

CASE STUDIES

Social and Ethical Issues in Engineering

Celia Fernández Aller and Rafael Miñano Rubio



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CASE STUDIES **Social and Ethical Issues in Engineering**

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ETHICAL & SOCIAL ISSUES IN ENGINEERING

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1. INTRODUCTION

The ethical and social issues involved in engineering projects are now included in engineering degree programs across many universities. In the present globalised world, the impact of the engineering profession is growing in importance and society is becoming more aware of engineers' role. Both engineering professionals and institutions should assume the responsibility that their expertise affords them and that the impacts of their actions reflect their responsibilities.

Several accrediting agencies include the following skills as necessities for engineering professionals:

- An understanding of professional and ethical responsibility (ABET)
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context (ABET)
- Demonstrate awareness of the responsibility involved in the practice of engineering, the social and environmental impacts, and commitment to professional ethics, responsibility and norms of engineering practice (EUR-RACE).

One of the methodologies considered most successful in developing these skills is the case study approach. The example presented in this activity is a suitable case study to enhance these skills.

The context presented is the Willay programme, which has been active in Peru since 2007. Willay was developed by a Spanish NGO, ONGAWA, with the support of many Peruvian partners (universities and NGOs). The goal of the programme is to promote the use of Information and Communication Technologies (ICT) in isolated rural areas to facilitate democratic governance, citizen participation and improve the quality of basic services such as health and education.

The class activity refers to work completed in small groups that involves analysing different professional ethical dilemmas that are related to the context described. Issues related to data protection, corruption and usability of technological tools are considered. References for the analysis include some engineering deontological codes and laws related to the issue presented. The objective is for the student to develop the skills to identify and analyse these issues and propose suitable solutions drawing on engineers' ethical and professional responsibilities.

As a homework activity, it is proposed that students should reflect on possible improvements of the Willay program from different perspectives: the principles of professional engineering ethics, the principles of Social Responsibility of a technological company working in the sector in this context, and the Human Rights Based Approach (HRBA) used in human development policies. The objective is for the students to know the basic principles of professional ethics in both a personal and institutional (company, public administration) capacity.

The authors use the activities presented here within their teaching on “Social, Legal, Ethical and Professional Aspects”, which is mandatory in degree programmes in software engineering and computer engineering at the Technical University of Madrid.

1.1. DISCIPLINES COVERED

Social and ethical issues in engineering, ethical principles of engineering, professional code of ethics, some specific social problems in engineering practice: privacy and data protection, corruption, user orientation, digital divide, human rights, access to basic services.

Economics and business in engineering, mainly related to Corporative Social Responsibility (CSR).

1.2. LEARNING OUTCOMES

- Awareness of professional, social and ethical responsibility in the practice of engineering.
- Ability to identify relevant ethical and social issues in the practice of engineering.
- Knowledge and use of some tools and references available to analyse ethical and social issues in the practice of engineering.

1.3. ACTIVITIES

The class activity (2 hours) consists in analysing different social and ethical dilemmas in small groups (4-6 students) and each group then sharing their conclusions and reflections with the class. The dilemmas presented are related to professional situations in the context of the case study: the first concerns the introduction of free software rather than priced; the second is related to the use of personal data and confidentiality; the final one deals with corruption versus transparency issues.

The homework activity (8-12 hours) is an individual essay that considers possible improvements of the Willay program from different perspectives: principles of professional engineering ethics, principles of Corporate Social Responsibility (CSR) of a technological

company working in this context, and the Human Rights Based Approach (HRBA) used in human development policies.

2. DESCRIPTION OF THE CONTEXT

2.1. PERU AT A GLANCE

Peru is the third largest country in Latin America after Brazil and Argentina, with an area of 1,285,216 km² (2.5 times the area of Spain). It is the fifth most populous country in Latin America after Brazil, Mexico, Colombia and Argentina, and has a population density of 23.7 inhabitants/km², which is 4 times lower than in Spain. In Peru deep social inequalities persist and there is a sharp contrast between the Human Development Index scores in the capital and provinces, as well as between urban and rural areas. Although in recent years the country has experienced steady economic growth, there are still major challenges to overcome in the fields of social inclusion and gender equality, for example. Many social conflicts, uprisings and protests from people living in the interior of Peru have resulted as people in this area are not benefited from investment and economic boom like others. There are severe limitations in access to good quality basic services such as education, health, water, housing and electricity for much of the population in rural areas; as well as poor promotion of economic opportunity and progress.

Peru is divided into 25 regions, 194 provinces and 1,624 districts. The elections of regional and local (provincial and district) authorities are held every five years. The complex and rugged geography of the country, along with the implementation of population concentration policies, has created an unequal and asymmetric occupation of the territory; this makes it difficult to overcome the various spatial dimensions of development, promote social cohesion and ensure state presence. In addition, an expensive transport and communications infrastructure is required to ensure connectivity.

The country has been experiencing major demographic transition since the mid-1960s. A population explosion has been coupled with increasing migration to the big cities, in particular Lima. It is estimated that the population of Peru in 2014 was 30,814,175 inhabitants, with an annual average growth rate of 1.11%. There is a high concentration of the population in urban areas (73%), especially in Lima, where more than a third of the total population lives. The World Bank report "Peru 2012" stated that 53% of the rural population lives below the national rural poverty line. Peru is characterised by a Human Development Index (HDI) of 0.741 according to 2013 data, which puts it in the group of countries with high HDI, ranking 77 of 185, below Cuba, and above Turkey and Brazil. The Adjusted HDI, which

reflects disparities between the population in income, health and education, is 0.561, 24.3% less than the corresponding HDI.

According to the International Monetary Fund (IMF) in 2013 Peru was considered a middle-income country with a GDP per capita of € 8,132 per inhabitant (compared to € 25,222 per inhabitant in the European Union). Economic reforms during the 1990s were the key to an impressive improvement of the Peruvian economy. Important macroeconomic developments and the liberalisation of the telecommunications market favoured private investment. During the nineties the evolution of investment in utility infrastructure, especially telecommunications and energy, mainly benefited households and businesses in urban areas, neglecting investment in rural infrastructure.

2.2. TELECOMMUNICATION SECTOR

Mobile telephony coverage in Peru has had a high annual growth rate, which, stood at 82% in 2013, compared with 28.6% in fixed telephony. Comparatively, mobile telephony in Europe was 128% in 2013. Internet access of urban households in Peru was 20% in 2013, compared with just 0.9% of households in rural areas. Across Europe in the same period, 73% of households were connected to the Internet. 36% of urban households in Peru had computer in 2013, compared with 5.8% of households in rural areas of Peru and 77% of households in Europe. Table 1 summarises the access to telecommunications services in rural and urban areas of Peru. This shows how both poverty and lack of telecommunications services coincide in rural areas.

Table 1: Population living in areas with telecommunications services coverage in Peru

SERVICE	URBAN	RURAL
Fixed telephony	86%	0%
Mobile + Fixed wireless telephony	92%	53%
Fixed broadband access to the Internet (ADSL)	82%	0%
Mobile access to Internet 2.5G (EDGE)	92%	48%
Mobile broadband access to Internet (UMTS)	56%	3%
Cable TV	67%	0%
Satellite TV	100%	100%
Public telephony	94%	56%

The use of Information and Communication Technology (ICT) services was measured by the Peruvian National Institute for Statistics and Information (INEI) in the census of poverty levels published on 2012, with the results shown in Figure 1.

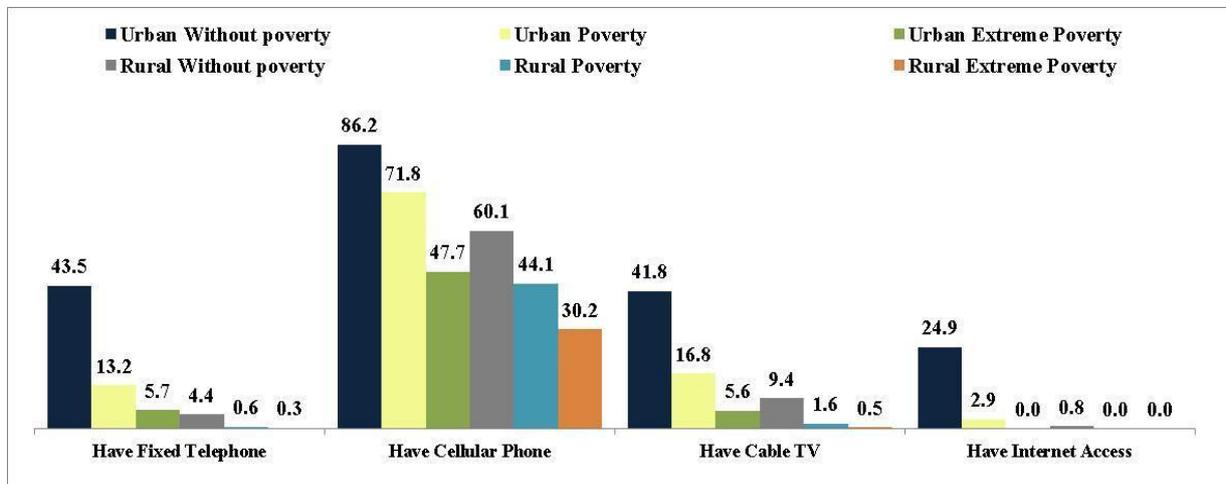


Figure 1: Peruvian households with ICT access by poverty level and area in Peru (Source: INEI 2011)

This shows how both poverty and lack of telecommunications services coincide in rural areas.

2.3. GOVERNANCE IN PERU

In Peru, between 2002 and 2009 the government prioritised the improvement of good governance by putting several laws, regulations and national plans into action. These laws, regulations and plans determined and developed the principles of citizen participation, transparency, and accountability of local governments. The state recognised the importance of using ICTs to enhance organisational management and performance. The National Office of Electronic Government and Information Technology (ONGEI) was established, along with several plans for e-government deployment in central and local public administrations. E-government tools were introduced to and incorporated within the priorities of local public entities.

2.4. HEALTH

The United Nations (UN) recognises health as one of the key elements of human development, along with education, minimum level of income and the ability to participate in political and social life of the community. The health status of the population is also a factor

that affects development. Poor health reduces work capacity and productivity of people and affects the physical development, schooling and learning of children. There is a link between the improvement in nutrition and health with the increase in productivity and school performance. In relative terms, the economic and education advantages that produce an improvement in health generate greater benefits in the poorest population. This is the reason why health was one of the key issues considered in the Millennium Development Goals (MDGs).

According to the World Health Organisation most inequalities in health are due to the conditions in which people are born, live and work, as well as the health system they have access to. That is, access to safe water and adequate sanitation, an adequate supply of safe food, adequate nutrition, adequate housing, healthy working conditions and environment, and adequate social protection. Improving these social determinants of health and reducing inequalities of power, money and resources may help to improve population health.

Often women and men are affected by different social determinants of health, producing gender inequality in access to health. For example, domestic tasks cause women be in contact with contaminated water, fatigue and stress of "double day" of women inside and outside the home, health problems during pregnancy, childbirth and postpartum, etc.

Health is recognised as a Human Right, so governments that have signed international covenants on human rights are obliged to create the conditions that allow all people to live as healthily as possible, including the social determinants of health. The Right to Health is not to be understood as the right to be healthy. Rather, international regulations on the Right to Health require governments to provide access to health care with quality care, non-discrimination and economic conditions that do not prevent access of the poor.

2.5. THE WILLAY PROGRAM

The Willay program is implemented in two distinct regions; San Pablo in Cajamarca and Acomayo in Cusco, together having a combined population of 50,000 people. The majority of the population belong to indigenous communities whose main economic activity is farming (84% of the active population).

In Acomayo, 46% of the population does not have access to electricity, 23% do not have access to running water, and 62% do not have access to appropriate sanitation. In terms of the Human Development Index, Acomayo is ranked ninth out of the thirteen provinces located in the department of Cuzco, with medium-low HDI similar to that of Sudan. Life expectancy is 63 years, 91% of children between 5 and 18 are in school and the illiteracy rate among women is 42%.

Government implementation of national initiatives related to the use of ICT, which are designed based on a developed urban perspective, generated unexpected results in these communities because of the lack of connectivity, capacity for management, and technology at the local level. Since there were neither good connections nor qualified technical staff in rural areas, the rural municipalities opted to establish offices in the respective districts' capitals. These satellite offices added to the municipalities' costs and complicated the human resources management process. There was limited knowledge regarding regulations on adequate use of management tools and deficiencies in using an appropriate language with the population in public entities. Regarding civil society organisations, they had organisational weaknesses; were unaware of their democratic governance rights and experienced limitations in leadership building. Spaces for consensus existed although they were not properly utilised due to a lack of satisfaction on the citizens' side.

The Willay program, meaning "to inform" in Quechua, proposes the use of ICTs in rural areas for democratic governance and citizen participation. The project explores how ICTs could enhance the processes of transparency, citizen participation and the accountability and effectiveness of local governments. This is achieved by building capacities of the stakeholders involved (civil society organisations and public entities like local government, health centres and schools).

In total, 44 local government institutions have been provided with a telecommunication infrastructure shared between them, based on WiFi for Long-Distance (WiLD) technology that offers Internet access and Internet Protocol (IP) telephony. Besides this, it has installed information systems and software, and implemented a system of continuous improvement. Public workers and community leaders have also been trained in participatory budgeting, accountability and transparency of institutions public, citizen surveillance, education management and health management.

3. CLASS ACTIVITY

This class activity is designed for a two-hour class session. The methodology for the class activity may be adjusted to better-fit the needs of the specific discipline it is taught within.

The goals for this activity are for the students to:

- Identify relevant ethical, legal and social issues in the practice of engineering.
- Know and use some tools and references to analyse and address ethical and social issues in the practice of engineering: code of ethics, laws, etc.

- Be aware of the social and ethical responsibility involved in decision making within the practice of engineering.

Methodology:

In the first part (60 minutes) the students work in small groups (4 to 6 students) on the following tasks:

Each group should receive the following documents

- A description of a case study that presents a problematic situation related to the practice of engineering in the context described above and a worksheet on which the group can write answers and reflections (see ANNEX2 – DilemmaN – DescriptionWorksheet.pdf)
- Some engineering laws, ethic and deontological codes related to the case study (see ANNEX1-DOC n _Title.pdf and ANNEX2- DilemmaN -DOC m _ Title.pdf)

Each group should carry out the following work:

- Read and understand the situation presented.
- Identify and describe the dilemma and the major ethical and social issues that are related to the situation.
- Identify ethical principles, norms, laws etc. that may help them to analyse the problem.
- Analyse the situation by taking all the actors and points of view into account.
- Make a decision regarding what a good professional engineer should do in that situation.

Three dilemmas are given so that different groups work on different situations. In this way, when the groups' work is shared with the rest of the class, a wider range of situations and proposals can be experienced. Depending on the particular needs of the context in which this activity is used, the most appropriate dilemma/s may be chosen.

In the second part (60 minutes), each small group should share their findings with the big group and discuss potential solutions. 15-20 minutes should be allowed for the discussion of each dilemma.

3.1. SOLUTION AND EVALUATION CRITERIA

There is no single or unique solutions of the dilemmas, but some guidelines on how to assess the student's work are presented here.

- On the identification of the issues
They may identify the most relevant issues, the main dilemmas and describe them correctly.
- On use of the ethical codes and norms related to the dilemma
They should correctly explain the ethical principles and laws related to the case concerned. They may use the most relevant codes and norms in their argumentation and decision making process.
- On analysis of the dilemma
They should identify every relevant actor involved in the situation; consider their different points of view and corresponding benefits, risks and negative consequences of a potential solution.
- On decision making
They should make a feasible and coherent decision, drawing from professional engineering ethical principles and local norms and legislation. They must consider the consequences or eventual risks of their proposed solutions. They may design a “win-win” solution, which benefits every actor involved in the situation.

Besides an oral presentation, each group should submit an essay either at the end of the session or some days afterwards, explaining their thoughts and opinions on each of the points outline above.

If grading is required, equal weight is given to every item outlined above, but different weighting may be chosen depending on the particular teaching context.

Some guidelines for each case are given below:

Dilemma 1: Should the Peruvian Health System sell medical information as a way of gaining additional income?

The main issue is the right to privacy. There is a conflict of interest between the economic needs of the Peruvian Health System and the population’s right to privacy.

Some references to inform the issue:

- “The States must respect and protect the right to privacy, including in the context of digital communication”; “unlawful or arbitrary collection of personal data, is a highly intrusive act, violates the rights to privacy and freedom of expression, and may contradict the tenets of a democratic society” (UN-Privacy Rights),

- The right to privacy is recognised in Peru's Data Protection Law as a fundamental right (Article 1) and is applicable in the context of this dilemma because personal health data are sensitive (Article 3). Personal data can be communicated to third parties only with previous consent of the data subject (in this case the patient) (Article 5) and treatment of the data should not be extended to other purposes that were not established at the time of collection (Article 6).
- "It is the responsibility of professionals to maintain the privacy and integrity of data describing individuals. This includes taking precautions to ensure the accuracy of data, as well as protecting it from unauthorised access or accidental disclosure to inappropriate individuals" (see more in 1.7 of ACM).
- The engineer "shall observe proper duties of confidentiality" (FEANI).
- "Professional Engineers should give due weight to all relevant law, facts and published guidance, and the wider public interest" (RAE-UK).

In this case the point of view of the Peruvian Health System as institution, the insurance company and, of course, the patients of the Peruvian Health System must all be considered.

Information about health is sensitive personal data and needs a high level of security. No one can access these data without legitimate reason (for example, being medical professionals). This is why Peru's Public Health System should not sell medical data to third parties without previous and informed consent of the data subject (in this case the patient). A "win-win" option could be to implement a process to inform patients about offers of health insurance in relation to their medical situation in return for data sharing.

Dilemma 2: Should "extra-payments" asked for by some Peruvian civil servants working in municipalities be accepted?

There is a conflict of interest because in order to reach some of the goals of the Willay programme (i.e. improve health services) the project team is asked to support some unethical actions (i.e. corruption).

Some references to inform the issue:

- "Honesty is an essential component of trust. Without trust an organization cannot function effectively". "A computer professional has a duty to be honest about his or her own qualifications, and about any circumstances that might lead to conflicts of interest" (ACM).

- Engineers “shall respect [...] the legal and cultural values of the societies in which they carry out assignments” (FEANI).
- Engineers should “avoid deceptive acts, take steps to prevent corrupt practices or professional misconduct, and declare conflicts of interest” (RAE-UK).
- “This Convention is applicable to the following acts of corruption: The solicitation or acceptance, directly or indirectly, by a government official or a person who performs public functions, of any article of monetary value, or other benefit, such as a gift, favor, promise or advantage for himself or for another person or entity, in exchange for any act or omission in the performance of his public functions” (Article VI, Inter-American convention against corruption)
- “the States Parties agree to consider the applicability of measures within their own institutional systems to create, maintain and strengthen: [...] 8. Systems for protecting public servants and private citizens who, in good faith, report acts of corruption, including protection of their identities, in accordance with their Constitutions and the basic principles of their domestic legal systems” (Article III, Inter-American Convention Against Corruption)
- “An official who, in the performance of their duties, illegally increased their heritage in relation to his lawful income, shall be liable to a penalty of not less than 5 nor more than 10 years” (Article 104. Illegal enrichment. Law 29703 Peru),
- “Transparency and accountability: [...] Observance of strict standards must be maintained in accounting activities and financial records. all economic transactions, whatever their value, should be properly documented so that they reflect the facts transparently”, “Anticorruption Policy: [...] In appropriate circumstances, workers ONGAWA invitations or gifts may be made to third parties, always in accordance with the laws and upon local customs, within reason and approval of the most senior level hierarchical at home” (ONGAWA Code of Conduct)

In this case the points of view of the NGO and others partners of the Willay program, the civil servants of the municipalities, the government of Peru and the beneficiaries of the Willay program must all be considered. In this case, there is no other institution offering the services that the Willay programme provides.

The decision must be clear to not support corrupt requests but should provide some ethical alternatives to reach the goals of the Willay program. Perhaps, it may be

necessary to report this circumstances ("blow the whistle") to the appropriate Peruvian governmental institutions.

Dilemma 3: The technical team must reach a decision on which technology (free or private/priced software) would be more appropriate for the context.

In this case, there is a conflict between the interest of the Board of the NGO to remain faithful to their principles regarding free software and the interest of the users and managers of the hospital, who are reluctant to use free software. Also involved, are issues related to the impartiality and objectivity of technical judgments, and professional responsibility of avoiding risks.

Related to conflict of interest and impartiality the following references indicate:

- "A computer professional has a duty to be honest about his or her own qualifications, and about any circumstances that might lead to conflicts of interest." (ACM)
- Engineers "shall provide impartial analysis and judgment to an employer or clients, avoid conflicts of interest" (FEANI).
- Engineers should "present and review engineering evidence, theory and interpretation honestly, accurately and without bias" , "be objective and truthful in any statement made in their professional capacity" (RAE-UK).

Related to professional responsibility on avoiding risks:

- "The honest computing professional [...] will provide full disclosure of all pertinent system limitations and problems". "Well-intended actions [...] may lead to harm unexpectedly. In such an event the responsible person or persons are obligated to undo or mitigate the negative consequences as much as possible. One way to avoid unintentional harm is to carefully consider potential impacts on all those affected by decisions made during design and implementation" (ACM).
- Engineers "shall accept appropriate responsibility for their work", "Shall carry out their tasks so as to prevent avoidable danger to health and safety" (FEANI).
- Engineers should "be aware of the issues that engineering and technology raise for society, and listen to the aspirations and concerns of others", "identify and evaluate and, where possible, quantify risks" (RAE-UK).

In this case the points of view of the NGO' s Board, the technical team, the users and managers of the hospital must be considered, as well as the people who will use the hospital's services.

The priority of the final decision must be to ensure proper functioning of the information systems, including ease of use, user acceptance, robustness, ease of maintenance, etc.

4. HOMEWORK ACTIVITY

The proposed activity involves reflection on possible improvements of the Willay program from different stakeholders' perspectives: the principles of the professional engineering ethics, the principles of Corporate Social Responsibility (CSR) of a technological company working in the sector and the particular context of the Willay programme, and the Human Rights Based Approach (HRBA) used in human development policies.

Different activities are proposed depending on the particularities of the class taught.

A1: Comparison and reflection on Corporate Social Responsibility principles and professional engineering responsibility principles.

Professional responsibility principles were already seen in the class work, primarily:

- General Moral Imperatives. Association for Computing Machinery (ACM)
(see ANNEX1-DOC1_ACM-Moral_Imperatives.pdf)
- The Royal Academy of Engineering UK. Statement of Ethical Principles
(see ANNEX1-DOC3_RAE-UK-Statement_of_Ethical_Principles.pdf)

As Corporate Social Responsibility principles, the example of Telefonica, an ICT Company which operates in Peru, may be used:

- Telefonica. Our Business Principles
(see ANNEX1-DOC4_TELEFONICA-OurBusinessPrinciples.pdf)

The students should submit an essay (of no more than 1000 words) in which they outline the similarities and differences between Corporate Social Responsibility (CSR) principles of a technological company and professional engineering responsibility principles. They should also make some coherent propositions of principles that could be added to either the Corporate Social Responsibility (CSR) principles of Telefonica, or to professional engineering responsibility principles of the RAE-UK or ACM.

A2. Reflection on the possible actions that may be implemented in the context presented by a technological company committed to social responsibility principles.

The students should submit an essay (of no more than 1000 words) in which they list possible actions that could be implemented by Telefonica to support the Willay programme's goals. These actions should be oriented to areas such as wider access to ICTs and their contributions to social development, especially, in health, security and democratic governance. The proposals should be justified on the basis of the principles of CSR and professional ethics analysed in A1.

A3. Reflection on the possible actions that may be implemented in the context presented according to the Human Rights Based Approach (HRBA) used in human development policies.

The following could be used as references:

- Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework.
(see ANNEX1-DOC5_UN-GuidingPrinciplesHRRandBusiness-2011)
- Chapters III and IV (pg 15 to 30) of: HIGH COMMISSIONER ON HUMAN RIGHTS (2006). Frequently asked questions about the human rights based approach in development programming.
(see ANNEX1-DOC6_UN-HumanRightsBasedApproach-FAQen.pdf)

The students should submit an essay (of no more than 1000 words) in which they address how commitment to Corporate Social Responsibility principles may integrate principles of the human rights based approach (HRBA). They may also make propositions to improve the way in which the Willay programme incorporates HRBA principles.

4.1. SOLUTION AND EVALUATION CRITERIA

This is an open activity where the following can be assessed:

- Understanding of the main principles of professional ethics, Corporate Social Responsibility and Human Right Based Approach.
- Capacity to link the different approaches mentioned in the previous point, identify differences and similarities between them, and make a coherent justification of points raised,
- Capacity, coherency and originality of propositions drawn from the different principles analysed.

As a reference, below are ideas for possible solutions.

A1: Comparison and reflection on Corporate Social Responsibility principles and professional engineering responsibility principles.

Numerous similarities can be found between the approaches:

Values of honesty, integrity, trust, competence or talent; respect for laws, human rights and diversity; avoidance and declaration of conflict of interest, rejection of corruption; contribution to the development of society; prevention of health risks; protection of the environment and avoidance of negative impacts; respect for confidentiality and information security.

Some differences can also be found:

Telefonica's Principles include an explicit mention of UN Human Rights Declaration and declarations of the International Labour Organisation, whilst professional ethics mention general principles only.

Telefonica's Principles are more explicit in relation to possible corrupt practices.

Professional principles give more weight to avoidance and minimisation of risks, both intentional and unintentional; alertness to potential damage; awareness of the issues that engineering and technology raise for society, and listening to the aspirations and concerns of others. These indicate a deeper social commitment compared to Telefonica's principles.

Professional principles also show more environmental commitment, with awareness of limited natural resources and rights of future generations.

Professional principles more explicitly include the values of accuracy, rigour, impartiality, and objectivity. They also emphasise the obligation to report any signs of potential damage.

A2. Reflection on the possible actions that can be implemented in the context presented by a technological company committed to social responsibility principles.

Some paragraphs from Telefonica's document that may help to this work are presented below.

Our vision:

"Improving people's lives around the world by transforming possibilities into reality - building a better future for everyone: our customers, employees, society, shareholders and partners."

Forming an active part of the societies and markets in which we operate, offering our experience and perspectives as professionals in the telecommunications world. We show

the global and local reality exactly as it is, coherently and with commitment, whilst being innovative, open, committed and honest in everything we do.

Our values:

We understand the realities and diversity of the regions we work in.

We drive progress in the countries, regions and communities where we operate.

Development of Society:

We contribute to the social, technological and economic development of the countries where we operate, investing in telecommunications infrastructure, creating jobs and developing products and service that contribute to the development of society.

We collaborate in civic, community and not for profit organizations and with public initiatives aimed at eradicating social problems in those local communities in which we operate by providing our capabilities and our technology.

A3. Reflection on the possible actions that can be implemented in the context presented according to the Human Rights Based Approach (HRBA) used in human development policies.

The Human Rights Based Approach complements and reinforces the focus of Human Development. It has implications for development goals, which must enable the full realisation of the human rights of all people. The relevant development goals here are political and policy commitment.

One of the main strengths of this approach is that it involves dealing with the international regulatory framework of Human Rights. Thus, any development cooperation should contribute to the improvement of both the capacities of '*duty-bearers*' to meet their obligations and the capabilities of the '*rights holders*' to claim for their rights.

The roles of the *duty bearers* in the Willay project (the State, the municipalities, the NGO, some IT companies) and the *right holders* (the citizens) both need to be considered.

The orientation of the Willay project could change. It could focus not only on improving governance, but also on improving transparency, accountability and citizen participation. It is not sufficient to provide the public sector with new technologies and systems; it is also important to both train civil servants to take advantage of them and empower citizens to seek their active participation.

Another possible change relates to the most vulnerable and disadvantaged population. Willay should find a way in which it may have a positive impact on the lives of this sector of the population.

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FURTHER/SUGGESTED MATERIAL

- Video: Data protection-Back from the breach. Information Commissioner's Office. <http://ico.org.uk/for_organizations/training> [10 July 2014]
- Video : La ruta de las TIC (Spanish) <http://www.youtube.com/watch?feature=player_embedded&v=yV-deA2uUwo> [23 July 2014]
- Video : Story of Stuff Project. < <http://storyofstuff.org/movies/> > [10 July 2014]



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