, as a center that knows more on Andalusia it could be said, than has studied more on Andalusia and all this has been made with public money, because there has been a public necessity of knowledge, and I say that it must have been useful in some way, because people continues to require it, it is not a waste of money, and neither the regional ministries nor any politician, is so silly as to give pesetas for nothing... because yes, because one sees that we are doing a thing, that is interesting for them, in the most positive sense, when they are discovering that this, that the contribution of everything, of the data that is good for the political reflection... and from all this, I am seeing that the IESA has a very positive function, very effective and very functional, that we have produced, much empirical knowledge, that has been useful for the public policy." (I. 4. p.70)

From this perspective of public social investigation, the possibility that this same information is used by other social organizations and citizen movements is perceived as open. To take forward this reflective and transforming use of the social knowledge, the main difficulty that is detected would be in the lack of concern of the very 'people'. Facing the

scientific knowledge complexity, the citizenship is not perceived as 'absent-minded', like in the previous 'natural-scientific' logic. The problem, observed from the 'social-scientific' logic, is based in that the citizens are disinterested in the future. They are captured in the immediacy of the present:

"Yes, well, perhaps, because it is a difficult subject... but that is the reality, I say that there are scarcely debates, that there are not too much social interest, the people is not very receptive either, do you think that there is some debate on "the future of the goods consumption"?... but well, that demotivates me very much, because they are way behind the times, the world has become very immediate for everything, the people are very worried on the immediate things and, there are no great preoccupations about what will come...." (I. 4. P. 72)

## **THE KNOWLEDGE AS ECONOMY OF THE KNOWLEDGE. AN INNOVATING INSTRUMENT THAT PRIMARILY AIMS TO THE ECONOMIC DEVELOPMENT.**

In this second discursive logic, the knowledge process is performed through the application of the scientific and technological innovations, by putting the emphasis on its economic value, on the economic production. In the semantic architecture of the knowledge society the innovation concept is the fundamental brick. It is an adobe that allows to construct very different discourses, often in opposed positions concerning the purpose of its social use. The new spirit of the Capitalism (Boltanski y Chiapello 2002<sup>1</sup>) expressed in the discourse of the management (Fernández Rodríguez, 2007<sup>2</sup>) finds in the 'semantic attractor' (Conde 2010) of the innovation or in its more axiologic formulation, by adding it to the research and the development (I+D+i), its new sense of economic and social legitimacy. Two are the actors that make of this logic their main reference. The company that finds in the economic benefit its last motivation. And the public administration that in its role of promoter of the innovation, the management and the coordination of the knowledge, conceives it as the high-priority instrument for the creation of economic wealth. The interviews nº 1, nº 3 and nº 7, illustrate this motivational logic primarily. From the activity of a great company associated to the technological innovation, the nº 7. The interview nº 1, from the field of the scientific knowledge innovation and management in European perspective. The interview nº 3 echoes, the predominance of this logic in the case of the Andalusian autonomic administration.

Above all, from this second motivational logic, knowledge is economy. An economy that 'enhances its economic value' through the 'innovation'. As is included in the 'Andalusian's Innovation and Modernization Plan', after the guidelines by the Lisbon European Council, this new economy development through the innovation, will permit the Economic Union and with it Andalusia: "To become the most competitive and dynamic economy in the world, able to economically grow in a sustainable way, with more and better employments, and a great social cohesiveness" (p.12). As pointed out by the aforementioned Plan, this new economy improves as economic growth and development essential factors, the innovation and the human capital. The innovation: "includes the knowledge production, assimilation, and utilization in order to generate products and added value services in the economic and social domains in a framework of equality and solidarity" (P.17).

In the discourse of the autonomic administration, the social development logic has also a defined presence, although always, as it happens with all the other agents that give priority to this logic, that is subordinated to the first knowledge economy logic: "The dominant concept in the knowledge economy is that knowledge and education are rights that must

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<sup>1</sup> Boltanski, L; Chiapello, E. (2002): *El nuevo espíritu del capitalismo*. Madrid. Akal.

<sup>2</sup> Fernández Rodríguez, c. (2007): *El discurso del Management: tiempo y narración*. Madrid. CIS:



be accessible to the citizenship, with no restrictions, but at the same time, the tools (technological platforms, teaching methodologies and contents...) that are used to secure these rights, could be arranged so that the firms afford with them as commercial products and services to other Autonomous Communities or to other countries, with a high return value, therefore being considered as an active intangible product." (P. 10).

The previous definitions were fully shared by those between our interviewees that were situated in the following knowledge spaces: b) application, transference and adaptation of knowledge and information to the economic development; and d) space of the management, coordination, and administration of the knowledge and information for the economic and social innovation. So at IPTS, an European organism, the interest in the scientific and technological developments derives basically in its capacity to generate economic impact

space of the management, coordination, and administration of the knowledge and information for the economic and social innovation. So, at IPTS, an European organism, the interest in the scientific and technological developments derives basically in its capacity to generate economic impact:

"We are interested in what can have an impact, when we identify that it can have an impact in the future in what concerns the "policy maker", the politicians that make decisions at a public level, in pocket subjects at a large extent, economical subjects I mean, security, foreign relations, ... The great part of the subjects that concern those making political decisions, in some way are related with the economy, so, probably, the economical impacts would be the first thing we will be worried about." (I. 1. P.2)

The very evolution of the information and knowledge society is also measured in terms of knowledge economy:

"In economic and commercial terms, the comparison between the nowadays and two decades ago, the progress experienced is evident, with no doubts, and probably it will continue to be, I mean that, there is more possibility of benefiting from already existent commercial technologies and, from advances performed some years before, I do not speak on what can come in scientific terms, actually, a less known detail, but very important, is that most of these wonders, in inverted commas, like the cell phones, are based in the technology of the Sixties, at the most the Seventies. There are recent advances to make smaller batteries, that is true, but the logic of its operability is based in already rather old technologies, we are living a little in this sense, in the sense of the economical impact and profit, of what we have scientifically and technologically inherited, and it is possible, and there are experts that say that the advancement rhythm of the commercial economical benefit is intensifying; the scientific-technological growth rhythm is not parallel..." (I. 1. P.5-6)

It is a perspective that is to be related, between others, with the theoretical approaches of the Spanish sociologists Castells or with those, more rhetorical, of the 'management guru' Peter Drucker. For both, with all the opportune explanations, the knowledge gives rise to a new economy, society and policy. Knowledge, above the capital, the natural resources or the work constitute the basic economic resource that by means of its application to the work through the productivity and the innovation create value. For our interviewees, the evolution of the European administration, of the universities and the firms in this knowledge society is positive, as far as their changes are oriented in the sense, previous, in the sense to facilitate the knowledge economy:

"Well, first of all, at the autonomic [level] I would not know what to say, the nationals in some cases yes, in others not so much, although in this question, that is more linked with political subjects... well, I talk in a personal capacity,

clearly, what I say does not necessarily (laughter) correspond to the European Commission opinions. What I see as a researcher with more than 20 years in this world, before coming to Europe... the Commission. There is more and more emphasis, in linking more and better the academic world, the scientific production world, of the knowledge, with the industrial world, that obtains benefit from these knowledge, in a way efficient in diverse senses, in the sense, that there is not scientific knowledge that is not usable, that the businessman/businesswoman is not aware and does not make use, that there is not people in the academic world that do not have not only the ideas, because they exist in the scientific world, but that he/she has the capacities of the manager and the businessman, so that if they want to start their own enterprise, they do it. Efficient also in this sense, and also in the following sense: for the academic world, even [if] the great part of the scientists does not want to start an enterprise, or that they do not have these talents, or that simply they do not want it, so that in any case they are, not they personally but the entity for which they work, that they [must be] well paid, [must] have an acknowledgement, not only in terms of publications but also in getting money for improving the buildings, to buy instruments, labos, whatever they need." (I. 1. P.7)

Also, following the Andalusian autonomic administration, based on the interview with the director of the Observatory of Innovation and Participation, they share the same definition of the central paper of this new economy in the information and knowledge society:

"Somehow the regional ministry was articulated to take the witness of the second modernization of Andalusia and by means of this regional ministry, to release all the process of the innovation knowledge based modernization. And with this purpose we did an innovation plan, is it not. That is called PIMA, in a very colloquial way, and whose horizon is 2013." (I. 3. P. 34).

In this sense the obtained results are very positively valued. From this economic logic the available function for the administration role is a political and coordinative role. It includes to fix the standards and to explain the juridical framework in which these interactions occur, by unifying the languages, by promoting the dialogue platforms, by financing the activities and by overcoming the atavistic prejudices between the people of the university towards the enterprise and from the enterprise towards the university people:

"Yes, there the role of those that make political decisions is important because, first, it marks the rule and clarifies the legal frame in which these interactions take place, because by saying it easy, the subject, for example, of the intellectual property, is a thorny case, a very serious thing, if there is nobody who exactly demarcates what can and cannot be, it will be a jungle (laughter), and in the jungle the weakest loses almost always, the weakest often is the investigator, and in this case the role of the State in its several manifestations is important. It is important to control this type of interaction and to surpass even cultural obstacles, or to help to surpass them, because they are two worlds apart, because they speak different languages, well they are in the same country, but they speak with another slang, there is, they are very suspicious of each other, they are very suspicious the academic world towards the industry, and the industry also towards the academic world. To create plat-forms, where they can interact and basically speak (laughter) is important... and also it is important in dependence of the chosen schemata, to bring a few of money to the table, because part of the funds, [in] various most succesful examples that we have examined at the European level, and in other parts also, part of the funds come from the State, a part must go hand in hand with the enterprises also, and another important part from the academic world, frequently the part from the academic world is not in cash but as a work contribution on the part of the researchers, or even the labos, not necessarily in cash. And the state is important here, also, because it is difficult that this kind of interactions arise if someone does not provide with the juridical framework, controls the interaction and the money also." (I. 1. P.8)

For the great Andalusian enterprise, represented in our research by ABENGOA, it also finds its main motivation and its strategic horizon in the knowledge economy at the global World. In this sense, this andalusian enterprise also incorporates the logic of knowledge as research, through own research projects:

"ABENGOA has, in this moment, research and development projects, vividly in march. And I say R+D because we do not have in march, basic research projects but, in research and development, we must have projects in march with normally an horizon of three or four years, like now, that we will have around 180 millions euros, something like that. The current year budget in ABENGOA is around the 100 millions euros."(I.7. P. 129)

Although, evidently, their primary target is to produce benefits for the own enterprise, also other horizons of social development are present:

"So that ABENGOA is designed as a global enterprise, based in the application of the technology, an enterprise of a origin much based on engineering, its origin are the engineering bases, in the last 10-12 years bets on internationalization have been made, on the growth towards new horizons, always based on the technological knowhow, the application of the technological knowhow, and in the last eight years a bet on the sustainable development is also made, in ABENGOA is available, I believe that the vision of the present president is admirable, who is about 50 years old, but when he had about 40 years, when it have passed few time that he had taken relief from the company, he has the vision "I believe in climatic change and in the sustainability of the planet, this is a thing on which to bet; it is not only an obligation but also an opportunity to develop itself in the future world, it is why I am going to bet on that."(I.7. P. 129)

The relationships with the other institutions like the university are also mediated by its knowledge needs:

"...the proximity with the university is very necessary for us. On the other hand I believe that I enclose this, in a global question: I believe that in the world, namely I believe that the process of application, we know it, the basic investigation, the applied one, the innovation... that process is very rare, the enterprise don't, nor can make this part; some we say the pharmaceuticals yes, but we do not, of course, and the similar companies of our sector and, don't do that. That is to say, we must arrive at an agreement, cooperation with the world of the investigation, the university and the CSIC and others of this kind, we must reach agreements that allow us (in some way) "to buy the knowledge to them", or to associate us with them so that they produce knowledge that soon we can apply, and that they benefit from our application of the knowledge and that we benefit from their creation of knowledge. And for that it is very important the perfect understanding and the collaboration with the university." (I.7. P. 134)

Nevertheless, as it occurs in the traditional Andalusian enterprise, the traditional inertia of the andalusian universities and their 'conservatism' make difficult this task:

"but the university is very reluctant to all change. The university from my point of view is extraordinarily conservative, even although it has intellectually very progressive people; but its way of acting, of living, and of being and of making things... conservative in the sense of conserving the status quo, of not changing, of conserving its space... then it cost work to drag the people towards the applicability of the knowledge and, the social function of the university of generating useful knowledge for the development of all type, the social development, the economic, technological development.. (E.7. P. 136)

A modernization is necessary, a change in the university culture that do more dynamic the management forms. The Innovation Observatory of Andalusian administration also shares this diagnostic, concerning the university, its politics, search the solution to these problems:

"...Then, within what would be the system of work in the universities, I would emphasize a key experience that is, the Technological Corporation of Andalusia, CTA, a model indeed that is being much replicated, very studied far from Andalusia, that is, it is a very simple model, it seems simple, it is not so much: that the research groups enter to work with enterprises and that they present I+D+I and work projects, around these strategic sectors. CTA is executed, I would say, some two years ago, with a bet very great, of people that is developing here enterprise activity, with patron founders, each patron has disbursed a million of Euros, and well there was patrons within different sectors, from the bank sector, above all the enterprise sector and, what is a very important bet for the development of projects and to put in value all the work that is made from the research groups, of generating patents. That has been extended, it has been since some months, the presentation of the new strategic plan, the employers have grown in number, I will pass the data to you... and that is a key experience because it is mobilizing a very important capital within the I+D+I, and is supposing an element of the most important value of enterprise development and the strategic sectors..." (I. 3. P.36)

Also, in these concrete policies of the andalusian administration the financial criteria of the university introduce as an economical value the innovation:

"...there is an decree over the incentives for the excellence where the research projects valuation parameters have been changed, the career of the researchers is been developed, with a series of differential incentives for researcher teaching career (like it is considered, until now), so that the research career has a part very applicable to the enterprise, where a relationship researcher-enterprise exist, by giving much importance to this sector, in other words we are at work also in what is the very career and, the "to make do" of the research task..." (I. 3. P. 37)

The process is a success and its integration by the universities is been described. Nevertheless, the traditional inertias of the andalusian university world are also there. 'The rectors are the rectors':

"And then the model of financing of the universities, that is rather,... as we are designing all the money that we worked with them, so that their variables go based on a series of attainments very related with value to the society, value to the company, because they, at first, have had to fit it, but it is perfectly on the table and all the universities are working with contract-programs based on this system of financing, with a system of indicators, with a percentual variable based on attainment of increase of the women presence in the directive activity of the university, or the number of graduates, or international elements, it is much weighed, and it is worked with them... they are very slow changes but that are putting in march with much enthusiasm and in collaboration with them. Well, the rectors are the rectors, but we are working with them and little to little we are doing things." (I. 3. P. 38)

From the point of view of this great enterprise and of the regional ministry of innovation, the more traditional Andalusian society also resists to this new impulse that supposes the knowledge economy, the Andalusian society starts from a very backwarded situation and those burdens remain present, the university, the enterprises... The necessity of a motivational study in depth that allows, to detect these obstacles and make possible the transformation of the most traditional culture and attitudes is pointed out:

"over all because of something very important, because of the lack of a motivational study and of changes of attitudes and culture at regional level, all that, would have to be framed within the barometers that the Institute of Statistics of Andalusia, namely everything that you are doing would have to go to the real articulation of a study for the change of culture, of the resistances that are occurring, that would be very useful to us...." ((E. 3. P. 39)

Also the entrepreneurial industrial tissue in Andalusia is mainly composed by SMEs, nano and micro companies, makes difficult the processes of industrial innovation.

The logic of the social development also is present in the innovating process, it would exist an innovation with 'heart', directed to the well-being of the Andalusian citizens:

"We are capitalizing little by little. That is the key, we think that the innovation is the key, and this is very important, of all the process of modernization and economic development of the Andalusia community, but the great differential as far as the concept of innovation in Andalusia, is that it is an innovation that starts from the integrating element... to innovate, to generate well-being, namely, and there is where we are really working. And that can not do it without the people, without people understanding what is the change of culture... we are making innovation from within, what really can revert more in value, than technology for technology's sake, what is not to say that the Finnish or German model is not right, ... but what I am telling you about the model of innovation with heart, that is what I say to the people... (I. 3. P. 42-43)

## **KNOWLEDGE AS AN INSTRUMENT PRIMARILY ORIENTED TO THE SOCIAL DEVELOPMENT AND TO THE PROMOTION OF A PARTICIPATIVE CITIZENSHIP**

In this third discursive logic, knowledge is a common good, the knowledge society is the society of the shared use of knowledge. The knowledge process is performed through the application of its cognitive and technological innovations

to social well-being and to the promotion of the citizen participation. To the actors situated in this logic – entities of the third sector, social and citizen movements, social economy enterprises...- the main motivation for the access and use of knowledge is its social utility, its egalitarian distribution as a public property and its capacity to promote a more participative citizenship. Interview number 6 gathers this discursive logic from the social networks and movements. Interview number 2 gathers it from a small sized enterprise associated to the social economy.

From the social development logic, the knowledge economy and the innovation by themselves, do not guarantee the social progress. They can guarantee, in any case, the creation of economic richness, but not its egalitarian distribution:

“I believe that the digital divide should be connected with the structural divide, and the divide by gender, class, access to the training resources, that is clearly reproduced” (IE. 6. p. 97)

The information society and the knowledge society are not equivalent, they show substantial differences between them. The first is a necessary, although not sufficient, condition for the second. The full access to the information society, and the characterized as New Information and Communication Technologies, although, by themselves, do not guarantee the knowledge society generalization, are their necessary condition. The more compromised perspectives with the real socialization of the scientific information and knowledge, stress the substantive relevance of this contradiction:

“I would relate the literacy with Paulo Freire comment, “to teach to read and write is to teach to read the world in order to transform it”. This adult education that is opposed to the literacy that gives you a chart and say ‘the cook took a look at the book’, would introduce to this other way of thinking. Of course literacy proposals exist, some as pitiful as those from the Aznar era, when it was assumed that along a 30 hours short course a citizen could be literate, and that offered, as literacy proposal, the Windows office pack. To begin the selection should be questioned. Why not to begin by a literacy that uses free software. Isn’t?. So, that is making us go to different places, isn’t?. So, normally, the proposals for digital literacy are stopped at these phases of the tools management, and do not jump qualitatively towards the hidden curriculum that exist inside these technologies, what is the educational implicit model, what is the envisioned world, what imaginary, what are the participation models that are implicit... There it would be, in this Guadalinfo network, but I understand that its role is more fuzzy than in other models. But normally a person is considered as literate when he arrives until the basic levels of instrumental control, although by specifically considering the argument of your question, a jump from information to knowledge does not occur, I mean, much information is accessed by the people, but how to discriminate it?, which are the rigorous sources?, how to proceed for the building of knowledge?. So, in this way, yes. (I.6. P.99)

These differences are perceived in the performed interviews. At this point, it is worthwhile to point out that almost all our interviewees, in some occasion, have underlined the importance that have the depth and the improvement of the quality of the education, in its most radical sense, as the first door that must be passed to make feasible the access as much to the information society, as to the knowledge society. The Finnish schooling system is the educational model of reference that is emphasized by our interviewees.

Neither the access to the information society, nor to their information and communication technologies guarantee by themselves the democratization of knowledge or a more active citizenship participation:

"Then, I come to consider it, because in this time, the Andalusian regional government, was planning how to do a qualitative leap for the sake of the introduction of the information society and due to its many possibilities, it considers the model in Extremadura, that was the first reference. It happens that it is there, from my point of view, that the criticism is sited, me I am critical with the way how the Andalusian government has embodied this model or the Catalan model, because in some way it has retained the tool and has forgotten the pith that is not in the tool but in the political project that sustains or contextualize the tool, to report some indicators. In the case of Extremadura, by one side I underline the bet in the free software, not just to save in terms of the technological inversion but because of its ideologic background, that it has been produced here, but the bet has not been so clear." (I.6. p. 94)

Also, from this motivational logic, is emphasized how the plans for the information society of the Andalusian administration, incur in a flagrant contradiction between what they say and what they fund, between the proposed measures and the effective possibility of its execution, between the promotion of the access to the information society and the promotion of an educated citizenship, participative and critical:

"if you take the Master Plan for the Information Society 2006-2010 in which the social agents are reconstructed, the social agents that Manolo has named, it is true that it incorporates the subject of the free software and the digital citizenship, but the acid test is the funds breakdown, then are examined the budget entries destined to cover the electronic administration, or the e-government, for the enterprise development and the citizenship. And for the citizenship they are crumbs, no matter how many discourses have been developed before, the destined entries are crumbs, and so in other bets, like the cybervolunteering, that in my opinion as a logic for a social movement is not sustainable... but well, back to what I was talking before, in the model of Extremadura is avoided, exactly, the network of popular universities, that is the methodological frame that permits to talk, not about tele-centers but about new centres of knowledge; and that close to the figure of the technologist that solves for you any problems when the net is down or when the computer does not work, exist the figure of the socio-cultural mediator, this person that understand that if some one starts its connection to internet is a starting point, to begin a process of communitarian development, of socio-cultural animation, of recovery of historical memory." (I. 6. P.95)

Also, the motivational logic is object of criticism in other institutions, like the university, in this case because of its distance with the real problems of society and, the priority given to the knowledge and researches, easily merchandized:

"I see two problems, on the one hand what is produced by us in the university is very far from the common people knowledge, I think that never, in their life, anyone here present, would consult certain journals, I think that a great divide exist, on which we are already conscient, those of us in the knowledge production, the leaps that exist to reach a dissemination phase, ..., very far. And the other thing, another limitation, is that with the scientific policies, today, the knowledge being circulated is the one that is easily merchandized, that I do not know, until where it is the most necessary, nor if the citizen is most interested on it.(I. 6. P.114)

The alternative would pass through a university compromised with the social utility of knowledge and research. By following the perspective of the small enterprise compromised with the social economy the diagnostics are very similar. From its own specificity, what is more outstanding is precisely, the difficulties that they find on the part of the Andalusian in order to receive the support and help in need for their social intended entrepreneurial innovation processes:

The alternative would pass through a university compromised with the social utility of knowledge and research. By following the perspective of the small enterprise compromised with the social economy the diagnostics are very similar. Starting from its own specificity, precisely the thing that is more stood out, the difficulties that they find on the part of the Andalusian administration to receive the support and help, needed for their entrepreneurial innovation processes with social intention:

"It is a very slow thing, and the same persons that were united to essay it, are tired because of the long wait, any project is dead if the wait is long... at an administrative level, things are so slow, that the fact of require a help, you can demand it, but the arrival,... when does it arrive, how much money will you be given. A way of doing... how would I explain you, to be able to perform something interesting, important, with an echo outside, and by knowing that a forum of persons is awaiting for it... it must be started one year before, and when the opportunity arrives we are talking about technologies that are relatively obsolescent, and I can not design a project so that it can be approved in one year... something that kills me, I prefer to pay for it personally... if I can not reach it, well, as I am telling to you, I am brave enough for searching someone who gives me a hand, and who will allow me to follow with the development." (I, 2. p.22)

In summary, on the discourses about the motivations and attitudes in relation to the role of the Andalusian administration as a manager of the science and knowledge policies, it is necessary to emphasize one of the important problems noted, the contradictions that exist between the administrative discourses on the role of knowledge and innovation and, the effectiveness of their management practices, so that the other agents can make use of the knowledge obtained in any of the other logics. Especially the small companies, the university researchers and the own European administration, are the agents who point out this problem more.

In the next page, table 1, the discursive and motivational logics of the agents in the knowledge Andalusian system are disposed by order of importance ; thus showing the hierarchy of its representations and attitudes around the information and knowledge society.



**TABLE 1. HIERARCHY OF THE DISCURSIVE AND MOTIVATIONAL LOGICS OF THE INTERVIEWED AGENTS FROM THE ANDALUSIAN SYSTEM OF KNOWLEDGE**

	Logic of the Information and Knowledge Society as Research	Logic of the Information and Knowledge Society as Economical Development	Logic of the Information and Knowledge Society as Social Development
Great-sized Enterprise linked to the Technological Innovation I. 7	Secondary logic	Primary Logic	Tertiary Logic
Public University. I. 5	Primary Logic	Secondary Logic	Tertiary Logic
Public Social Research Institute I. 4	Primary Logic	Tertiary Logic	Secondary Logic
European Institute for the Prospective of Technology I.1	Tertiary Logic	Primary Logic	Secondary Logic
Regional Ministry of Innovation, Science and Enterprise I. 3	Tertiary Logic	Primary Logic	Secondary Logic
Little-Sized Enterprise in the Social Economy I. 2	Tertiary Logic	Secondary Logic	Primary Logic
Social Entities and, Citizens Movement I. 6	Tertiary Logic	Secondary Logic	Primary Logic

Source: Self-elaboration.

In general terms, as we have examined, the social representations of our interviewees around the information and knowledge society proceed through the articulations of these three logics and, from this articulation they attribute meaning to their central attitudes and motivations. To demarcate the scope of our interpretation, before continuing with our analysis, it is necessary to point out three considerations:

First it must be pointed out, although it seems obvious, that in spite of the predominance inside the semantic field of the performed interviews- and as a function of the social position occupied by our interviewees – of one or another discursive logic, and ones or others attitudes and motivations; the other two logics are also present. This analytical

model is presented in table 2, and the predominant logics of the agents from the Andalusian system of knowledge are differentiated by following its main fields of application.

The second consideration, is linked to the relationship maintained by each of these discursive and motivational logics and the knowledge agents that enunciate them, towards the modernization processes of the Andalusian society. From the performed interviews, we can distinguish the presence of at least three positions with which our interviewees define themselves or define the other agents in their relationship with economical and social transformation processes of the Andalusian society.

The first position is of traditional type, and is characterized by being refractory to the processes incorporating as much the information society as the knowledge society, and because it feels itself, as harassed or/and displaced by these processes.

The second position is closely linked to the modernization processes of the Andalusian society; it finds in the economical modernization processes that incorporate the information society and the knowledge society its main value and central argument. This position finds in the concept of innovation the main motor of the Andalusian system of knowledge. It prioritize the economical over the social, occasionally, arriving to the reduction of the knowledge society to the knowledge economy.

The third position goes beyond the successes of the modernization with which it is maintained a critical relationship. Its horizon is explicitly associated to the social transformation processes in a sense explicitly close to the equality and social emancipation. It integrates the social transformations that are implied in the development of the information and knowledge societies as a social benefit. They are understood as socially positive, as far as its generalization implies a reduction of the digital and cognitive divides; and as long as it favors and stimulates the political and citizen participation in the management of the social thing. Also, as far as it can generate economical wealth, although, as we have pinpointed, the economic thing, is always subordinated to the social thing, in this position.

Finally, the third consideration stands outside the period in which our research was performed but is highly instructive. The final conclusions of this work were presented in February 2009. Although the consequences of the economic and financial crisis were already appreciated at this moment, the importance of its scope and, above all, its appraisal on the part of the citizen, began to be general subsequently. Without reaching the harder fits of nowadays, May 2010, already in 2009 were the first cuts in the social spending of the Spanish government directed towards the finance of the research, the development and the innovation. This fact, no longer considered by our research, shows the sensible difference between the extraordinary value that the institutions give to concepts such as knowledge and innovation in their discourses and the scarce real value credited to them in their real practices.

**TABLE 2. DOMINANT LOGICS IN THE AGENTS OF THE ANDALUSIAN SYSTEM OF KNOWLEDGE AFTER ITS MAIN FIELDS OF APPLICATION**

	Production and Generation of Scientific Knowledge	Application, Transference and Adaptation of Knowledge and Information to the Economical Development	Application, Transference and Adaptation of Knowledge and Information to the Social Development	Management, Coordination and Administration of Knowledge and Information for the Economic and Social Innovation
Great-Sized Enterprise linked to the Technological Innovation I. 7	<b>Primary Logic of Knowledge as Economic Development</b>	<b>Primary Logic of Knowledge as Economic Development</b>		
Public University. I. 5	<b>Primary Logic of Knowledge as Research</b>	<b>Secondary Logic of Knowledge as Economic Development</b>	<b>Tertiary Logic of Knowledge as Social Development</b>	
Public Social Research Institute I. 4	<b>Primary Logic of Knowledge as Research</b>		<b>Secondary Logic of Knowledge as Social Development</b>	
European Institute for the Prospective of Technology I.1	<b>Primary Logic of Knowledge as Economic Development</b>	<b>Primary Logic of Knowledge as Economic Development</b>		<b>Primary Logic of Knowledge as Economic Development</b>
Regional Ministry of Innovation, Science and Enterprise I. 3	<b>Primary Logic of Knowledge as Economic Development</b>	<b>Primary Logic of Knowledge as Economic Development</b>	<b>Secondary Logic of Knowledge as Social Development</b>	<b>Secondary Logic of Knowledge as Social Development</b>
Little-Sized Enterprise in the Social Economy I. 2	<b>Primary Logic of Knowledge as Social Development</b>	<b>Primary Logic of Knowledge as Social Development</b>	<b>Primary Logic of Knowledge as Social Development</b>	<b>Primary Logic of Knowledge as Social Development</b>
Social Entities and, Citizens Movement I. 6	<b>Primary Logic of Knowledge as Social Development</b>		<b>Primary Logic of Knowledge as Social Development</b>	<b>Primary Logic of Knowledge as Social Development</b>

Source: Self-Elaboration.

## CAVEATS AND CONCLUSIONS OF THE RESEARCH

Again, it is worthwhile to remember what we noted at the beginning of these pages: the next conclusions must be read by considering its nature of first qualitative approach to the set of motivations that propel or block, the access and use of the information and knowledge in the Andalusian society. The diversity of the social actors implied, as much as the conceptual amplitude and complexity of the two axes implied in this research: information society and knowledge society, advise to bear in mind the previous recommendation. Although to discover a good series of questions that could be repeated at different stratum of society is difficult, fortunately this research has at its disposal the own resources to gather its own data, without need of "discovering" them by direct examination of the writing sources. From the theoretical point of view a precursor for the identification of individual options in choice problems is 'The political theory of possessive individualism' by C.B. Macpherson. A good practical example on the rewriting of a research program from interviews in terms of intelligence is 'Research and evaluation programs of the U.S. Information Agency and the overseas information center libraries' by E.M. Bjorklund.

To be able to obtain more exhaustive conclusions it would be necessary to explore the discursive and motivational positions of the agents of the Andalusian system of knowledge that have remained far from the scope of the present research. In particular, the associated with the more traditional discourses that suppose the main obstacle for the development of the knowledge society in the perspective of the modernization of the Andalusian society. Also would require a more detailed analysis, the positions that we have characterized as transformers, as far as in them is found a more compromised bet for the social equality in an emancipatory sense. From these positions, the problems refer to global questions like the failure of the development in the South, the loss of references of the progress concept in the North, the ecological crisis or the criticism to the role that science and technics are playing in all these processes. Another pending task is the in-depth analysis about how is perceived the previous problematic in the Andalusian society.

The second consideration, force to distinguish between the Access and the use of information and the Access and use of knowledge as much in the analysis as in the conclusions. It acts as two realities contiguous but differentiated and, each one has its specific problematic. In 1973, as it is known, the sociologist Daniel Bell in his classic book "The coming of the post-industrial society", utilized the term, information society, to indicate the radical singularity of the modern societies and the central importance of knowledge. Bell defined the knowledge as a strategic resource and, by questioning himself about the dimensions of its allocation, he will state the technical components, the moral context and the cost conditions that are involved in its equilibrium. From an informative spectrum, the extraction and selection of the more useful elements, he constructs the truth line that by generalization, by denying its existence, substitutes the informational attitude by mechanical knowledge. Nevertheless, as it has been confirmed in the last decades, the vertiginous growth of the systems for the storage and transmission of information, that characterize the information society and favor the generalization of the knowledge society, has been increasing the profound difference between the contents and, the associated problematic to each one. The information society is a necessary condition for the knowledge society but it is not sufficient. This last one demands the generalization of the information society, but the generalization of the first does not mean, the generalization of the second and in consequence the emphasis in the access and use communicational synthesis is a strict confrontation between actions and systems. The invitation to the public to create a new future accompanies the new technologies in conditions of fascination, in a ritual that made its

first steps with the invention of the telegraph. To guarantee and to democratize the meaningful access and use of the ITC, is the main task of the information society. To separate the noise from the information is the main task of the knowledge society. By saying it otherwise, to overcome the digital divide is a necessary requisite to face the cognitive divide, much more huge and profound, that characterize the problematic of the knowledge society. Thus, there is an uniform way of considering both as different information processing modes (irrespective of whether it is truth); the success of the first is a necessary step for the second. As the European reports [European Commission (2007)] that we have consulted indicate, in the European societies the access to the information and its applied technologies (ITC) still continue to be an important problem although, in conformity with the cultural agreement around the elaboration of rankings, more and more, the question settles on knowing how to discriminate the relevant information, this is the genuine problem of the knowledge society.

Finally, the third consideration is connected with the need to not reduce the knowledge society to the knowledge economy; not to confuse the part –the knowledge economy–, with the whole –the knowledge society–. Without this differentiation, as difficult in these neoliberal globalization decades, it become impossible to understand the knowledge society both in its quantitative dimensions and, in particular, in its qualitative dimensions. The intra-Andalusian political processes (referendum for the new statute of autonomy, in February 2007 (that makes in its preamble a reference to the Andalusian national reality), the second modernization of Andalusia that was put forward in the 2003 budgets) pose the question on how they can help to prioritize politics over economy. By making fulfill the multi-lateral agreements, and by extending and defending the principles and values that represent the sustainable information. By coordinating the substitution of the physical resources by information resources in the creation of knowledge for applications that reinforce the social cohesion and the economical development. Perhaps who has better summed up this question has been the UNESCO general director, Koichiro Matsuura, when he writes<sup>3</sup>: “The benefit of knowledge shared must not limit itself to the creation of new knowledge, the promotion of public domain knowledge or the reduction of the ‘cognitive divide’. It must suppose an universal access to the knowledge, as well as an active participation for all. Thus, it will be the key of the democracies of tomorrow.”

## **MOTIVATIONS FOR THE ACCESS TO THE INFORMATION SOCIETY**

As for the motivations for the access to the information society on the part of the distinct social sectors in the Andalusian society, they are similar to the European investigations that have explored this question by means of qualitative research. Specifically, to the conclusions of the reports: Transnational Resources Inclusion Network (TRIN I) and, in particular, the Transnational Resources Network in Rural Areas (TRIN I). We underline the following conclusions:

**The socio-economic shortages are at the origin of the lack of motivations about ITC.** The citizens that find themselves in these situations do not perceive the ITC like a practical tool for improving their life conditions (the ITC are totally apart and away of their everyday life, and also away from their possibilities).

To motivate the access to ITC by the social sectors in social exclusion situation, **the availability of infrastructures is not sufficient. It is necessary that its access is free of charge.** Otherwise, for the collectives in risk of exclusion, the availability of infrastructures is not sufficient either. It must be accompanied by the minimum cost available.

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<sup>3</sup> **Matsuura K.**, ¿Dejar para mañana el aprovechamiento compartido del futuro?. *EL PAÍS*, Madrid: 16/10/06.

**The transformation of the negative attitudes and motivations** towards others favoring the access to and the use of the ITC, is usually associated with a personal experience, or with an experience that is close to his life context where ITC have contributed by reducing his economical, educative, social or relational needs.

The beginning of the e-Inclusion process demands that the social, public, and private agents, have **the capacity of doing a diagnostic about the main needs of the social sectors excluded** from the information society.

The effective training making possible the access to and the use of ITC in the diverse excluded sectors of the digital citizenship, require from the public or private social agents the capacity to establish a relationship between the training in ITC and the social, economic and/or cultural needs of the aforementioned sectors.

The public administrations that bet on a generalized access to the information society must acknowledge the fundamental importance of propelling and diffusing the generalized use of the free Software. The Extremadura experience with *Linex* is very illustrative on this respect.

By beginning the process of digital literacy from the specific social needs of the excluded social sectors of the digital citizenship (and therefore to guarantee that the investment strategies functional in political terms drive to the accumulation of the knowledge capacities needed to modify the technical applications in help of the aims of the excluded localities and social groups) is the first step to make possible that these sectors are able, in a second moment, to find the relevant information for its needs; to communicate it in a third opportunity and to be able to produce knowledge by themselves in a fourth instant.

In the field of the public policies, the training of trainers for the access to and the use of the ITC is an essential element in the e-Inclusion process. Such a process must include the training on the methodologies and strategies of intervention that must be used to promote the e-inclusion as a function of the specific social needs of the different collectives: youth, elderly, immigrants,... namely, to construct a profile of the specialist in ITC, adapted to the needs of the different collectives. To sum up, to overcome the digital divide it is not enough a general training in technical aspects on the use of the ITC. The emphasis in direct private benefit, on the part of those working with computers, achieved by the diffusion of the innovation in terms of energy reduction, must be useful to choose the political instruments able to critically formulate the objectives for training. The promotion of the training needs of the transport, communication and sales workers could be adapted to influence the training behavior, on the basis of the adoption of taxes calculated over other sectors of the active population whose work guidelines resorts with more frequency to the ITC.

The creation of software adapted to the specific needs of these social collectives is also an important element to facilitate an e-Inclusion process. The mark of this incorporation to the production (or reconfiguration of the existent capacities in absence of a local production) and consumption of information and communication technology will drive to knowledge generation functions whose results could be negative in the less favored regions, if explicit promotion policies do not exist.

The integration in the information society requires to know and to coordinate the public and private resources and those from the diverse administrations (locals, regionals, nationals and Europeans) with the end of developing an e-inclusion successful process.

The creation of software adapted to, the specific needs of these social collectives is also an important element to facilitate an e-Inclusion process. The trace of this incorporation to the production (or reconfiguration of the existent capacities in absence of a local production) and to the consumption of information and communication technology, will drive to knowledge generation functions whose results could be negative in the less favored regions, if explicit promotion policies do not exist.

The integration in the information society requires **knowing, and coordinating the public and private resources, and those from the diverse administrations** (local, regional, national and European), with the purpose of promoting an e-inclusion successful process.

Finally, the recent investigations on the European digital divide, particularly the works by Cecilia Castaño<sup>4</sup> have highlighted, the existence of two digital divides, in the exclusion process of the information society. The first digital divide, is to be linked with the inequalities in the ITC access associated to the sociodemographic characteristics of the individuals: age, sex, studies, residence place...In general terms, as we have already pointed out, this first divide is been narrowing as much in Europe as in Andalusia.

The second divide, specially concerning the women, is directly related with the uses of the ITC, with its intensity and variety; and, is, in turn, determined by the abilities and capacities of the individuals to make use of the ITC. The mentioned investigations detect an increase in this second digital divide.

The e-inclusion and the development of a full digital citizenship in the information society, require from us knowing as much the quantity as the quality in the use of the ITC. To research the specific forms, presented by this second digital divide in the Andalusian society should be a task with priority. In a more general plan this analysis can only be performed by considering the concrete relationships between information, communication, and power, and their articulation in a given social space (Castells 2010)<sup>5</sup>.

## **MOTIVATIONS FOR THE ACCESS TO KNOWLEDGE SOCIETY**

As previously pointed out, the results of the performed interviews to these meaningful agents aimed to the discursive and motivational logics around the knowledge society, are constructed from the conjunction of three differentiated but interrelated logics. In analytical terms, as ideal types, these logics are characterized in the following way.

As previously pointed out, the results of the performed interviews to these meaningful agents have pointed to the logics discursive and motivational around the knowledge society, are constructed from the conjunction of three logics distinct but interrelated. In analytical terms, as ideal types, these logics are characterized in the following way:

**a) Knowledge as an instrument primarily, aimed to the research.** In this first discursive logic, the process of knowledge is performed through the pure research processes. For the social actors situated in this logic –researchers, university professors...- **the main motivation for the access to and use of knowledge is to produce more and better knowledge.**

**b) Knowledge as an instrument primarily, aimed to the economical development.** In this second discursive logic, the knowledge process is performed through the application of the technological innovations to the economical production, its economical development. For the actors situated in this logic – businessmen, technical and political

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<sup>4</sup> Castaño, C. (2008): *La segunda brecha digital*, Ediciones Cátedra, Madrid.

<sup>5</sup> Castells, M (2010) *Comunicación y poder*. Madrid. Alianza. The task of Castells in this research is more ambitious and, he applies it to the whole of the global societal network. He distinguished three plans (2010:29) : The structural determinants of the social and political power; the structural determinants of the mass communication process in the organizational, cultural and technological conditions of our time; finally, the cognitive process of the signals that offers the communication system to the human mind in relation with the politically relevant social practices. More modestly and, in a local scale, a similar analysis is needed if we want to understand something over the information and communication processes in a particular social space.

representants of the public administration...- the main motivations for the access to and use of knowledge consist in the creation of economical wealth.

**c) Knowledge as an instrument primarily, aimed to the social development.** In this third discursive logic the knowledge process is achieved through the application of its technological innovations to the social well-being. To the actors situated in this logic – GNOs, social movements, some social economy enterprises... - **the main motivation for the access to and use of knowledge is its social utility and its equitable distribution as a public good.**

The discourses on the knowledge society flow by the articulation of these three logics and the attitudes and motivations that they imply. Naturally, after the social position of the diverse actors, predominance will be given to one or other discursive logic or ones or others attitudes and motivations. In each of these three logics we can differentiate three discursive positions. A traditional position, a modernising position and a transforming point of view, in a sense of social emancipation. In the performed interviews we have been able to state that the traditional positions, in the Andalusian universities and enterprises, are the main obstacle for the full development of the knowledge economy.

In this sense, our results coincide with the main conclusion of the Brasel report (2008) when it points out, after the opinions of the consulted experts, that the main obstacle for the Andalusian system of innovation was in: the scarce culture of the cooperation of the Andalusian enterprises between them and, between these ones and the university research centres and the OPIS.

The conviction that to overcome the information and knowledge divides, goes through the need of more investment in a quality education for all and, that it supposes the key for an equality of real opportunities is shared by an ample sector of our interviewees. The Finnish educative system appears referred reiteratively as an example of a society that bets in the knowledge society from its more basic educative levels, with an educative system situated at the front of the industrialized countries, until the highest levels, with an investment in research that has arrived to approach 4% of its GIP. From the previous consideration it seems advisable that the important effort that the Andalusian administration has performed to promote the knowledge economy in the last years, is to be finished with economical and political investments devoted to promote the knowledge society in the more basic educative levels.

In respect to the modernization processes of the Andalusian society as we have indicated we can differentiate three positions:

A position anchored in the past: the '**conservative-traditional**' position. It is characterized because it is refractory to the processes that incorporate as much the information society as the knowledge society. They understand such transformations as a challenge that can make them lose their traditional privileges or impose them a hierarchy of values different from theirs, and that as a last resort, can make that they are displaced. It would be advisable to go into the analysis in-depth of this position in posterior works. In particular, in the universities and in the little and medium-sized andalusian enterprises.

A position focused on the changes of the present: the modernizing position. It is characterized by finding the main means for the social change in the processes of economic modernization that incorporate the information society and the knowledge society. Promoters and firm supporters of this process they find in the innovation the main motor of the Andalusian system of knowledge. Exactly the main obstacle for the development of this position is the previous position and its important presence still in the university, the enterprise or the administration. It gives priority to the economics over the social and, at the end, it reduces the knowledge society to the knowledge economy. From the perspective of the knowledge economy, the achievements of this position in the Andalusian system in terms of innovator impulse and of creation of technological centres and networks for technological clusters are described as important. The pending subjects would remain on the side of the social economy and of the promotion of a more active and participative



citizenship in the knowledge society. In this sense, it must be underlined how, between the discourses referred to the motivations and attitudes related with the role of the Andalusian administration as managers of the science and knowledge policies, is noted as one of the important problems the contradictions that exist between the discourses that the administration holds over the role of knowledge and the innovation and the efficacy of its management practices so that the other agents can make use of the obtained knowledge in any other indicated logic. Specially the little enterprises, the university researchers and, the own European administration. The absence of any kind of relationship with the European IPTS, located in Sevilla's Cartuja area, is a meaningful example.

A stance that is focused on the future transformations: the emancipatory position. It is characterized by putting forward the social transformation in a progressive sense. This third position goes beyond the successes of the modernization of the Andalusian society, with which it maintains a relationship of political criticism. From the optics of this position the impulse to the social economy, to the reduction of the digital divide or to the citizen participation through the ITC are insufficient. Its horizon is explicitly bound to the social emancipatory processes. It integrates the social transformations that imply the development of information and knowledge societies as a social benefit whenever its generalization supposes a reduction of the digital and cognitive divides; and as far as it favours and universalize the political and citizen participation in the social management. Also as far as it can generate economic wealth, although the economics, in this position, is always subordinated to its social redistribution.

The key question in the new societies of knowledge, where the access to information and to ITC tends to be each time more egalitarian, consist in guaranteeing full democratic citizenship access to the decisions on the social uses of the scientific knowledge. As recently has emphasized the declaration of the Science and Democracy World Forum (<http://fm-sciences.org/appel/index.php?a=du&c=qrmjt1>), knowledge is a common patrimony of the humanity, if the decisions on its social use are determining our present and will determine our future, the democratic quality of the new societies of knowledge is directly linked with the capacity that have ours to guarantee the democratization of such knowledge, in their different production processes, management and social application.

## **ANNEX 1**

List of interviews performed.

Institute for Prospective Technological Studies, Directorate Generale-General JRC, DG Joint Research Centre, European Commission. Sevilla, June 18, 2008.

Cooperativist, Small Enterprise in Social Economy and Technological Innovation. Sevilla, June 18, 2008.

Director of Assessment and. Participation of the Observatory for. Innovation and Participation. Andalusian Regional Ministry of Innovation, Science and Enterprise. Sevilla, July 2, 2008.

Director of IESA, Institute for Advanced Social Studies. Córdoba, July 3, 2008.

University profesor in Genetics in the University of Sevilla. European representative in the American Society of Microbiology. President of the Ethical Committee of Human and Animal Experimentation of the University of Sevilla. Sevilla, July 21, 2008.

Associate professor in Advertising and Public Relationships at the University of Cádiz, and expert in Information society and citizenship. Jerez, July 21, 2008.

General Technical Secretary of the enterprise Abengoa. Sevilla, October 15, 2008.

## ANNEX 2

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