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Abstract:-

Information and Communication Technologies (ICTS) have greatly transformed societies, cultures and economies as well as created both new opportunities and threats for humankind. The academic field of Peace and Conflict Studies with its inherent character of being based on concrete values rather than striving to always be objective on all accounts is especially suited and challenged to explore how ICTS should be judged and used when it comes to working toward an ideal - the ideal of peace and non-violence. This paper provides a short motivation for working in this area as well a summary of work that has already been done, then moves on to giving a quick overview over ICTS and especially the Internet as an electronic medium, and finally explores several concrete ways in which ICTS can be used for peace and non-violence: As a tool by international organizations, as a weapon in nonviolent struggle, and as a pillar for building and maintaining peaceful societies. ICTS offer strength for peace in several ways. This includes using them as tools in nonviolent struggle, as pillars for peaceful societies, and working towards traditional goals of the United Nations and other international organizations. An online initiative started by the Italian version of Wired Magazine has successfully campaigned to nominate the Internet for the 2010 Nobel Peace Prize. The initiative argues that the Internet is a "web of people" rather than a "network of computers", that it has laid the foundations for a new kind of society which is advancing dialogue, debate and consensus through communication, that contact with others has always been the most effective antidote against hatred and conflict, and that therefore the Internet is a tool for peace and non-violence. Although the Internet as the nominated entity did ultimately not win the prize, many controversial discussions have emerged following the nomination.

Keywords: Strengths , Peace And Nonviolence , Information and Communication Technologies (ICTS) .

STRENGTHS OF ICT FOR PEACE AND NONVIOLENCE

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INTRODUCTION

MOTIVATION

ICTS offer potential for peace in several ways. This includes using them as tools in nonviolent struggle, as pillars for peaceful societies, and working towards traditional goals of the United Nations and other international organizations.

An online initiative started by the Italian version of Wired Magazine has successfully campaigned to nominate the Internet for the 2010 Nobel Peace Prize. The initiative argues that the Internet is a "web of people" rather than a "network of computers", that it has laid the foundations for a new kind of society which is advancing dialogue, debate and consensus through communication, that contact with others has always been the most effective antidote against hatred and conflict, and that therefore the Internet is a tool for peace and non-violence. Although the Internet as the nominated entity did ultimately not win the prize, many controversial discussions have emerged following the nomination.

WORLD SUMMIT ON THE INFORMATION SOCIETY

Acknowledging the growing role of the Internet and its influence on the world, the UN General Assembly decided in 2001 to hold the World Summit on the Information Society (WSIS). The objective of WSIS was to work on several issues with global relevance centering on Information and Communication Technologies (ICTS). The subject areas that received most attention were Internet governance and financing. Other topics included the following:

The building and characteristics of an "ideal" Information Society.
 Challenges and opportunities of ICTS for the UN and other international organizations.
 Effects of ICTS on global political and social structures.
 The Digital Divide and other problems arising with ICTS.

Held in two phases, the first Summit took place in December 2003 in Geneva. The second (final) phase culminated in a Summit in Tunis, in November 2005. Its objective was to review the steps taken and achievements so far, and to decide on further measures. WSIS produced and adopted four outcome documents: The WSIS Phase 1 "Declaration of Principles" and "Plan of Action", as well as the WSIS Phase 2 "Tunis Commitment" and "Tunis Agenda for the Information Society". During the opening ceremony, the then Secretary General of the United Nations Kofi Annan emphasized the optimistic spirit of the conference and a shared desire to use ICTS for working towards the ideal of peace. He declared that

"While most other conferences focus on global threats, this one will tell us how to best use a new global asset".

THE INTERNET AS A MEDIUM

In order to explore the potential of the Internet and other ICTS for peace, it appears necessary to first examine at least at a basic level the characteristics and abilities of electronic communication technologies that can act as a medium for exchanging information between senders and receivers. From a high-level point of view, the Internet's principal differences from more traditional media are its high speed, low price and interactivity. Extensive academic work has been done to describe mathematical aspects of electronic communication technologies, such as reliability, latency, or the amount of information that can be transmitted over a channel in a given amount of time. In his influential work "The Mathematical Theory of Communication", Claude Shannon - generally considered one of the founding fathers of information and communication theory - defines several key concepts of communication, such as sender, receiver, message, channel and "bit" as a mathematical unit for measuring information. Building on this foundation, it becomes possible to evaluate the potential of various electronic communication technologies for transmitting information.

It is important to point out that this mathematical notion of information is related to, but quite distinct from the human-understandable semantics that are being exchanged in human communication. It is self-evident that the form of communication most capable of conveying human-understandable semantics is direct face-to-face communication, which besides words also consists of important nonverbal components, such as tone of voice, facial expressions, body gestures, eye contact, physical contact and others. According to research¹⁰, nonverbal communication accounts for 60 to 70 percent of human-understandable semantics. Compared to face-to-face communication, any electronic medium is necessarily more limited and less able to efficiently convey all the semantics that are typically found between humans. Electronic communication technologies come in many different forms, from text-based telegraph systems to modern multimedia applications. In general, an increased ability to transport information in the mathematical sense of Claude Shannon (i.e. a high "bitrate") also results in an increased potential to convey human-understandable semantics, however due to their variety it is still necessary to examine all the different concrete applications of ICTs individually. Sometimes, limited technologies such

as text-based systems can be semantically enhanced in creative ways, such as by spatial arrangement of words or the use of emoticons.

Georg Simmel provides the following variables for classifying social forms:

- Amount of self involved
- Distance (physical, social, etc.)
- Valence (positive, negative)

Although Georg Simmel uses this approach primarily to examine conflict as a social form, it seems his approach can also be suitable for judging the potential of various ways of communication for conveying human-understandable semantics.

It appears that in any endeavor to promote or sustain the ideal of peace, it makes sense to aim for technologies that can transport a maximum amount of information in the mathematical sense of Claude Shannon, as well as aim for applications that can convey a maximum amount of human-understandable semantics. In other words, Georg Simmel's concept of "Amount of self involved" should be maximized while "Distance" should be minimized. For example, in attempts to publish political messages to a movement's potential audience, or to overcome cultural differences within and between societies, it seems that applications involving advanced audio and video capabilities would be much more effective than limited text-based applications.

However, although it may sound paradox, in certain scenarios it might actually be desirable to use a medium with a known low level of conveyable semantics. For example, during the Cold War, the initial version of the Moscow-Washington hotline (also known as simply the "Hot Line"), was consciously chosen to be a simple text-based telegraph line, in spite of the ready availability of more advanced electronic communication technologies such as telephones. One reason for this decision was a consideration that a medium incapable of transmitting voice and emotions might be better suited for solving the kind of problems that were expected to arise between the two superpowers.

NETWORK ARCHITECTURES

Another important aspect of ICTs to consider at the technical level is the set of available physical and logical network architectures and those architectures' inherent potential for exerting control over people. In recent years, a strong tendency towards centralization of online services could be observed. In technical terms, centralization means that these services make use of central "hubs" or "servers" which organize and process all data and all communication processes inside a system. Most popular Internet services - including Google Search, Facebook, Youtube and Twitter - are examples for such systems. The key realization to make here is that the political or corporate entity offering a service is in full control of all data and communication processes that take place inside the service. The opposite of the concept of a centralized network architecture is typically described with terms such as decentralized, distributed or peer-to-peer, which means that some or all communication takes place in a way that is less or not at all dependent on any single central point in the network.

From a technical perspective, it can in some cases be argued that centralized architectures are the most effective and reliable way of implementing online services, however in many cases it is also possible to design such services in ways that are not dependent on any single political or corporate entity. From the Catholic Church's early attempts to control Gutenberg's printing technology to the fearsome propaganda machine of German National Socialism, history is full of examples where centralized control over communication has been used as an instrument of power, often for purposes that directly contradict the ideal of a peaceful society. Since by today centralization has become the predominant paradigm in the design of many Internet services, criticism of such architectures is widespread. Potential abuse scenarios and harmful consequences for society are to a large part based on violation of privacy and include the storage, analysis, aggregation, manipulation and selling of personal data. Another potential malicious use is the surveillance and manipulation of people's thoughts and opinions as they are exchanged via a network. The fact that most popular Internet services today could be but are not actually realized in a decentralized fashion give rise to concerns. It appears that for societies to become and remain peaceful, the network architectures to be favored are those that are not based on strong centralization of control over data and communication.

French philosopher Frantz Fanon, known for his work on decolonization and his influence on national liberation movement leaders from Malcolm X to Ernesto Che Guevara, states the following:

"A community will evolve only when a people control their own communication."

While it may be (or may not be) an exaggeration to compare today's ubiquitous centralized network architectures with the age of colonization, the lesson to be learned is that the ability for people to communicate freely between each other is an important prerequisite for their overall freedom.

Based on these considerations of fundamental properties of electronic communication technologies and architectures, the rest of this paper will examine concrete ways of using ICTS for the ideal of peace.

POTENTIAL OF ICTS FOR PEACE

From a high-level perspective, ICTS can play an important role for promoting peace in the following ways:

1. Increasing the effectiveness of traditional UN and NGO activities.
2. Empowering disadvantaged people through capacity building.
3. Empowering disadvantaged people through education.
4. Nonviolent struggle.
5. Building and maintaining a peaceful society.

INCREASING THE EFFECTIVENESS OF TRADITIONAL UN AND NGO ACTIVITIES

Just like ICTS can facilitate many day-to-day tasks for companies and individuals, they can also be used effectively by the UN, in long-time endeavors, in daily work and in cooperation with other organizations, in order to perform tasks with higher productivity.

EXAMPLE: INDIAN OCEAN TSUNAMI 2004

One example of how technologies can help in UN projects is the relief operation undertaken after the destructive tsunami in the Indian Ocean in 2004. After this catastrophe the governments of concerned countries were overwhelmed by logistic challenges and depended heavily on international organizations as well as on local NGOs. Each of the participating organizations was specialized in a certain field (rescuing people, medication, providing shelter, registration, etc.). However, in order to effectively carry out their work, they needed to communicate with each other and exchange data extensively. On the technological level, this meant the need for a common data strategy and an easy way for transporting various different kinds of information. In this particular situation, open-source software proved to be especially useful, considering the transparency and flexibility which are required in conflict management. In the end, an open database system and other technologies using flexible data structures and communication protocols made it possible for all participants to incorporate into the existing infrastructure all required information. As a result, they were able to conduct their operations in a far more coordinated and effective way than they could have on their own. Also, ICTS were used not only for relief coordination, but also for making data available to the public, for example people could search for information about missing relatives and friends.

Other examples of how ICTS can help the UN and NGOs are database projects for IDPS, distribution of safety information to UN field personnel and web portals of all kinds for making information available in a reliable and timely way, which is especially critical in the field of peacekeeping, but also in many other UN processes.

EMPOWERING DISADVANTAGED PEOPLE THROUGH CAPACITY BUILDING

Another way in which ICTs can help to promote peace is to improve development in Least Developed Countries (LDCs).

Dr. Linton Wells, United States Assistant Secretary of Defense, stated at the WSIS Tunis Summit that in situations of crisis or conflict, "the victim is the first responder". This means that the best way to help people is to empower them to help themselves, which is the basic principle of capacity building and the mission statement of the specialized UN agency UNDP:

"Capacity is the ability of individuals, organizations and societies to perform functions, solve problems, and set and achieve goals. Capacity Development (CD) entails the sustainable creation, utilization and retention of that capacity, in order to reduce poverty, enhance self-reliance, and improve people's lives."

Access to information is an important part of capacity building, and UNDP is a pioneer in using ICTs in development projects in order to work towards the UN Millennium Development Goals.

In preparation for WSIS, UNESCO held a Conference on "ICT for Capacity Building: Critical Success Factors" from May 11-13 2005 in Paris/France, where key prerequisites and success factors for capacity building and education with ICTs were discussed. One of the main conclusions was that projects must primarily be focused on the needs of the targeted group and local requirements, instead of the general possibilities offered by technology.

As an example for a more exotic interpretation on how capacity building can promote peace, Lester Kurtz in the preface to his Encyclopedia of Violence, Peace, & Conflict mentions the emergence of new narratives for people to follow, told by media, modern advertising and marketing. One such narrative is consumerism as an alternative to violent struggle. In other words, a healthy cycle of production and consumption can avoid root causes for conflicts and therefore work to maintain a state of peace.

EMPOWERING DISADVANTAGES PEOPLE THROUGH EDUCATION

The topic of education is closely related to capacity building and a central issue in the UN's

Millennium Development Goals. UNESCO has a long tradition in promoting education as a human right and as a basis for a better life, for example through its Education for All Programme.

E-Learning and on-line libraries can improve education in a variety of ways and make specialized knowledge available in areas where it would be hard to obtain otherwise. In some projects, ICTS even help teachers acquire knowledge which they then pass to others. This principle of improving people's lives by the way of education is embodied in the following well-known proverb:

"Give a man a fish; you have fed him for today. Teach a man to fish; and you have fed him for a lifetime."

In addition to advancing education, UNESCO is also committed to preserving existing knowledge through its Memory of the World Programme and - having realized that ICTS are increasingly used for archiving knowledge - has adopted a Charter on the Preservation of the Digital Heritage, which recognizes that information stored on the Internet (created digitally or converted from existing analogue resources) is a legacy that has to be protected.

NONVIOLENT STRUGGLE

The potential of ICTS is enormous when it comes to political groups engaging in nonviolent struggle against an authority or situation perceived to be unjust. One example for this is the platform avaaz.org, which is an online service that systematically facilitates nonviolent action in a wide variety of causes.

an Online World" that the specific context of a conflict should determine how, when, and if ICTs should be used at all, and that the goals of a movement should shape how exactly ICTs are used, not vice versa.

Several categories of using ICTs in nonviolent struggle can be distinguished. The following list is partially based on Gene Sharp's classic list of nonviolent methods "The Politics of Nonviolent Action".

1. Protest and Persuasion: Communicating a political message to an audience using ICTs.
2. Noncooperation: Using ICTs to passively withdraw from or resist against unjust societal processes.
3. Nonviolent Intervention: Using ICTs to actively disrupt unjust political conditions and instruments of power.
4. Self-Organization: Using ICTs for internally organizing a movement's operations.

PROTEST AND PERSUASION

The Internet and other ICTs have been extensively used by social and political movements for communicating their goals to a wide audience. Today it is natural for political parties and other political institutions and initiatives to maintain at a minimum a website and e-mail address, as well as typically even more means for communicating with their audience, such as Facebook groups, Twitter accounts and Youtube channels.

It is not surprising that Gene Sharp mentions "Protest and Persuasion" as one of three major categories of methods in nonviolent struggle, given that persuading as many people as possible of one's cause is of great importance in any attempt to work towards a political goal. In the "Nonviolent and Violent Conflicts and Outcomes" (NAVCO) dataset¹, one of the conclusions is that the chances for success of a nonviolent movements increase with the amount of members in the movement.

Although at the time of Gene Sharp's writing, the Internet was unknown in mainstream society, many of his ideas still make sense in the context of ICTS. The following table attempts to reposition some of the original methods into a modern ICT context:

#1: Public speeches:
podcasts, Youtube videos #2: Letters of opposition or support:
blog posts, comments #6: Group or mass petitions:
online petitions #10: Newspapers and journals:
online newspapers #18: Displays of flags and symbolic acts:
use of banners, icons, ribbons, buttons, widgets etc. on a movement's website #1: Wearing of symbols:
custom browser skins, wallpapers, screensavers, etc. with the symbols of the movement #23: Destruction of own property:
campaigns to stop using certain online services, e.g. <http://www.quitfacebookday.com/> #33: Fraternalization:
web rings, hypertext links, blogrolls #48: Protest meetings:
online meetings in chat rooms, discussion forums, etc.

NONCOOPERATION

In Gene Sharp's list of nonviolent methods, the "Noncooperation" category means refusing to subject oneself to the laws and rules of an authority. This approach is also meaningful in the context of ICTS

and can take concrete forms such as:

- ❖ The installation and use of proxy servers and similar systems in order to circumvent firewall and censorship technologies.
- ❖ The installation and use of alternative DNS root servers in order to circumvent the global naming system provided by ICANN.
- ❖ The installation and use of private wireless LAN networks and other low-level communication devices to circumvent mainstream infrastructures.

NONVIOLENT INTERVENTION

This category refers to setting active measures in order to destroy or disrupt unjust political conditions and instruments of power. In the context of ICTs, this can mean in particular the conscious breaking of online security systems, e.g. by the following means:

- ♦ Hacking into networks, websites and other services, i.e. the direct exploitation of security deficiencies.
- ♦ Denial-service attacks, i.e. overpowering a system's communication channels in order to prevent it from satisfying legitimate requests.
- ♦ Virus attacks, i.e. the infection of systems with malicious code in order to disrupt or manipulate their functionality.

Depending on the exact type of action, the level of intervention and the caused damage and destruction in targeted ICT systems, it is debatable whether cyber-attacks like the above do indeed constitute nonviolent intervention, or if they should be considered a form of violent action.

SELF-ORGANIZATION

Effective internal organization is a key element to the success of any large-scale social form, and nonviolent political movements are no exception. The use of ICTs for this purpose can range from gathering information useful to the movement to the online organization of gatherings, protests and other events.

EXAMPLE: IRAN GREEN MOVEMENT

Following the Iranian presidential election in 2009, a wave of protests emerged all around Iran, with the goal of challenging the result of the election as well as the political establishment in general. In this struggle, Facebook, Twitter, blogs and photo/video hosting services all played a major role for publishing information and political messages to the movement's members and international supporters. An article in the Washington Times even goes as far as labeling the movement "Iran's Twitter revolution", emphasizing the core role of ICTs.

According to the article, hackers attacked and disrupted the website of Iranian President Mahmoud Ahmadinejad's website, which is an example of the "Nonviolent Intervention" category. The

Washington Times article itself uses the term "cyberdisobedience" to describe this kind of activity. As an example of the "Noncooperation" category, the same article also mentions that proxy portals were used by hackers to circumvent the Iranian authorities attempts to block the movement's communications.

The Iran Green Movement also displayed another aspect of the power of ICTS when it comes to political struggle: The level of public awareness and support for this movement in online services such as Facebook and Twitter suddenly dropped to a minimum, when news of Michael Jackson's death reached the world. The lesson to be learned from this is that the power associated with ICTS can be highly dynamic, fragile and unpredictable.

EXAMPLE: OTPOR!

The movie "Bringing down a Dictator" portrays the successful nonviolent struggle of a popular movement called Otpor! ("Resistance" in Serbian) against the socialist regime of Slobodan Milosevic. The group used the Internet effectively as an instrument in their nonviolent struggle. According to the movie, before the group even had an office, they already had a website for spreading their political messages to the public as well as for coordinating their own activities. Therefore, Otpor! is an excellent example for using ICTS in the "Protest and Persuasion" and in the "Self-Organization" categories.

Another interesting aspect of the movie is an interview with U.S. Army Colonel Robert Helvey, who compares nonviolent struggle with armed conflict and points out that some fundamental principles of war are equally important for nonviolent political movements. These principles include knowing your enemy, taking the initiative, concentrating your forces and assuring security for your infrastructure. One of the lessons to be learned here is that ICT resources as an important part of a nonviolent movement have to be adequately protected from external manipulation.

EXAMPLE: ZAPATISTA ARMY OF NATIONAL LIBERATION

In the second book "The power of identity"²³ of his "The Information Age" trilogy, Manuel Castells analyzes three movements, which he found to be making effective use of ICTS for achieving their goals. These movements are the Zapatista Army of National Liberation (EZLN) in Mexico, a loose union of patriotic, right-wing American militia groups, and the Japanese Aum Shinrikyo sect. These movements are very different from each other not only in their structures, goals and activities, but also in the manner in which they employ ICTs for their causes:

- ❖ The EZLN uses the Internet for communicating its motivations and political goals to a public network of sympathizers and supporters all around the world.
- ❖ Patriotic, right-wing American militia groups used the Internet primarily for organizing themselves, for coordinating their activities and for therefore becoming more efficient in their activities.
- ❖ The Aum Shinrikyo sect made use of ICTs in similar ways as the other two movements, but it also exploited the aesthetic and seductive character of technology in its apocalyptic teachings, arguing that technology was necessary for both speeding up and surviving the supposed impending doomsday.

Even though none of these three movements were nonviolent, it can be argued that the EZLN, which Castells calls "the First Informational Guerilla Movement", had a comprehensive nonviolent communications strategy that was based on achieving their goals by diffusing their political messages and creating sympathies among the public. In fact, this was their primary overall strategy, while the use of arms and actual warfare was only a minor aspect of this movement and actually avoided as much as possible. The main (and ultimately decisive) skills of EZLN spokesman Subcommandante Marcos were not organizational leadership or military competence - it was his understanding of the importance of communications, his treatment of the media, and his ability to formulate his political messages in speeches, interviews and writings. The result of these efforts was a worldwide group of solidarity networks that successfully influenced public opinion and resulted in pressure on Mexican politics and economics to refrain from repressions and instead engage in negotiations with the EZLN.

EXAMPLE: ANTI-FARC PROTESTS

In February 2008, hundreds of thousands people in the Colombian capital Bogota held a march to protest the continuing, violent activities of FARC - the Revolutionary Armed Forces of Colombia. An online article by BBC News describes how the march was organized to a large part through the use of the social networking service Facebook.

BUILDING AND MAINTAINING A PEACEFUL SOCIETY

Another promising way of using ICTs is for building and maintaining peaceful societies. This approach focuses on strategies for overcoming cultural differences by the way of cultural dialogue.

CULTURE AS A SOURCE OF CONFLICT

It is well known that ethnicity and cultural differences are among the main sources of conflict. If this realization is combined with the fact that the reasons for the very existence of different ethnicities and cultures are the amount and type of interaction and communication between people, then it becomes apparent that new communication technologies are able to influence the way cultures interact with each other, for better or worse.

Lester Kurtz uses an idea he calls "Conflict Canyons", a metaphor to describe how constant and habitual social patterns often lead to the continuation and increase of social gaps, just like water always follows the same paths, continually erodes land and subsequently deepens the canyon in which it flows. The same metaphor can be applied to communication patterns using ICTs.

Samuel P. Huntington argues in his theory "Clash of Civilizations" that cultural and religious identities are major sources for conflict, and that different cultures are bound to hold varying amounts of friendliness and hostility towards each other.

Geert Hofstede, Dutch expert on interactions between national cultures, who has developed a system for quantifying and comparing cultures using five dimensions (Power Distance, Individualism vs. Collectivism, Masculinity vs. Femininity, Uncertainty Avoidance, Long-Term Orientation), draws similar conclusions. He says that "Culture is more often a source of conflict than of synergy. Cultural differences are a nuisance at best and often a disaster".

CULTURE AS A SOURCE OF PEACE

Just like cultural differences contain much potential for conflict, indeed precisely because of this potential, culture can also be a source of peace by the way of promoting tolerance and cultural dialogue. This is in the spirit of UNESCO and embodied in the preamble of its constitution:

"To build peace in the minds of men, it is in the minds of men that the defenses of peace must be constructed."

The UNESCO constitution then goes on to declare:

"That ignorance of each other's ways and lives has been a common cause, throughout the history of mankind, of that suspicion and mistrust between the peoples of the world through which their differences have all too often broken into war",

"That the wide diffusion of culture, and the education of humanity for justice and liberty and peace are indispensable to the dignity of man and constitute a sacred duty which all the nations must fulfil in a spirit of mutual assistance and concern.",

"For these reasons, the States Parties to this Constitution, believing in full and equal opportunities for education for all, in the unrestricted pursuit of objective truth, and in the free exchange of ideas and knowledge, are agreed and determined to develop and to increase the means of communication between their peoples and to employ these means for the purposes of mutual understanding and a truer and more perfect knowledge of each other's lives."

From the above, the following three core principles - or steps towards peaceful societies - can be derived:

1. Recognize and preserve cultural diversity.
2. Engage in sensitive intercultural dialogue.
3. Through this dialogue, promote tolerance and understanding as a basis of peace.

This is also consistent with Christian Scherrer, who has formulated a list of "18 Principles for averting violent conflict and managing ethnic, national, religious and other multiplicity". This list states the following culture-related principles as pillars for peaceful societies:

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#11: Cultural autonomy and respect for tradition.

#17: Unity through diversity.

#18: Multiculturalism as an advantage.

One conference that was held during the preparatory phase of WSIS was "ICT+Creativity" from June 2-3 2005 in Vienna, which in its "Vienna Conclusions" also concluded that the preservation of cultural diversity is an important goal:

"Whereas ICT is most effective when it is standardized and uniform, content is most valuable when it is varied and unique. Whereas ICT infrastructure strives to be culture-neutral, content is most powerful when it intermingles with local cultures."

During the WSIS Tunis Summit itself, commitment to the goal of overcoming cultural differences using ICTs was explicitly confirmed by several speakers:

- Dr. Abdulaziz Altwajri, Director General of the Islamic Educational, Scientific and Cultural Organization (ISESCO) (which can be seen as an Islamic version of UNESCO), portrayed the Information Society as a "global village where all humans live together" and drew a parallel to a historic period of the Spanish city of Cordoba in the 10th century, when the city population was made up of people from three different religions who not only lived together in peace, but created a unique blend of culture and a level of development unparalleled in Europe at that time. The reason for this harmony and fruitful cooperation was - according to Dr. Altwajri - the fact that Muslims, Christians and Jews simply knew everything about each other and their customs, and that they therefore were not prone to misunderstandings and conflicts. He further stated that the Internet is superior to other media in terms of overcoming cultural differences, as for example television in the western world allegedly gives a distorted impression of the Muslim religion.

- Ms. Viviane Reding, at the time of the WSIS Tunis Summit Commissioner for Information Society and Media in the European Union, compared the challenge of cultural diversity on the Internet with the diversity in the EU, saying that the key reasons for the success of European cooperation are the acceptance and preservation of cultural differences, as well as the promotion of dialogue between them.

In recognition of the exploding importance of ICTS, UNESCO had in 1990 established a fifth operational sector called the "Communication and Information" Sector, which in the organization's structure has a place comparable to the more traditional sectors "Education", "Natural Sciences", "Social and Human Sciences" and "Culture".

In 1995, UNESCO launched an initiative called "Culture of Peace" which is aimed at analyzing existing peaceful societies as well as identifying principles for building and maintaining them. One of those principles - according to the "Culture of Peace" website - is the need to:

"Support participatory communication and the free flow of information and knowledge."

This "Culture of Peace" program as well as its founding principles are based on Elise Boulding's work "Peace Culture", which also states the following component for the development of peace cultures:

"Secrecy and control of information by those in power is replaced by the free flow and sharing of information among everyone involved."

It is important to realize that in many situations it is not easy to initiate and maintain dialogue over ethnic boundaries. The Internet and other technologies can only act as supplemental ingredients to a mix of conditions that also have to include education, openness and other factors.

AESTHETICS OF PEACE AND PEACEFUL RECIPROCITY

When considering cultural dialogue as a source of peace for societies, it is important to understand what can motivate humans to engage in such dialogue.

One such motivation is the Aesthetics of Peace - a general human sense of upholding peace as a desirable and inherently beautiful state, and the readiness found among most of us to work and sacrifice for peace and other ideals. In her keynote speech at the LeWeb'09 in Paris, Queen Rania Al Abdullah of the Hashemite kingdom of Jordan said,

"Digitizing ourselves has heightened our instinct to be selfless."

Peaceful Reciprocity works in close conjunction with the Aesthetics of Peace and refers to an instinct of returning what is given. Reciprocity functions with peace equally as it functions with conflict and other social forms. Peaceful Reciprocity therefore means the returning of actions that build and maintain peace. In many scenarios in the field of game theory, reciprocity is known to be one of the most effective strategies that ultimately reward every participant of a game or a real strategic situation. Therefore, any concrete application of ICTs aimed at promoting peace should be built on the potential that lies within the concepts of Aesthetics of Peace and Peaceful Reciprocity.

Another, related driving factor behind culture as a source of peace is human curiosity and the synergy between that curiosity and a natural drive to share one's identity: We like to communicate our thoughts and ideas, while at the same time we are curious to learn about others. This is a process that requires great care and sensitivity, since involvement with alien cultures can also lead to confusion, prejudice and fear. Cultural differences can have both an attractive and a threatening effect, depending on the intensity and the exact nature in which dialogue takes place. Positive cultural exchange is characterized by commitment on both sides and a sufficient feeling of security (i.e. backing by one's own culture). In any case, dialogue is the only way for overcoming potentially harmful (because little understood) differences, and ICTs can provide powerful tools for this end. History has shown that even remote cultures tend to value the benefits of ICTs both for domestic communication and contact to the outside world.

CONCLUSION

I have given an overview over basic technical properties of ICTS as well as over several existing international activities from the World Summit on the Information Society to UNESCO's Culture of Peace project.

Throughout the paper I have mentioned several variables for classifying and examining concrete ICT applications, e.g.:

- ❖ Technical aspects in the sense of Claude Shannon, such as reliability, latency and bitrate.
- ❖ The amount of human understandable semantics.
- ❖ The "amount of self involved", "distance" and "valence" in the sense of Georg Simmel.
- ❖ The purpose of the application, i.e. the approach on how to promote peace.

I have distinguished between several fundamental approaches in which ICTS can be used to promote the ideal of peace. Short- and mid-term approaches include the use of ICTS for empowering disadvantaged people and as a tool in nonviolent struggle. The most promising, long-term approach however must be the use of the social, communicative applications enabled by ICTS in order to build, maintain and strengthen communication between and within societies, with the goal of building lasting and positive peace that is more than just the absence of war. 1

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3. A comment thread at a blog post: <http://mashable.com/2010/02/06/internet-nobel/>. An open response letter by Wired magazine : <http://mag.wired.it/news/storie/why-the-internet-deserves-the-nobel-peace-prize-an-open-letter-to-pete-cashmore-mashable-com.html>.
4. <http://www.wsis.org/>
5. http://www.itu.int/wsis/documents/doc_multi.asp?id=1161|0
6. http://www.itu.int/wsis/documents/doc_multi.asp?id=1160|0
7. http://www.itu.int/wsis/documents/doc_multi.asp?id=2266|0

8. http://www.itu.int/wsis/documents/doc_multi.asp?id=2267|0
9. Shannon, Claude and Warren Weaver. *The Mathematical Theory of Communication*. Urbana: University of Illinois Press, 1963.
10. Engleberg, Isa N. *Working in Groups: Communication Principles and Strategies*. My Communication Kit Series, 2006. Page 133
11. Simmel, Georg. *On Individual and Social Form*. Ed. Donald N. Levine. Chicago: The University of Chicago Press, 1971, Chapter 9.
12. Presented in detail during the Round Table "WSIS ICT4PEACE" on Nov 18th 2005 in Tunis by UN Under-Secretary General for Economic and Social Affairs Mr. Jose Antonio O campo and others.
13. Internally Displaced Persons, i.e. people who were forced to leave their homes after a disaster or conflict, but did not cross borders of their home country.
14. Hillary Clinton said in her speech "Remarks on Internet Freedom":
15. "Once you're on the internet, you don't need to be a tycoon or a rock star to have a huge impact on society."
16. One interesting question is how and what ICT applications should be used exactly in nonviolent struggle. Daryn Cambridge says in his video lecture "The Digital Duel: Resistance and Repression in
17. Started in 1990 as the result of a World Conference on Education
http://www.unesco.org/education/efa/ed_for_all/index.shtml
18. Adopted on October 17 2003:
19. http://portal.unesco.org/ci/en/files/13367/10700115911Charter_en.pdf/Charter_en.pdf
20. <http://www.state.gov/secretary/rm/2010/01/135519.htm>
21. <http://www.nonviolent-conflict.org/index.php/learning-and-resources/educational-initiatives/academic-webinar-series/1192-the-digital-duel-resistance-and-repression-in-an-online-world>
22. Sharp, Gene (1973). *The Politics of Nonviolent Action*. Boston: Porter Sargent.
23. Chenoweth, Erica. and Stephan, Maria. *Why Civil Resistance Works: The Strategic Logic of Nonviolent Conflict*. Paper presented at the annual meeting of the APSA 2008 Annual Meeting, Hynes Convention Center, Boston, Massachusetts, Aug 28, 2008.
24. The Internet Corporation for Assigned Names and Numbers (ICANN) administers core technical components of the Internet such as IP addresses and top-level domain names.
25. <http://www.washingtontimes.com/news/2009/jun/16/irans-twitter-revolution/>
26. <http://www.imdb.com/title/tt0799956/>
27. Castells, Manuel. 1997. *The Power of Identity: The Information Age: Economy, Society and Culture*, vol 2. Oxford: Backwell.
28. <http://news.bbc.co.uk/2/hi/americas/7225824.stm>
29. Hofstede, Geert. 2001. *Culture's Consequences: Comparing Values, Behaviors, Institutions, Organizations Across Nations*.
30. It should be noted that Hofstede's work is mainly based on cultural effects in the business world and on processes in large international corporations, rather than on everyday life and the more essential aspects of culture.
31. <http://portal.unesco.org/en/ev.php->
32. Scherrer, Christian. 2008. *Prevention of Violent Conflict through Structural Accommodation*. Pp. 1725-1781 in *Encyclopedia of Violence, Peace and Conflict*, ed. L. R. Kurtz. 2nd ed. Amsterdam: Elsevier, 2008.
33. http://www.wsa-conference.org/data/viennaconclusions_051104.pdf
34. <http://www.isesco.org.ma/>
35. Note: At that time the city was under the rule of an Islamic Caliphate, however, the city government also included representatives of both other prevalent religions, i.e. Christianity and Judaism.
36. Boulding, Elise. 2008. *Peace Culture*. Pp. 1452-1465 in *Encyclopedia of Violence, Peace and Conflict*, ed. L. R. Kurtz. 2nd ed. Amsterdam: Elsevier, 2008.
37. <http://www.queenrania.jo/media/speeches/LeWeb09>
38. Shahid Akhtar (2001) *Internet technologies in the Himalayas: lessons learned during the 1990*, *Journal of Information Science*, Vol. 27, No. 1, 9-17.