

Democratic Processes and ICTs

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1. Introduction

Since the early days of mainstream availability of the Internet and other modern Information and Communication Technologies (ICTs), the rapid advancement of these technologies has given rise to utopist ideas that they would greatly empower democratic societies around the world. Such aspirations are directly based on some of the obvious fundamental properties of the technologies which are commonly referred to as new media: Their relative high speed, low cost and interactivity have the potential to connect people across spatial, social and cultural barriers in ways that have not been possible with more traditional media such as the telephone, television or postal mail. These possibilities around information and communication have significantly contributed to the ongoing globalization process and generated well-known expressions such as “death of distance” and “global village”. In addition, they are also often regarded as supporting democratic and peaceful processes by leading to better informed citizens through the dissemination of knowledge, and by enabling the free exchange of ideas and opinions in a network where everybody can act both as a producer and consumer. At some point in time, the virtual worlds and communication platforms of the early times of the Internet and related technologies were even viewed as a democratic utopia, which would constitute its own society in “cyberspace”, independent from any state’s national borders and sovereignty¹.

It is interesting to note that the very idea of establishing world peace through a global communication system is not new. With the introduction of the telegraph 200 years ago, as well as with the introduction of the communications satellite 50 years ago, there was a general sense that such technologies would overcome barriers of space and time, and therefore enable all peoples of the world to communicate with each other at a new level, which would enable the democratic solving of conflicts and therefore lead to lasting peace².

This paper is an attempt to first quickly establish the link between democracy and peace (see section 2), to discuss the instrument of voting (see section 3), and then to touch on how democratic processes can be supported by ICTs (see section 4), as well as on how

¹ See for example the “Declaration of the Independence of Cyberspace” (Barlow, 1996)

² See (Standage, 1999)

democratic processes occur within ICTs themselves (see section 5). Finally there will be some reservations and criticism (see section 6) as well as a conclusion (see section 7).

2. Democracy and Peace

While there is no universally accepted definition of “democracy”, the term is typically used to refer to a form of government which is legitimized by the citizens it governs (“rule of the people”). Freedom, equality before the law, and the separation of powers are important pillars of democracies. In the field of Peace and Conflict Studies, the relationship between democracy as a form of government, and the desirable value of peace is a central topic. This concerns on one hand the absence of war and direct violence (“negative peace”), but also the absence of structural and cultural violence (“positive peace”)³. In this discussion, a distinction can also be made between peaceful societies within a state, and peace between states.

An early hint to the relationship between democracy and peace between states can be found in Immanuel Kant’s work on “Zum ewigen Frieden”⁴, which in its “Three Definitive Articles” argues that for a lasting foundation on which to build world peace, all states should be built on a republican constitution. While the terms “republic” and “democracy” are not equivalent and sometimes confused, the general meaning of Kant’s statement is that of citizen participation in the government of their respective states. Based on Kant’s vision, the so-called democratic peace theory asserts either that democratic states are less likely to go to war (strong democratic peace theory), or that democratic states are less likely to go to war with each other (weak democratic peace theory). A wealth of empirical research exists that attempts to analyze and prove this relationship⁵. Despite the complexity of this topic and the difficulties with exact definitions of the terms “peace” and “democracy”, the most common conclusions of such research are that in general, democratic states are not less likely to go to war than non-democratic states, but that democracies are not likely to go to war with each other.

³ See (Galtung, 1996)

⁴ See (Kant, 1795/1995)

⁵ For example, see (Gleditsch, 1992) for a discussion about empirical research on a correlation between democracy and peace.

When considering peace within societies as opposed to peace between states, then almost by definition we can assume that democratic states are more likely to achieve social justice and other conditions for a stable, positive peace. In Dieter Senghaas' work "Zum irdischen Frieden"⁶, the "civilizational hexagon" identifies six pillars on which a stable and peaceful society can be built. One of these pillars is "democratic participation". His idea is that without citizens being involved in the decision-making processes that concern their lives, they would not be able to maintain trust in the state that governs them, and as a result, they would engage in conflict rather than accept and abide by the state's laws.

Therefore, we shall assume that well-established democratic processes lead to more peaceful societies and a more peaceful world, and that in turn peace is an inherent component of a democratic society. A tangled and complex, yet existing bidirectional relationship is assumed between democracy as a form of government, and the desirable value of peace.

3. Voting and consensus finding

Today, in practice a democratic state is usually realized through a system in which periodical referendums and/or elections are held, where citizens have the possibility to decide on political questions, or to elect their government, their parliamentary representatives and other individuals and institutions which hold the authority to make political decisions. Many different variations of democracies exist, such as "direct democracies" or "representative democracies", which exhibit varying forms and degrees of individual participation. The process of voting however is an important building block in any type of democracy.

And just like there are different ways of structuring democracy, there are also different ways of voting. In most cases today, voting comes down to choosing a single, most favored option, party or candidate out of a list of possibilities. A decision is then achieved by counting all votes and either declaring the option with the most votes the winner, or forming a representative body such as a parliament according to the proportions of the counted votes. This approach of holding referendums and elections

⁶ See (Senghaas, 2004)

by casting a single vote for a most preferred option is called plurality voting. While widespread and simple, it is also subject to criticism, such as the inability of voters to express more nuanced opinions, and the fact that every vote *for* an option is simultaneously also a vote *against* all the other options.

3.1. Consensus Voting

One attempt to solve these deficiencies is so-called consensus voting⁷, which offers tools such as the preferendum or the matrix vote as an alternative to plurality voting. Using these tools, voting can take place in a manner that does not result in winners and losers, but rather tries to find an optimal solution which is the overall most agreed-on opinion of an overwhelming number of participants, in other words, a consensus. Proponents of consensus voting argue that it serves as a more effective tool for decision-making, that it encourages partnership rather than domination, and that it therefore contributes to creating an overall social atmosphere which is more democratic and peaceful. From this perspective, traditional plurality voting could be compared to solving conflicts through war resulting in winners and losers, while consensus voting could be compared to peaceful conflict resolution or conflict transformation. And when considering that plurality voting can sometimes lead to a majority dominating an unheard minority⁸, then consensus voting might even be considered a human right.

In order to conduct a preferendum, instead of casting a vote for a single option out of a list, participants are asked to rank all options according to their preference, with the most favored at the top, and the least favored at the bottom. According to each option's rank, points are assigned to it. After all votes have been cast, each option's level of consensus is calculated as the percentage of the maximum possible acceptance points. This method of executing a preferendum is named Borda Count after the de Borda Institute in Northern Ireland where it was developed⁹. A variation called Modified Borda Count has also been developed which takes into account the possibility of only ranking a subset of all the options from a list.

⁷ See (Emerson, Consensus Voting Systems, 1991)

⁸ One recent example in Austria was a referendum in the state of Carinthia, where the entire electorate was asked to decide on erecting bi-lingual town signs for a Slovenian minority. See (Luiki, 2011)

⁹ See <http://www.deborda.org/>

3.2. Proxy Voting

Another alternative to classic plurality voting is proxy voting, which is based on the idea that individuals, rather than casting their vote directly, have the possibility to delegate their voting right to another individual (“proxy”), who will then cast the vote. The basic rationale behind this idea is that when a decision has to be made on a complex matter, one may not feel informed enough or otherwise not comfortable to make a correct decision. Instead, a proxy, who is entrusted with making the most favorable decision, can be subjectively chosen based on their reputation, competence, background, party affiliation or other properties. Proxy voting is sometimes also called delegated voting or liquid democracy, due to its dynamic and constantly changing nature. In some systems, participants are free to at any point in time cast their vote either themselves, or delegate it to a trusted proxy. Proponents of proxy voting argue that it combines the advantages of direct democracies and representative democracies. This method has been used by several political organizations, e.g. the Swedish party Demoex¹⁰ (short for “democracy experiment”) or the World Parliament Experiment¹¹.

4. Democratic processes with ICTs

The properties and the widespread availability of ICTs such as the Internet or mobile phones have made it possible for people to access information on a large scale, and to interact with each other on a level that had not been possible previously. Through these properties, ICTs can greatly contribute to democratic processes in several ways. For example, ICTs can improve a state’s governance infrastructure and therefore contribute to stable state authorities working effectively and in the interest of their citizens. ICTs can also empower civil society, which in democratic societies has traditionally been described as a “third actor” besides the state and the economy. The important role of civil society consists of making active contributions to democratic processes by asking questions, voicing concerns and providing input to a state’s political process and an economy’s market practices, therefore sharing responsibility, and improving accountability and transparency. Actors of civil society conduct their dialogue within a

¹⁰ See <http://demoex.net/>

¹¹ See <http://www.tgde.org/>

“public sphere”, and this dialogue can be greatly empowered through the use of effective communication technologies.

In addition to supporting governance and civil society within already existing democratic societies, ICTs can also promote the ideals of democracy and peace by overcoming authoritarian regimes as well as in post-crisis democratization processes. From the 1994 Zapatista uprising in Chiapas, Mexico, to the 2000 Serbian Otpor movement, to the 2008 Anti-FARC protests in Colombia, ICTs have often played an important role in struggles against oppression. The term sometimes used for the recent 2011 revolutions in the Arab world – “Twitter Revolution” – is of course an exaggeration (revolutions are started and executed by people, not by technologies), but it still illustrates the importance of modern ICTs in political movements. It should also be mentioned that despite this potential, there is also much criticism on whether ICTs can actually help in democratization processes, e.g. even if a society had unlimited access to online information and communication systems, it might still not be able to overcome an authoritarian regime¹², or ICTs might actually be more useful for authoritarian regimes than for their oppositions¹³.

4.1. E-Governance

Governments have long realized that modern ICTs can help in the interaction between citizens and their state authorities. For example, in today’s world, it is all too natural for governments to offer websites with useful information about themselves and their services. It is also common for provinces, districts and municipalities to use the Internet for delivering information within their respective scope. In a similar way, parties use the Internet for campaigning and for communicating their values and goals¹⁴. In other words, political entities use ICTs to disseminate and advertise all kinds of information to interested citizens. This can include basic information about administrative processes, infrastructure, education, health services, social services, employment, and many other

¹² For example, see (Morozov, 2009)

¹³ For example, see (Morozov, 2010)

¹⁴ For example, according to (Schiffman, 2008) Barack Obama would have never won the United States presidential elections without his effective Internet-based campaign.

areas. For example, see the government service portals of Austria¹⁵, or the United States¹⁶. In addition to providing static web sites, political entities also commonly use social Web 2.0 platforms such as Facebook or Youtube to inform their citizens. For example, see the Facebook page of the city of San Francisco¹⁷, or the Youtube channel of the United States government¹⁸.

One recent trend among governments world-wide is to not only offer human-understandable documents on the web, but also machine-readable data about infrastructure, demographics, economic development and other areas. This idea is sometimes referred to as “open data” and can enable individuals and organizations with sufficient technical knowledge and resources to create their own useful ICT applications and services based on the government-provided data¹⁹. For example, see the United States’ data.gov website²⁰, or the “Open Government Data” website of the city of Vienna²¹, which has been implemented following a coalition agreement between the Social Democratic Party (SPÖ) and the Green Party. Besides being useful, initiatives like this also contribute to more transparency, and therefore to democracy itself. In addition, the political motivation behind providing government data to the public is also to counteract fears of surveillance that are more and more common in today’s Information Society. This strategy is sometimes expressed within the slogan “transparent government instead of transparent citizens”.

Of course, the use of ICTs is not just limited to one-way communication from the state to its citizens; interaction can also work in the opposite direction. In its simplest form, this can mean the ability to submit questions, complaints, etc. to government representatives via e-mail or similar technologies. Beyond simple communication however, many governments today offer individuals the possibility to also perform certain

¹⁵ See <http://www.help.gv.at/>

¹⁶ See <http://www.usa.gov/>

¹⁷ See <http://www.facebook.com/SF>

¹⁸ See <http://www.youtube.com/user/USGovernment>

¹⁹ This paradigm of re-using existing data in new applications is typical of today’s open “Web 2.0” architectures, which enables loose so-called “mash-ups” of data providers, aggregators and consumers.

²⁰ See <http://www.data.gov/>

²¹ See <http://www.data.wien.gv.at/> (in German)

administrative activities via the Internet. This idea is usually referred to as E-Governance (short for electronic governance) and can facilitate many everyday tasks, for example starting a business, filing a tax declaration, issuing complaints, filing reports with the police, notifying the government of a changed address, etc. For example, the Austrian E-Governance initiative is based on a “citizen card”, which is used to authenticate a citizen’s identity during interactions with the government online²².

Such E-Governance services are especially useful for citizens who reside abroad but still need to interact with the government of their home country. One example is the government of the Republic of Georgia – a country which is known to have a large diaspora of citizens living abroad. One of the services offered by the Georgian government is an online web interface to its civil registry²³, which includes the possibility to use the Skype online telephony and video conferencing service for authenticating one’s identity and for performing administrative tasks such as requesting the issuance of a new passport. The slogan of this website – “Sense Your Citizenship!” – makes clear the intention of extending the government’s services to the online world.

4.2. E-Voting

Perhaps the most immediate and powerful, but also controversial vision on how ICTs can be used in the interaction between a state and its citizens is E-Voting (short for electronic voting), which means using ICTs to support the execution of referendums and elections. On one hand, this can simply mean using technology to facilitate certain technical processes such as counting votes by using punched cards or specialized voting kiosks. In a more advanced form, E-Voting can also refer to performing the act of casting one’s vote remotely, i.e. via a communication technology such as the Internet.

Proponents of E-Voting argue that it can improve accessibility for handicapped people or for citizens living abroad, since casting the vote does not require physical presence at a particular location. For the same reason, E-Voting also leads to faster execution of a referendum, because the entire process from registering the vote to the final result can be fully automated. Therefore, E-Voting may be especially useful in direct democracies where many political decisions are made by the entire electorate rather than by

²² See <http://www.buergerkarte.at/>

²³ See <http://www.cra.gov.ge/>

representatives. Other advantages of the use of E-Voting may be reduced cost and increased participation, although contrary opinions exist as well, and little practical experience exists.

Opposing views on E-Voting are numerous, and they typically criticize that it does not meet certain fundamental political requirements for democratic voting, which first and foremost include the free, secret and personal casting of a vote. With remote E-Voting, these requirements cannot be fully guaranteed, because the circumstances under which a person casts their vote are not monitored. For example, a relative or acquaintance may exert pressure to influence a person's voting behavior, or even vote in their stead altogether. People might also sell or otherwise illegally transfer their votes.

Many problems with the concrete implementation of E-Voting in actual referendums have been documented. For example, during the infamous United States presidential election of 2000, many voters in the contested state of Florida had problems operating the voting machines²⁴, which was one of the reasons that led to long legal dispute about the final outcome of the election. In Austria, E-Voting has been used at universities in 2009 for electing representatives to the ÖH (*Österreichische Hochschülerschaft – Austrian Student's Union*). In this case, technical problems have actually prevented students from casting their votes, and several conceptual concerns have been raised, such as missing transparency. While in traditional voting with pen and paper, anybody can verify and confirm the result, the use of machines requires complete trust in their complex functionality. Another problem which is always inherent to technology is that of security and the threat of malicious manipulation of electronic systems. In the Austrian case, the referendum was declared invalid at some universities, and E-Voting was not used again in the subsequent referendums²⁵.

E-Voting might be especially useful when non-trivial voting methods are used, such as consensus voting or proxy voting. A web-based experiment conducted by the de Borda Institute and the New Economics Foundation²⁶ has implemented a web interface through which individuals were able to vote in a referendum according to the Modified

²⁴ See (Jerz, 2000)

²⁵ For example, in Vienna and Salzburg, see (derStandard.at, 2010)

²⁶ See (Emerson, 2010)

Borda Count method. While the experiment was an overall success, there was also criticism from participants, e.g. that the voting process was “too complicated”, or that none of the options captured their preference. On the positive side, no votes were invalid, only two people made mistakes when submitting their preferences, and a number of suggestions and learned lessons followed from the experiment.

4.3. Example Software

Selectricity²⁷ is an online tool which allows anyone to create their own votes. Besides the already discussed plurality voting and Borda Count methods, the service also supports the following voting methods:

- *Approval Voting*: A voting system in which each voter can vote for as many or as few candidates as the voter chooses.
- *Condorcet Method*: Selects the choice which would win against each other choice individually.
- *Schulze Method*: Based on the Condorcet Method but includes a set of methods for resolving "circular" defeats.

Adhocracy²⁸ is software which enables organizations to initiate and administer democratic processes via the Internet. It includes the ability to collaborate on new ideas and proposals, and to hold referendums according to a large number of voting methods and parameters. It has been successfully used by political parties, municipality administrations, by local and regional organizations, and even by a commission of the German parliament (Bundestag)²⁹.

VoteBot³⁰ is one out of many so-called bots (automated programs imitating human behavior) on the IRC³¹ chat platform. It maintains control of individual chat-rooms, enforces rules, and makes it possible to conduct referendums among participating

²⁷ See <http://www.selectricity.org/>

²⁸ See <http://trac.adhocracy.cc/> (developed by Liquid Democracy)

²⁹ See (Reißmann, 2011)

³⁰ See <https://wiki.ubuntu.com/VoteBot>

³¹ Internet Relay Chat, an early Internet standard for text-based chat-rooms

Internet users. From a simplified perspective, the bot within its chat-room therefore fulfills a similar role as state authorities in a real society.

5. Democratic processes within ICTs

Besides having the potential to empower traditional democratic institutions and processes in the “real” world, ICTs and the “online” applications and services they enable can also themselves exhibit and benefit from the same democratic principles. Originally, the Internet’s low-level infrastructure has been designed to be decentralized and resistant to disruptions. On today’s Internet however, a wide range of different applications and services exists, which are based on different underlying technical architectures (e.g. client/server, peer-to-peer, etc.) as well as on different notions of identity. This has implications on how communication and also democratic processes can work among participants of a particular application, and one interesting question is whether certain underlying technical architectures are inherently more or less democratic than others³².

Another interesting topic worth mentioning is that of Internet governance. It is obvious that for a technology to support democratic processes, the technology itself should be governed and evolved by such processes. This idea is realized through the Internet Governance Forum (IGF)³³ as well as through various standards bodies such as the W3C³⁴ or OASIS³⁵, which address Internet governance questions in a democratic manner. Another Internet governance organization, the Internet Corporation for Assigned Names and Numbers (ICANN) has held elections to appoint some of its own members³⁶.

³² For example, see (Searls, 2011) for a statement that client/server architectures are inherently undemocratic, and that ICTs must be designed to be „democracy-friendly“ at the lower technical level.

³³ The IGF is a forum for multi-stakeholder policy dialogue on topics of Internet governance. It was created out of a mandate from the World Summit on the Information Society (WSIS).

³⁴ See <http://www.w3.org/>

³⁵ See <http://www.oasis-open.org/>

³⁶ See <http://www.icann.org/en/committees/at-large/at-large.htm>

5.1. Democratic processes on the web

Many online applications and services on the World Wide Web today have incorporated democratic principles into their functionality. In fact, the ability for Internet users to not only act as static receivers in a unidirectional flow of information produced by a few large players, but to also produce content on their own, and to actively participate in the functionality of online platforms, is one of the very defining properties of the paradigm shift that became known as the “Web 2.0”, which offers opportunities for individuals to share, participate and collaborate in a large variety of ways³⁷. This highly dynamic online environment exhibits many possibilities and processes that are typical of democracies. The following is a set of examples of such democratic properties found in the “Web 2.0” world:

- Any Internet user can create a weblog and post text and other content such as pictures or audio/video messages.
- It is possible to link to, re-use (syndicate) and comment on the content created by other people.
- Using a functionality known as “tagging”, it is possible to attach certain keywords such as “basketball”, “Paris” or “cat” to content. This serves to annotate and categorize content, so that it can be searched and re-used more easily. The resulting set of tags is called a “folksonomy”, a term which itself hints at its democratic nature.
- Similar to “tagging”, with instruments such as “rating” or “like” buttons, it is possible to express one’s (lack of) agreement, interest and satisfaction with a certain piece of content.
- It is interesting to note that sometimes the same or similar tools which are used for making statements about content can also be used for making statements about individuals. E.g. it is imaginable that a 1-5 star rating could be applied to a piece of text, but also to a person. The ability for individuals to make statements about each other can result in increased trust when interacting with strangers

³⁷ See (O’Reilly, 2005) for an introduction to Web 2.0 by Tim O’Reilly, who coined the term. The article also contains a list of (democratic) properties that are typical of Web 2.0.

online. For example, the popular eBay auction platform³⁸ allows participants to make statements about trustworthy buyers and sellers. Technologies like this are sometimes called “reputation system” or “web of trust”.

- On platforms such as Wikipedia, large numbers of individuals can collaborate to create a piece of work together. In such platforms, conflicts and the need to make decisions will naturally occur in the same way as they appear in normal face-to-face collaboration. The resolution conflicts can similarly be achieved by providing online guidance, mediation and other strategies³⁹.

5.2. Democratic processes in social networking services

Social networking services such as Facebook or Google+ are a special kind of web applications designed to model relationships between people, to accumulate and share data such as personal profiles, messages and photos, and to provide a set of additional information and communication services based on the participating individuals and connections between them. It is therefore especially interesting to analyze the various democratic processes that occur within such social networking services.

Significant academic research exists on how interaction works within social networking services, and on the various phenomena that occur, such as the construction of opinions, the spreading of ideas and also the reaching of consensus. Typically the participants who are supposed to achieve a task are unaware of the underlying social network except for their immediate friends. They have limited memory, communication, and coordination. These limitations result in computational obstacles in achieving otherwise trivial computational problems. Despite these architectural challenges, it is possible to analyze mathematically the amount of time and the optimal patterns of communication that are required in order to execute voting mechanisms and to reach a consensus within a social network⁴⁰. Research also exists on how social networking services should be designed

³⁸ See <http://www.ebay.com/>

³⁹ For Wikipedia’s page on conflict resolution, see (Wikipedia, 2011)

⁴⁰ For one such discussion on mathematical models and algorithms, see (Mossel & Schoenebeck, 2009)

and how interaction should take place within them, in order to maximize their potential for finding consensus, and therefore, for democratic processes⁴¹.

5.3. Democratic processes in peer-to-peer networks

Most of the popular Internet services we use today, such as Google, Facebook or Youtube, are based on a highly centralized architecture, in which a single company or other entity is in control of all identity and communication. However, while these mainstream Internet applications follow a centralized, hierarchical structure, there have also always been countertrends to move toward a more networked form of communication. Such forms are commonly referred to by the technical terms “decentralized”, “distributed” or “peer-to-peer”. Examples include file-sharing applications such as BitTorrent⁴², collaboration tools such as Google Wave, or – more recently – efforts to build a “Federated Social Web”⁴³, a “Facebook without a single Facebook”, or in other words, an online social networking system where multiple providers and users can interact with each other and fulfill their social communication needs, without being dependent on any single company or server system. Another interesting class of Internet applications that is based on a “pure” network structure and able to operate without any hierarchies is known as Distributed Hash Tables⁴⁴.

Peer-to-peer networks are fundamentally different from most mainstream web applications and services. They lack any hierarchical structure, all participants are considered equal in terms of importance and capability, and (at least theoretically) no single entity can exert control over the communication processes that happen within a system. Despite this architectural difference, it is possible to implement technical algorithms that can allow functionality such as democratic discourse and decision-making. One strategy to introduce democratic functionality to peer-to-peer networks is to develop algorithms which will elect leaders out of all participants, based on

⁴¹ For example, see (Zollman, 2010), which discusses social influence and strategies for maximizing consensus and correctness among participants of a social network.

⁴² BitTorrent (<http://www.bittorrent.com>) is today’s most used peer-to-peer file-sharing technology for transferring large amounts of data, e.g. movies or software packages.

⁴³ This effort was launched in July 2010. See <http://federatedsocialweb.net>

⁴⁴ Example implementations include Chord (<http://pdos.csail.mit.edu/chord>) and FreePastry (<http://www.freepastry.org>)

similarities between individuals, common interests and mutual trust⁴⁵. As a consequence, a pseudo-hierarchical structure emerges dynamically from a set of individual that have previously not had any structure. In political terms, such algorithms serve to establish democratic structures out of a state resembling anarchy. Based on this structure, democratic functionality such as the collective organizing of content, tagging, or rating can be achieved in a similar way as in Web 2.0 application, even though the underlying technical architecture is very different. For example, the popular file-sharing network LimeWire⁴⁶ has at some point in the past introduced a rating system which can be used to state whether offered files met the expectations. This approach of building rating and voting functionality into a peer-to-peer system can serve to reduce problems such as spam, and increase trust and accountability in the network's contents and participants⁴⁷.

5.4. Democratic processes in video games

One major type of applications that are run over ICT infrastructure is video games. Much academic research has been done on effects of video games on social behavior, but also on social behavior within games themselves, including the self-organization of players in hierarchical, democratic group structures. Video game designers often attempt to consciously create virtual worlds that mirror political, social and economic structures from real societies. As a consequence, some of these virtual worlds develop concepts such as property, law and citizenship within themselves⁴⁸, and there is a potential to learn from democratic processes that develop within such games. The following are a few examples of this:

- One website called WoW Democracy is trying to identify and analyze democratic behavior within the popular video game World of Warcraft⁴⁹. Among other theories, it compares player organizations inside the game with voluntary

⁴⁵ For one such algorithm, see (Baraglia, Dazzi, Mordacchini, Ricci, & Alessi, 2011)

⁴⁶ See <http://www.limewire.com/>

⁴⁷ See (Biever, 2005)

⁴⁸ For example, see (Jankowich, 2005)

⁴⁹ See (Lundmark, 2011)

organizations and political parties that constitute the cornerstone of a democratic society.

- In the video game EVE Online, players can get elected to a democratic body called “The Council of Stellar Management”, which has the power to make decisions about the core mechanics and conditions of the game⁵⁰. Elections are held using plurality voting.

6. Reservations

While often hailed to be contributing to more democracy and peace in various ways, criticism of the role that modern ICTs can actually play for such ideals exists as well. The following are some generic and well-known problems associated with ICTs that may hinder their successful employment for the purpose of promoting democratic processes:

- *Information Overload*⁵¹: This refers to the phenomenon that information can become a problem in itself if available in amounts too large to process and in a structure too hard to search. One of the most-often cited advantages of ICTs – the possibility to quickly access a huge amount of information – is therefore put into question.
- *Digital Divide*⁵²: is the unequal ability among people to access ICTs, both between different areas of the world and among different parts of society within a country. Numerous commitments and initiatives by international organizations, universities and governments exist to help overcome the Digital Divide⁵³.
- *Security*: Without going into too much detail, it is a well-known fact that no technical system can ever be 100% secure. In the case of ICTs, this is no different. In a world where cybercrime, cyberwarfare and cybercrime are on the rise, it is

⁵⁰ MMORPG stands for Massively Multiplayer Online Role-Playing Game, a type of game where large numbers of people interact in a single shared game world. See (MMORPG.com, 2009)

⁵¹ This term was popularized in (Toffler, 1970), which discusses social effects of change that happens too fast.

⁵² For example, see these statistics from the International Telecommunication Union (ITU): <http://www.itu.int/ITU-D/ict/statistics/index.html>

⁵³ For example, see the One Laptop Per Child initiative, <http://one.laptop.org/>

obvious that for purposes as sensitive as supporting democratic processes, security must be of paramount concern.

- *Anonymity vs. Transparency*: The question of how much personal identity should be required when using Internet applications and services is a political one. It is essentially a mirror of the age old question of how much private sphere and how much state power is healthy for a democratic and peaceful society, and how the resulting conflict between freedom and security should be approached. While some people argue that the use of real names increases trust and security, others point out that anonymity can reduce barriers to participation.
- *Online Collectivism*: Another important line of criticism is that in spite of the open and relatively unregulated nature of discourses and interactions taking place in online platforms, they might not actually support democratic processes, but instead rather resemble a state of anarchy or other organizational forms that ultimately contradict and hurt the nature of a democratic system. For example, according to (Keen, 2007), “history has proven that the crowd is not often very wise, embracing unwise ideas like “slavery, infanticide, George W. Bush’s war in Iraq, Britney Spears.”

During a debate held by the Miller Center of the University of Virginia⁵⁴, well-known Internet entrepreneurs and analysts could not agree whether the Internet actually benefits or hurts democracy. While proponents pointed out the value of the free availability and flow of information, opponents argued that the Internet only reinforces already existing views, and that in order for democracy to function, the goal should be not a maximum of information, but an optimum of information, which cannot be operationalized by today’s Internet.

7. Conclusions and Outlook

ICTs have often been described as tools that can be used for good or evil. A wealth of proponents, studies, quotes and examples exist for both beneficial and malicious effects of the Internet and other new media technologies, and without a doubt, many problems and obstacles such as the still existing digital divide or issues of identity and security

⁵⁴ See (Miller Center of Public Affairs, 2010)

prevent the actual realization of some of the dreams that techno-utopists would sometimes like us to believe in. The idea, that a global communication network would magically transform the world into a place where democracy and peace always prevail, is naïve at best.

Having said this, ICTs do enable governments and citizens alike to interact in completely new ways that can be very beneficial for democratic processes. State authorities can and do provide information and tools for bidirectional interaction to actors of civil society, who in turn can use ICTs to obtain information, to organize movements, and to make valuable contributions to the state, e.g. through online discussion forums or petitions. In practice, many countries have succeeded in increasing the strength and value of democratic processes within their societies through the implementation of ICT applications and services designed to reduce the distance between the governing and the governed. In addition, it is interesting to note that ICTs do not only have the potential to support democratic processes, but they also sometimes exhibit democratic processes within themselves. Some paradigms in the online world such as Web 2.0 applications or peer-to-peer networks are fundamentally based on democratic principles deep within their own design.

Perhaps in next-generation ICT applications, as well as in future political (democratic) visions, the two disciplines will be able to better learn from each other. Certain challenges, such as the ideal flow of information, the organization of social structures, the equal treatment of all participants, or the finding of consensus are common to both fields of study. In an ideal world, future information and communication technologies will incorporate democratic ideas within their design, and then be able to optimally support democratic processes in the “real world”.

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