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# Innovation networks and knowledge transfer in information management

## Abstract

In the present investigation, an analysis of the situation of the main coffee organizations characterized as associative structures is carried out, based on a thread at their level of organization that seeks to optimize their knowledge, articulation and internal improvement actions entailed from the objective oriented in the knowledge transfer based on innovation networks and their influence on information management in coffee producers in the province of Utcubamba - Amazonas - Peru. With the change management proposal within a corporate project supported by procedures and innovation networks, it is expected to promote positive externalities in the business model. What is proposed is instituted through an applied-basic type analysis, approached with the contrasting technique - explanatory with a succession design. As a result, within this process, key elements are articulated such as: knowledge, information and communication, strong identity and coordination and articulation rules, trust in sharing knowledge, information and communication technologies (ICT), linked to networks. That allow strengthening the Local Support Network by identifying its strategic competencies. As a conclusion, it was possible to demonstrate the importance of institutional support from public policies, the structural characteristics that innovation networks must have and actions to develop human capital, a vision of the structural, relational and organizational approach. That allow strengthening the Local Support Network by identifying its strategic competencies. As a conclusion, it was possible to demonstrate the importance of institutional support from public policies, the structural characteristics that innovation networks must have and actions to develop human capital, a vision of the structural, relational and organizational approach. That allow strengthening the Local Support Network by identifying its strategic competencies. As a conclusion, it was possible to demonstrate the importance of institutional support from public policies, the structural characteristics that innovation networks must have and actions to develop human capital, a vision of the structural, relational and organizational approach.

**Keywords:** innovation networks, knowledge transfer, innovation, human capital, organization, communication

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## Introduction

Given the constant technological changes, the need to be able to disseminate its agricultural, technological potential and with a constant, that of promoting a better quality of life for coffee producers driven by the rapid development of Information and Communication Technologies (ICT); The province of Utcubamba, based on its Agrarian Agency, an entity that permanently promotes agricultural technological development in the Region, has an urgent need to reduce the gap that separates them from the new perspectives demanded by the new markets.

For which a new strategy based on innovation is sought as a development factor that is inserted particularly in the rural sector, taking into account the different realities and national efforts made to increase the coverage of the communications infrastructure and the continuous evolution of computing technology towards greater efficiency at lower cost. The problem, in addition to being technological, is of a cultural nature and the tools that are developed to contribute to its solution must be adjusted to that reality. As a result of these activities, the fluidity and dynamics of Human Resources will increase in the generation of information channels and technologies, boosting their commercial exchange, cultural and productive development, marketing and better decision-making.

It is difficult to adequately define human knowledge due to its abstract nature. Both philosophy and science have studied this phenomenon from various perspectives. However, for the purposes of the study, the definition of[1] which suggests that knowledge can be defined as understanding, awareness or familiarity acquired by study, research, observation or experience over time. It is separated from culture as it is an individual phenomenon of information interpretation based on one's own experiences, skills and competencies. Knowledge can be explicit or implicit. The first is characterized by being clearly formulated or defined, easily expressed, free of ambiguities or irrelevance, and codified and stored in a database. On the other hand, the implicit refers to that disjointed knowledge, which is found in the mind of a person, but which in turn is difficult to describe and transfer. Modern society is a knowledge society.[2]

More Basnuevo,[3] in an article about the development of organizational intelligence, explains that people incorporate a certain set of technical, scientific, craft knowledge, etc., which they call "tacit knowledge", and that it is very individual and internal, and sometimes, hard to express. About this subject, in the same article, the author exposes four fundamental ideas:

a) Organizations, based on knowledge management methods, must provide spaces for the externalization and socialization of tacit knowledge and its transformation into explicit knowledge (that is, knowledge that is described in a support), which makes it available to the entire organization, and other interested parties.

b) The knowledge of different people, once socialized, is combined with each other and gives rise to new knowledge and procedures.

c) The set of combined knowledge, through continued use and praxis in solving problems, is internalized by people and enriches the level of their own tacit knowledge.

d) All the processes described above remain inscribed in the documentary memory and culture of the organization.

Communication services, ignorance of their own methodologies for their information needs, illiteracy 12.8%[4] and the lack of network coverage in several rural areas, suggest the need to identify ICT strategies with differentiated innovations, considering the user, the information required and the type of technology used. Due to their portability and low cost, mobile devices with or without internet are ideal for the agricultural sector. Radio and television continue to be the most widely used technologies in rural areas and should be exploited more intensively.

The development in the field requires making a rational use of natural resources, the introduction of technologies, the improvement of the quality of production, taking into account that agricultural activity in the Amazon region has an accumulated participation of 4.24% in the period. January to March 2021, with respect to the Gross Value of Agricultural Production according to Geographical Zones and Agricultural Regions (Preliminary information, Regional Directorate of Agriculture-MIDAGRI), ICTs can be considered as tools to improve their productivity and efficiency. They will allow obtaining timely, reliable and quality information, accessing markets and having financial opportunities, identifying the harvest calendar, which will allow us to take priority actions in the productive cycle, optimize management at the agribusiness level, identify and protect environmentally sensitive areas, learn about the potential of each area, control pests and diseases, etc. For this, technologies such as: remote sensors, GPS, GIS, IP networks, specialized software, decision support systems, mobile telephony, etc. can be used as well as new methodologies in the agricultural sector.

In addition, the constant changes produced in the international environment characterized by globalization, economic integration, trade liberalization and institutional reforms have had an impact on the agricultural sector, especially in the Amazonas Region, a border region, where its main activity is limited to agriculture, livestock and agro tourism and where agricultural development models relegated their local development plans.

Information and Communication Technologies (ICTs) constitute an area of technological development of vertiginous expansion worldwide if socio-economic indicators are taken such as the percentage of GDP, job creation, investment in Research and development, among others, they cover a multitude of diverse technologies that increasingly converge in value-added products and services in practically all socio-economic sectors, in all industries and in all scientific and cultural activities.[5]

However, and more specifically, this research work is directed towards the two groups most linked to an Agricultural Information System — coffee growers as users who generate information and providers of integrated information services. A fundamental problem affecting the development of efficient management information systems is poor communication between these two groups. This guide attempts to improve this communication by assisting information users in defining their needs and by "educating" each stakeholder about the other's activities. It also introduces key concepts and terms, describes the needs of managers, and explains the limitations of computerized information systems.

The various experiences in offering these services have shown that in most regions there is a set of institutions and/or projects that seek to support rural business development, but in general these services are offered in an uncoordinated and ineffective manner. These experiences (both partially successful and unsuccessful) have not been sufficiently systematized in order to identify a series of lessons learned and criteria that must be taken into account in the design and implementation of support systems, and allow their replication in other regions and on a larger scale. Therefore, it can be concluded that there is currently a methodological gap on the way these support services should be offered.

From this perspective, this research work focuses on the notion of innovation in a business network, supported by Information and Communication Technologies (ICT) that have become the basis of a new type of society: The society of information and knowledge. These technologies, which directly affect the human capacity to generate and economically apply knowledge, make information a resource and merchandise of progressive importance in all economic activities and organizational development of the company, having as support:

1) Strengthening of social networks, human and virtual information networks.

2) The generation of capacities of local actors for the management of information.

3) The generation of local content for the development of the agricultural information system.

Based on this structure, the different actions of the innovation networks can be configured, identifying the actors, coffee producers, among others, Information and Communication Technologies: Distributed Systems and Platforms (GRID) or mobile services; as well as the contents of the information: another value of modern society, it can be shaped and made available to more people, it can be updated and generated by different groups in a far-reaching collaborative process (use of mail, chat, text messaging, text and the editorial possibilities of the web, blog, etc.), as well as the modeling of the agricultural information system in the province of Utcubamba that allows coffee producers to make decisions in real time.

Then a transfer of knowledge is proposed with a taxonomy in business networks that are presented in productive systems, emphasizing networks in local, district, provincial and regional environments. As a mechanism for the development of coffee companies and organizations and the relevance of their existence in geographically located environments. He addresses the research object from the transfer of knowledge based on innovation networks and their influence on information management in coffee producers in the province of Utcubamba - Amazonas - Peru.

Within the justification, the socio-cultural importance can be highlighted where the information dissemination services through a new management information system using innovation networks in the agricultural sector, and having the social actors identified as the municipality, institutes, cooperatives, local actors and having as a fundamental pillar the Coffee producers, among others, will allow them to operate and manage from their home/plot as the case may be. Likewise, Information and Communication Technologies (ICT) continues to evolve, the internet tool that allows bridging the digital gap associated with the insertion of innovation networks will promote improvement or obtain a new management information system, it is intended to create a natural interface and enriched with the information needs of the sector, optimizing the productivity of the administrative

management in the strategic areas of commercialization, especially in the area of diffusion, which allows to spread the productive potential in the province of Utcubamba. The technological platform of the new rural communication network, with an emphasis on improving the articulation and dissemination of the information system; It will allow greater reliability and better administration management with the use of a human network, social networks, internet, email, mobile devices (cell phones). This will allow information, new ideas-experiences and Know-How or fundamental knowledge to be available in real time. Coffee producers, social actors in the province of Utcubamba.

### Knowledge transfer

The current academic literature focuses on cases of knowledge transfer in which organizations in favor of economic benefit are shown as the main actors.[6] However, society and the Government can participate in the transfer of knowledge and enjoy the benefits that this entails. For example, Universities are considered important sources of learning in emerging economies.[7] There are models such as Knowledge Transfer Offices, which expedite the transfer of knowledge. In these offices, for example, knowledge is intermediated with the invention and the results obtained can be commercialized.[8]

An important point to highlight is how knowledge is transferred. Kirchnerand Krott[9] point out that, currently, many of the knowledge transfer programs do not take into account the power factors, interests and relationships of the actors involved. Given this, they suggest the creation of Integration Forum models, where the participants of the technology transfer are evaluated bi-directionally.

The inter organizational transfer of knowledge is widely considered an important source of competitiveness in the extensive literature and by those who carry out innovation policies.[10] Its main advantages are the reduction of costs in Innovation and Development [R&D], facilitates the generation of knowledge, allows access to external knowledge that benefits from sources without ownership, complements skills, mitigates risk and improves innovation capacity.[11] Given the benefits of knowledge transfer, it is logical that the attention of the academy is focused on studying the identification and analysis of the conditions that favor the transfer of knowledge. In addition, with the increase in the complexity of innovations, organizations need more types of knowledge and also -urgently- more channels of knowledge acquisition.[10]

### Information management

It refers to those processes that are carried out to capture, classify, preserve, recover, share and disseminate the information that an organization generates, receives and/or acquires.[12] O'Brien[13] defines information as data that has been converted into a meaningful and useful context for specific end users. Sanchez[14] in this sense, information is passive and its active nature is attributed precisely to knowledge, to the added value expressed in the generation of services and products. Cloths[15] classifies this information, according to the nature of the data, into: internal information for decision-making and for communication and coordination of individuals, as well as company activities.

### Innovation networks

The traditional perspective on business networks explains the reasons for cooperation between parties. First, technological development occurs only if it is perceived as a way to solve a problem or achieve a goal for users. Second, the resources needed for production are controlled by different actors, the need arises to form networks that favor the flow of resources.[6]

Coelho de Souza, et al. to the[16] refers that contemporary societies have experienced a growing urbanization and environmental crisis, this has generated concern from society, governments and Science. In addition, there is a growing crisis in consumer confidence in the quality of food. Given that industrial agriculture has not been able to solve the problems raised, options have emerged from innovation networks between farmers and consumers. The results in this case have been agro ecology and organic production. This innovation network has taken the form of organic markets and is on the rise around the world.[17] Currently, generating innovations is done largely thanks to the connections offered by the modern world.[18] In the same direction, the transfer of knowledge has been favored by digitization.[7]

Generally, cooperation for innovation involves strategic alliances, large companies and innovative start-ups; consequently, the role of the Government and society has been relegated.[6] However, there are models of innovation networks between government and society that have resulted in new solutions for society, these are known as social innovations, which later adopt forms of public services.[19] Another case is that of University-Industry innovation networks, which promote innovation and play an important role in driving innovation through knowledge.[2]

### Technological readiness remains fair at the regional level

Although economies in clusters of higher-income regions remain the most network-ready, some of the most notable efforts in overall performance identified this year are among African middle-income and low-income group economies such as South Africa (70), Rwanda (101), Nigeria (103), Mali (118) and Madagascar (120) show performances on certain dimensions of the NRI that are on par with or even above some economies in the more developed regions of Asia and the Pacific, the Arab States and Europe. In particular, economies that exceeded expectations showed greater prowess in government, people, and technology. Still, this trend is less clear in terms of impact, highlighting some of the pressing problems often endemic to emerging economies.[20]

### Education and policies that support technology, investment and innovation in companies

Connectivity is not an end in itself, it is a tool designed to create value for societies, even among regions that have achieved Internet connectivity, barriers such as connection speed, availability, affordability of connected and fragmented devices, environments regulations persist, unless individuals harness the power of digital technologies to create economic and social value. While connectivity is essential, it is also important to go further and focus on additional aspects such as education (to improve skills and support content creation) and policies that support technology, investment and innovation in companies, both small and large finally.[20]

## Materials and methods

For the approach of the study of the organizations focused on the coffee producers, the study of multiple cases was produced. Of the 7 seven districts identified Figure 1 intervening on each one of them, in many cases identifying the coffee producers and organizations, which presented a continuous process in their activities as producers within the investigation. The study variables that were evaluated were the transfer of knowledge in innovation and information management networks, being the emerging and determining categories in the analysis in terms of coffee producers: study focused on agro-industrial companies; cooperatives; universities and organizations

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that integrate them; framed within public policies characterized at the national, regional, provincial and district levels and a documentary analysis on derivations of cases obtained from the application of innovation network policies focused on organizations. Regarding information management: a documentary analysis was also carried out on human capital, a vision of the fragmented structural, relational and organizational approach within a procedural aspect and within a perspective on innovation networks that are generated from established organizations. From this, he consented to understand all the characterizations, perspectives and interactions and the study that assists the understanding of coffee organizations and their articulation from innovation networks to the transfer of knowledge in information management in different organizations. Having for this an applied-basic study, according to the contrasting technique is explanatory, the design is in succession or line, also called pre-test or post-test with a single group. The first group is made up of companies and/or institutions (social actors) linked to the agricultural sector. The second group is the qualified coffee producers of the Utcubamba province of the Amazonas Region. The sample in this research work is 99 people aged 18 to 60 years, involving qualified coffee producers and social actors, sample obtained according to the methodology for obtaining the finite sample size, the same one that allowed us to estimate the entire population of the 7 districts, with a reliability of 95% (Figure 1).


**Figure 1** Political Map of the Province of Utcubamba according to districts.

The instruments used were: Interviews applied to 2 national experts from the public and private function, 7 coordinators of the organizations and qualified producers. The interview consisted of 5 questions. For the interpretation, the Osgood semantic space analysis technique was used, which through a classification scale measures the variation of meaning. They stipulate that each subject has a peculiar way of seeing things and in each concept there is a common cultural meaning.[21] From another point of view, there is the documentary analysis of primary and secondary sources, sources of research papers and publications. Likewise, the description and analysis of the empirical data of the study cases and in situ observation of the organizations: main actors; associations and organizations from the north of the region; coffee producers from a questionnaire of 25 questions.

With the purpose of complying with the coverage of the intervention, taking into account that more than 70% of the area of the province of Utcubamba is rural, in this framework the triangulation of its main needs, priority individualizations, potentialities and information of the coffee growers was applied. Primarily. Figure 2 illustrates this triangulation, which allowed a deep approach to the topic under investigation, allowing to cross variables and evaluate the different positions offered by the different sources of information obtained in the field work.

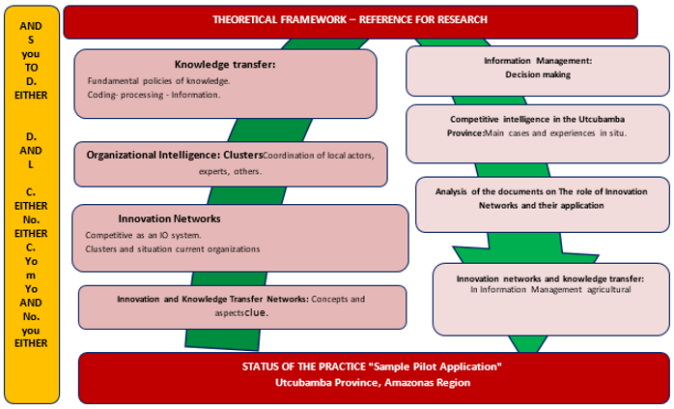


**Figure 2** Characterization and triangulation of data.

**Source:** Own elaboration based on situational diagnosis prov. Utcubamba.

## Results

From the interviews in each of the organizations, responsible for the organizations, with the documentary analysis of primary and secondary sources, allowed the elaboration and characterization of the following cases generated in each one of the districts of the province of Utcubamba. As can be seen, the various associations, cooperatives, and companies that provide work for many people, and are also in a network with different government agencies: national, regional and local, as well as research centers, universities and chambers of trade.

Next, the description of the cases is made according to the statements of the relevant questions and characterizations within the investigation (Table 1).

It was analyzed if the Social Actors improved their answers in the post test compared to the pretest. For which there is the process of evolution according to the proposed Questionnaire consisting of 25 questions. Which can be seen in Table 1, this survey was carried out on the dates of February - August 2022 (Figure 3).


**Figure 3** Scheme of operation of the local support network.

**Source:** Self-made.

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**Table 1** Summary by problems with their respective analysis and hypothesis testing

| Problem | Half | | Correlation | Related difference | | Proof you student | gl. | Decision statistics |
|---|---|---|---|---|---|---|---|---|
| | Pre test A | Post test B | | Half | Typical deviation | | | |
| Level of organization of local actors, Producers (Questions 01 - 05) | | | | | | | | |
| 01 Organization level | | | | | | | | |
| Next (bilateral) 0.000 | 1.61 | 2.56 | 0.68 | -0.649 | 0.72 | -13,129 | 98 | He is rejected |
| 02 Hew does your district organization rate? | | | | | | | | |
| Next (bilateral) 0.000 | 1.46 | 2.47 | 0.505 | -1,010 | 0.827 | -12,156 | 98 | He is rejected |
| 03 organizations respond immediately to the information needs of producers. | | | | | | | | |
| Next (bilateral) 0.000 | 1.58 | 2.56 | 0.702 | -0.98 | 0.076 | -12,901 | 98 | He is rejected |
| 04 the quality of leadership, have played an important role in the implementation of the strategic plan. | | | | | | | | |
| Next (bilateral) 0.000 | 1.48 | 2.45 | 0.7 | -0.97 | 0.692 | -13,946 | 98 | He is rejected |
| 05 Hew do you think the communication relations are in your local organization - district of your province. | | | | | | | | |
| Next (bilateral) 0.000 | 1.58 | 2.41 | 0.678 | -0.838 | 0.765 | -10,898 | 98 | He is rejected |
| Insertion flow of local actors (Questions 06 – 07) | | | | | | | | |
| 06 In your opinion, Hew do you see citizen participation in improving the information system? | | | | | | | | |
| Next (bilateral) 0.000 | 2.07 | 2.69 | 0.766 | -0.616 | 0.601 | -10,199 | 98 | He is rejected |
| 07 Hew do you see the participation of new actors in the information network to benefit the development of the agricultural sector? | | | | | | | | |
| Next (bilateral) 0.000 | 1.86 | 2.79 | 0.643 | -0.929 | 0.732 | -12,632 | 98 | He is rejected |
| Degree of satisfaction of local stakeHelders regarding the flow of information for dissemination. (Questions from 08 -17). | | | | | | | | |
| 08 Hew would you rate the access and use of the information provided in the Local Support Network - Agrarian Agency | | | | | | | | |
| Next (bilateral) 0.000 | 1.76 | 2.55 | 0.66 | -0.788 | 0.627 | -12,500 | 98 | He is rejected |
| 09 Hew would you rate the dissemination of information provided by the Agrarian Agency-Local Support Network | | | | | | | | |
| Next (bilateral) 0.000 | 1.37 | 2.63 | 0.566 | -1,253 | 0.761 | -16,386 | 98 | He is rejected |
| 10 What appreciation do you have about the management documents, generation of statistical information that is later disseminated by the Agrarian Agency – Local Support Network. | | | | | | | | |
| Next (bilateral) 0.000 | 1.65 | 2.74 | 0.493 | -1,091 | 0.991 | -10,957 | 98 | He is rejected |
| 11 In your opinion, the system for collecting statistical information has a culture of quality - it is reliable. | | | | | | | | |
| Next (bilateral) 0.000 | 1.48 | 3.06 | 0.45 | -1,576 | 1,031 | -15,206 | 98 | He is rejected |
| 12 Internet access or connectivity is | | | | | | | | |
| Next (bilateral) 0.000 | 1.3 | 1.26 | -0.182 | 0.04 | 0.198 | 2,031 | 98 | He is rejected |
| 13 Hew is the availability of internet booths in your area? | | | | | | | | |
| Next (bilateral) 0.000 | 1.35 | 1.33 | 0.926 | 0.02 | 0.201 | 1,000 | 98 | He is rejected |
| 14 Hew would you rate your knowledge in ICT, Social networks | | | | | | | | |
| Next (bilateral) 0.000 | 1.72 | 2.64 | 0.811 | -0.919 | 0.369 | -24,776 | 98 | He is rejected |
| 15 what is the means in which you obtain automated information | | | | | | | | |
| Next (bilateral) 0.000 | 4.22 | 5.19 | 0.301 | -0.97 | 3,826 | -2,521 | 98 | He is rejected |
| 16 Hew the Institutional Web Portal qualifies | | | | | | | | |
| Next (bilateral) 0.000 | 1.32 | 2.97 | 0.232 | -1,646 | 0.94 | -1,424 | 98 | He is rejected |
| 17 What information would you like to see included to improve the web portal? | | | | | | | | |
| Next (bilateral) 0.000 | 8.35 | 8.73 | 0.301 | -0.374 | 4,174 | -0.891 | 98 | He is rejected |
| Level of training of local actors-producers. (Questions from 18 to 21) | | | | | | | | |
| 18 What criteria do you have regarding the training programs promoted by the Agrarian Agency? | | | | | | | | |
| Next (bilateral) 0.000 | 1.3 | 2.47 | 0.482 | -1,172 | 0.783 | -14,890 | 98 | He is rejected |
| 19 Hew do you evaluate the level of the worksHeps on Innovation Networks, promoted by the Local Support Network? | | | | | | | | |
| Next (bilateral) 0.000 | 1.85 | 2.93 | 0.497 | -1,081 | 0.986 | -10,902 | 98 | He is rejected |
| 20 Hew do you assess the local support network in planning, organizing and controlling the development of human potential? | | | | | | | | |
| Next (bilateral) 0.000 | 1.36 | 3.2 | 0.46 | -1,838 | 0.923 | -19,827 | 98 | He is rejected |
| 21 as he appreciates the motivation of local actors-producers to be trained in issues related to the agricultural sector | | | | | | | | |
| Next (bilateral) 0.000 | 1.98 | 3.65 | 0.666 | -1,670 | 0.951 | -15,953 | 98 | He is rejected |
| Level of growth, strengthening of the social network and the communication system: support of innovation networks. (Q22-25) | | | | | | | | |
| 22 Hew do you evaluate the new communication criteria with the use of Innovation Networks? | | | | | | | | |
| Next (bilateral) 0.000 | 1.14 | 3.45 | 0.086 | -2,313 | 0.933 | -24,670 | 98 | He is rejected |
| 23 as estimated the participation of teamwork in the Local Support Network. | | | | | | | | |
| Next (bilateral) 0.000 | 1.31 | 3.52 | 0.166 | -2,202 | 1,169 | -18,740 | 98 | He is rejected |
| 24 As a participant in the Local Support Network, Hew do you value its vision and mission? | | | | | | | | |
| Next (bilateral) 0.000 | 1.22 | 3.62 | 0.23 | -2,394 | 0.967 | -24,633 | 98 | He is rejected |
| 25 the adhesion of new actors according to the proposals, provoke an innovative work for the benefit of the agricultural sector. | | | | | | | | |
| xt (bilateral) 0.000 | 1.07 | 3.8 | -0.182 | -2,737 | 0.867 | -31,305 | 98 | He is rejected |

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According to Dittrich,[22] distinguishes two basic strategies to acquire external resources. Exploration strategies and exploitation strategy. Which can lead to different positions in innovation networks. Weak ties are extremely powerful in innovation networks since innovation depends on new combinations of knowledge. However, a lack of trust and commitment in such actors can seriously limit their importance. Thus the exploration strategy can be associated with radical innovation and the exploitation strategy can be associated with incremental innovation.[23] which are expected to be used in a balanced way within the portfolio of corporate strategies in order to survive and prosper in a changing environment.

To start such an important process, it is necessary to define the criteria according to the objectives to be achieved, since the following point will propose the activities that arise to improve the management of agricultural information (Figure 4).

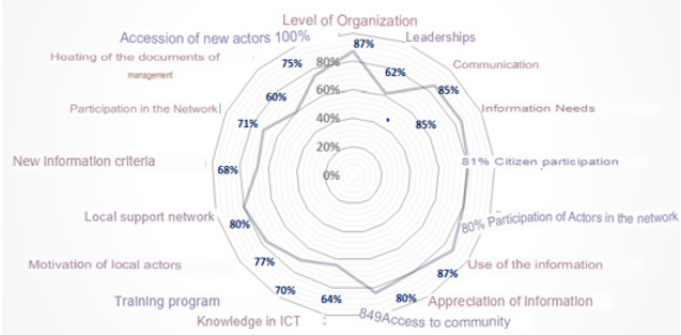


**Figure 4** Characterization of innovation networks and their impact on information management in coffee producers in the province of Utcubamba -Amazonas- Peru.

**Source:** Prepared from interviews with specialist coffee producers in the province of Utcubamba.

From the transfer of knowledge based on innovation networks and their influence on information management in coffee producers in the province of Utcubamba - Amazonas - Peru. Within this process, key elements are articulated such as: knowledge, information and communication, strong identity and coordination and articulation rules, trust when sharing knowledge, information and communication technologies (ICT), linked to social networks.

a) That allow strengthening the Local Support Network by identifying the following strategic competence: Development of capacities in innovation networks, in the districts (annexes) of the province of Utcubamba.

b) Create a Local Support Network so that local actors and producers share timely and quality information.

c) Progressively create the use of information and communication technologies (ICT), with a culture in social networks towards the community under study.

d) Propose a methodology to improve agricultural information management. From this, the Strengthening Process is important: which are criteria, ideas and concepts of work aimed at all local actors, formal and informal producers who are in the process of strengthening the Local Support Network so that they share the same vision, mission that arises within the research work. Within the strengthening process, it is foreseen.

e) Innovation networks.

f) The Importance of Information.

g) The organization.

h) Information Management.

i) Social networks.

j) Rural Business Development.

In this sense, it is important to highlight Agriculture plays a decisive role in the economy of the region, it is the main axis of the economic system and not only provides food and raw materials, but it is also the main source of employment for a significant amount of the population, representing an average of 25 % of the Economically Active Population.[24]

## Discussion

The idea is to assume the first scenario proposed; which conceives a global society where associativity and interrelation between companies (creation of networks) is necessary for a better business.[25]

In this regard, it is important to consider the benefits that companies obtain by participating in a network, in this regard[26] establishes: Economies of scale: through the efficient use of productive technologies and access to markets. Flexibility: which implies greater capacity to respond to changes in demand, without increasing installed capital or fixed costs. Dissemination of information: exchange of knowledge and experiences, improving their capacity for strategic management and accelerating their learning. Fewer barriers to entry: by specializing in the different phases of production. Relevance of support actions: that is, a greater probability of success thanks to fluid communication between public institutions and the private sector.

Every network is built with the purpose of generating an abundant flow of information, sharing productive experiences and knowledge. The relationships that arise between companies materialize through contracts (formal and informal) with specifications not only of financial conditions and prices but also of superior and intangible aspects such as the experiences and knowledge mentioned above.[27]

We then have that a Human Network is a group of people who count on a group of collaborators to carry out both their work and their training processes, with whom they maintain strong and frequent communication ties that allow them to make use of the possibility of know other points of view, access other resources, and obtain a greater benefit than would be obtained in the individual solution of different problems.

Now, whether a Human Network formed for certain purposes starts from an Organization (formal or not), or whether the Organization originates from the network, a set of essential elements come into play when undertaking the analysis of the relationships that occur both within the organization and between it and the outside, such as: culture, structure and communication. The research purpose favors "A Connectivity Model for Human Networks" which seeks to generate two specific results. In the first place, a conceptual and methodological model that allows the observation of the communication elements of the Local Support Network with perspectives of working in a network and that are essential to configure connectivity systems. In second place, that it be a connectivity tool that allows validation of the research proposal at low cost. Virtual networks are those that are mediated by technological support. A virtual social network is a social structure of relationships between users through the Internet. They are web-based sites that allow users to share content, interact, and create communities of similar interests. Lessons from different experiences indicate that it is important to strengthen human networks for virtual

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networks to work. That allow users to share content, interact and create communities on similar interests. Lessons from different experiences indicate that it is important to strengthen human networks for virtual networks to work. That allow users to share content, interact and create communities on similar interests. Lessons from different experiences indicate that it is important to strengthen human networks for virtual networks to work.

In an information system for the development of innovation networks, the following can be defined as functions of these networks:

1) Strengthen the concepts associated with innovation networks.
2) Facilitate the exchange of information and knowledge.
3) Promote mechanisms for socialization and the exchange of information at the level of the entire provincial network.
4) Facilitate access to information for small producers, local actors and organizations.
5) Strengthen communication mechanisms with local radio stations, newspapers, information boards, internet booths and municipal libraries.
6) Promote the different social actors in the construction of knowledge.
7) Promote the development of capacities in the social actors and producers in information management.

This research work seeks to improve information management, influencing an improvement in the quality of information and therefore in dissemination. Based on alliances with various institutions: municipal governments, local, district, provincial, regional, national and other organizations.

## Conclusion

The realization of an Innovation Network Plan for the agricultural sector with emphasis on coffee producers in the province of Utcubamba - Amazonas region, has the purpose of ensuring the adequacy between the strategic objectives of the agricultural sector and the information necessary to support said great objectives.

Discovering opportunities to innovate administrative processes in Information Management related to the agricultural sector of the Utcubamba province of the Amazonas region has information technologies as an alternative, thus allowing to relate technology and business strategies, using procedures that They will allow us to facilitate the processes of information management and its subsequent dissemination with the use of information and communication technologies (ICT) for the good of coffee producers.

The use of Information and Communication Technologies (ICT) to support new strategies in the Information Management process requires identifying the internal strengths and weaknesses of the Institution (agrarian agency) and managing through the Local Support Network a visionary panorama contemplating the various technical risks that could arise and from this have adequate strategies.

Technological development in innovation networks and communication networks continue to develop permanently and at an impressive pace, allowing them to be used as technological support and as a means of improving the information and dissemination system and thus being able to improve decision-making. in the planning and control of the Network of Local Actors within the province of Utcubamba in the Amazonas region.

Innovation networks play a key role in the local organization to improve the information management system and decision-making with quality information.

Agricultural Information Management helps to improve decision-making by officials and/or producers by providing them with the necessary information and solving optimization problems to offer them a concise guide, with guidelines and models that allow them to support them in managerial decisions.

Quality can be measured by many factors, timeliness, speed, synthesis, accuracy, among others, but the objective of innovation networks and their influence on agricultural information management is to provide information in accordance with market demands with the support of the make up the local support network.

In recent years, technological policies in the country are recovering a differentiating space that allows achieving global strategies, but with the work, a strategy was identified that was the application of innovation networks with coffee producers and other actors that promote the processes of innovation with a lot of effort and that allows us to design district, provincial, regional innovation systems; having as support the connectivity of Human Networks.

This inquiry identifies the relevance of the transfer of knowledge and a set of strategies, articulated with coffee producers and various actors taking advantage of the infrastructure they have in the agricultural sector in purely rural territories and that are less developed in order to be able to find a means of insertion into global markets.

With the application and justification of the proposed problems, it is demonstrated that the influence of the Innovation Networks evidences its impact on the Management of Agricultural Information in the coffee producers of the province of Utcubamba, with direct testimonies of some specialists, producers, local actors who provide and use information, improving communication with new tools and accessing opportunities with the Local Support Network.

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## Conflicts of interest

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