INFORMATION TECHNOLOGY, MILLENNIALS AND PRIVACY: CAN THEY BLEND OR WILL THEY COLLIDE?

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Abstract

In the past two decades, a growing percentage of business and society related activities have become information dependent. Information technologies, as well as the systems developed using these technologies, are expanding at an unprecedented rate. These novel systems on one hand improve the process of decision making while on the other hand create new challenges associated with new and emerging ethical issues. Many scholars have already addressed these new challenges proposing various solutions, like privacy laws for defining means of control on the use of information. There is a close relationship between new technology and privacy laws; technology generates potential risks while laws are defined to guard privacy and other fundamental rights. This paper addresses the issue of privacy, however it concentrates on two new phenomena: (1) the Millennials (Generation Y) who are characterized by their social networking and the urge to share many, even private, aspects of their life with their virtual friends; (2) the economic turmoil that forces many organizations to seek sophisticated tools and methodologies for knowledge discovery as part of their targeted marketing activities. The paper analyzes the two trends and their combined impact on future privacy.

1.   Introduction

The rapid advancement in information technologies during the last decades of the 20th century and the first decade of the current century have had dramatic changes in many aspects of society. Changes in communication's economics enable fast, easy and cheap mass dissemination of information. This dissemination triggers new and innovative solutions, which already affect our lives, and many other potential changes that will follow. A very well-known and successful example is Facebook, the popular online service for social networking. In approximately six years since its launch Facebook has over 500 million users [Facebook, 2010]. However, currently Facebook is much more than a social network, mainly due to additional possibilities exploited by its user community. Utilizing an open development infrastructure enables interested individual engineers and organizations to develop additional services to be integrated in the system and be available to all its users. Furthermore, for enhancing the social experience, Facebook developed several Software Development Kits (SDKs) that provide a two-way communication between any website and Facebook. Users and organizations are using the Facebook platform in new ways, some that were not originally anticipated by its creators. The wealth of available applications and uses were driven mainly by user needs and ease of implementation. Facebook provides diverse means for content creation including links, stories, blog posts, photo albums

and many others. The new technologies, particularly ICT (Information and Communication Technologies), for which Facebook is a concrete example are having an enormous social and economic impact and are the force behind the transition to a post-industrial information society [Masuda, 1980]. The new information society, in which knowledge plays a significant role, raises new ethical issues, ranging from access and intellectual property rights to individual dignity, privacy, and security [Petrovic-Lazarevic and Sohal, 2004]. For that reason many scholars have addressed implications of the Internet and the new information technologies for law and society.

2.   Generational Differences

Generational research that started to appear in scientific papers over half a century ago was first attributed to Karl Mannheim [1952], who analyzed the impact of generational experience on people. Since then, the generational cohort was developed and is used to define a group of people who were born within the same time period. The group experience similar events that shape its attitude and traits [Jones et al., 2007]. According to Strauss and Howe [1991], who researched similarities and differences between generations over 550 years, one cycle of history spans about 80 years and is divided into four turnings or generational cohorts. The last four generations in the 20th century are:

1. The Silent Generation (also referred to as The Mature Generation, Traditionalists or The Greatest Generation), who were born prior to 1946. This generation, which was influenced by the two World Wars and the Great Depression, is considered loyal, collaborative, shares values and behaviour and is willing to sacrifice personal interests for the common goal [Lancaster and Stillman, 2002; Reesor and Schlabach, 2006].

2. The Baby Boomers (also referred to as the Boom Generation) who were born between 1946–1964. The term was used to define the "boom" in the birth rate in the post WWII era. This generation was affected by events such as the Vietnam War, the human rights movement, rock and roll, the arrival of television and economic prosperity. This generation is considered to be idealistic, optimistic and highly competitive [Lancaster and Stillman, 2002; Reesor and Schlabach, 2006].

3. Generation X who were born between 1964–1980, were affected by new media channels, beyond television including games, video cassette recording (VCR), fax machines and the personal computer. This generation saw the fall of the Berlin Wall and end of the Cold War. People in this generation are considered to be sceptical and independent, relying on their individual abilities rather than institutional help [Lancaster and Stillman, 2002]. People belonging to this generation went to college between 1979–1999 [Coomes and DeBard, 2004].

4. Generation Y (also referred to as Gen Y, The Net Generation, Millennial, Generation ME or The Digital Generation), were born between 1981–2000. People belonging to this generation were influenced by the rapid expansion of technology and media, violence, widespread drug usage and unprecedented immigration growth [Lancaster and Stillman, 2002]. The Millennials are the most technological savvy generational group, feeling confident and natural using a variety of technologies (mobile phones, person digital assistants

(PDAs), computers, games, electronic gadgets, etc.). Generation Y people use the Internet extensively for finding solutions to their problems and expect to be in touch constantly with friends and peers using short message servicing (SMS), instant messaging (IM), chat, and social networks. If consistent with their referent research, they depend on their social network to answer problems. They even tend to prefer Internet networking over telephone-based voice communication [Oblinger, 2003].

3.   The Digital Economy

We are witnessing a paradigm shift from the old traditional industrial economy to a new economy characterized by information, services and intangible resources. Many scholars have addressed the new forming economy using names like "borderless economy", "networked economy", "knowledge-based economy", "the information based economy" and "digital economy" [Woodall, 2000; Sharma et al., 2004], to name a few. This "digital economy" has changed business practices, work organizations and institutional structures. In essence the digital economy is about using information and communication technology (ICT) for coordination, innovation, selection and learning [Gärdin, 2002], creating new and novel business models. The digital economy is expanding the economic potential [Persaud, 2001] by utilizing the new business models and using information and ideas rather than tangible materials. As such the business focus has moved towards creation, maintenance, distribution and trading of knowledge. An important foundation of the digital economy is the formation of service-oriented business practices and even large manufacturers are required to augment services and information in their products [Gärdin, 2002]. ICT usage is not limited only to the definition and creation of the new services, but also provides the means for measuring QoS (quality of the service). QoS is a broad term that was originally used to measure telecommunication networks' performance, however currently it is generally used to describe the overall user experience when using a product or a service. The QoS measurement and analysis combines two aspects: the product/service attributes; and the customers' opinions after using it. While for the product or the service, the developing organization has some information (quality, price, time to market, etc.), additional data regarding competition has to be gathered from various sources. User experience, on the other hand, although can be estimated, has to be compiled and gathered using mainly external sources (representing the users or their actions). This is required for achieving an extended connection between long-term requirements engineering and business-oriented planning [Lehtola, et al., 2009].

The rapid technological development (both hardware and software) has advanced storage technologies as well as the means for data acquisition. The vast amounts of data accumulated by commercial and non-profit organizations, such as supermarkets, credit card companies, telephone companies, service providers and even governments has generated the need to analyze large databases, looking for hidden patterns and relationships. This process of knowledge discovery is the basis of a relatively new set of tools and methodologies for data mining. In their book *Principles of Data Mining* [Hand et al., 2001], the authors state that "Data mining is the analysis of (often large) observational data sets to find unsuspected relationships and to summarize the data in novel ways that are both understandable and useful to the data owner". For commercial organizations, extracting the information provides additional value in an

attempt to improve the customers' experience. There are many scientific approaches to data mining, however the important issue relates to the fact that data mining deals with observational data that represent past behaviour. Contrary to experimental data, mining observational data provides a higher degree of accuracy, creating an enhanced, more reliable decision support system. In most cases data mining is performed on data already accumulated by the organization, such as transaction data in a supermarket, telephone call details or credit card usage records [Claus et al., 2002].

4.   Common Technologies

The extensively used HTTP (Hypertext Transfer Protocol, which is the foundation of data communication on the web) works in a client server mode. First the client (the user web browser) sends a request to the server. This request may be either for some information or to execute an application. The server executes the request and sends back the response. At that stage the connection between the client and the server is dropped due to the fact that HTTP maintains no linkage between requests and treats each request independently. However, many web applications have a need to maintain some linkage between current and previous requests, for example, preserving previous preferences or pages visited, etc. To support new business models in the digital economy, and provide a better user experience, several technologies have been implemented. The first, and most widely used mechanism, is cookies, which, for web applications, provides the means to authenticate the client and maintain its states and preferences. Relating to the digital economy, many online shopping applications maintain the shopping cart, even if the previous visit to the site was weeks or months earlier. For establishing the linkage between requests, web applications often use cookies. A cookie is a piece of information up to 4KB (kilobytes, or 4096 bytes) per Internet domain, stored on the client side which records information [Liu, et al. 2005]. The cookie is used in future requests for identifying the client, its state and preferences. There is much vulnerability associated with cookie technology that can be used for malicious attacks, such as information leakage, in which sensitive information is transmitted to other parties, session hijacking, which means taking control of a user session after successfully obtaining or generating an authentication session ID, code injection and many more. Nevertheless, the mechanism is still widely used. However, due to the inherent cookie limitation (4KB per Internet domain), other additional technologies were developed. Adobe Flash by Macromedia, which is used to add interactivity to web pages, uses up to 100KB, without the user's interactions and an unlimited amount after accepting the user's agreement. Microsoft in its Internet Explorer Persistence of user data uses a special file to store up to 64KB per page. The increased storage capacities utilized by the two technologies significantly increase the amount of information stored locally which in turn amplifies the security risks involved.

In his book *Mass Customization* [Pine, 1993], Joe Pine analyzes the market trends and argues that organizations will have to abandon the old way of doing business, by utilizing mass production where "standardized products, homogeneous markets, and long product life and development cycles were the rule" and adopt to a new world characterized by "variety and customization supplant standardized products". Pine emphasizes that in the new digital economy developing just one product does not meet the users' requirements and is not sufficient anymore. This means that organizations will have to augment their products' offering and provide multiple

products that address many requirements represented by many customers. E-commerce, or performing commerce in the digital world addresses some of the issues raised by Pine. It does not provide a mechanism for developing more products; however it does provide the means for customization which presents more choices and a higher degree of flexibility for the customers. Jeff Bezos, Amazon's Chief Executive Officer (CEO) is widely quoted as saying: "If I have 3 million customers on the Web, I should have 3 million stores on the Web" [Schafer et al., 2001]. The understanding that providing customers with a high level of customization, almost as if it was a totally different store, is one of Amazon's – a leading e-commerce enterprise – success factors. Although Amazon offers million of titles to choose from, the system presents customers with a new buying experience designed to ease the information overload. The system applies mass customization principles to the products' representations rather than to the products themselves [Pine and Gilmore, 1999], by offering many personal search capabilities, including suggestions based on previous preferences. The once innovative technique is currently a common practice and is addressed by all recommender systems [Schafer et al., 2001] that are widely used as an integral part of most e-commerce sites. Recommender systems collect, analyze and use product knowledge accumulated from various sources. Using this knowledge the recommender systems provide consumers with intelligent suggestions and guide them in their search for the best product or service to suit their needs. Many organizations such as Amazon.com, Netflix.com, Half.com, CDNOW, J.C. Penney, and Procter & Gamble have been using recommender systems which lead to an increase in web sales and better customer loyalty [Huang et al., 2007]. Most recommendation technologies use various algorithms for analyzing three types of data: products, consumers and previous interactions between the two.

Utilizing ICT for business purposes and developing an e-commerce infrastructure have significant advantages for organizations of all types. The online platform overcomes normal and physical limitations, and provides a global exposure and 24/7 availability. In addition, e-commerce reduces costs associated with production and marketing, lowers inventory costs and improves organizational efficiency [Sharma and Gupta, 2003]. These new benefits provide extensive opportunities for organizations in offering new services and products at a lower price, just by integrating Internet-based systems and business models. The next stage, as predicted by the "square wheel" model [Benson and Parker, 1988] involves redesigning business processes to produce more value and increase competitiveness. As most organizations have adopted the new technologies and transformed into digital firms, the pressure for additional new innovations is increasing. This leads to a continuous improvement process that is required for creating a more agile organization, capable of dealing with future market opportunities. After lowering costs, establishing a more efficient organization, providing global presence and continuous (24/7) operations and forming close relations with customers and business partners, organizations were looking for additional commercial and marketing benefits to be gained from using ICT. Utilizing storage and computational resources for collecting and analyzing large amounts of digital information is a common practice among most organizations. This has been followed by a rise of data mining tools for discovery of hidden information that could not be easily seen. Combining information gathered from various online sources is extremely valuable and provides online commerce organizations with the opportunity to collect relevant marketing information and learn more about customers, their behaviour and preferences. This accumulated knowledge that relates

to products, consumers and previous interactions between the two is used by the recommender systems. These systems recommend new products, services or usage patterns, which in turn starts a new cycle of information gathering. Combing consumers' innovative usage with recommender systems creates a balanced and efficient mechanism of information sharing between consumers and retailers and vice versa. New ideas regarding products' capabilities flow from the consumers to the retailers, who in turn feed them back to the consumer community as recommendations. This mechanism enhances products' visibility, increases sales and profits and when combined with the right ICT platforms (Facebook for example), can be employed at an increasing pace.

5.   Data Mining on the Web

In her book *The Gift of Fire* [Baase, 2008], the author draws a comparison between fire and computer systems. Like fire, which was given to humans, and enhanced their lives, but also caused some terrible disasters, so computer systems enhanced human lives, but also created undesired and dangerous situations. One of these potentially dangerous situations is the fact that being active on the web, even by just browsing leaves a digital trail. Individuals often provide personal information required by the system they are connected to. This information may include name and address (shipping address for example, credit card information for billing and even just names for registrations and when joining various web forums). However, this simple and naive information sometimes provides valuable knowledge. By using common Internet technologies (e.g. cookies), various software pieces integrated into the browsers provide advanced capabilities for collecting this type of information without the user's knowledge or consent.

An important technological advancement that was developed during the last decade is a set of tools, protocols and systems, referred to as Web Services [Alonso et al., 2004] that exchange data autonomously between different web-based systems. One of the aims in developing Web Services was to provide the required capabilities in defining a virtual computing platform in which millions of information systems can share their resources. As far as e-commerce is concerned, Web Services provide the capabilities for supporting complex transactions, in which more than two parties are involved (e.g. consumer, retailer and an external service provider for credit card authentication and clearance). Web Services capabilities, however, are used for a new generation of data mining applications that exchange personal information gathered from the customer's visits at multiple sites.

When placing online orders, the consumer has to provide some personal data (name, shipping address and billing information) in order to finalize the transaction. Some online shops may require additional information sometimes obtained during registration, such as password, date of birth, etc. Most e-commerce software packages use secured protocols for ensuring data privacy and to prevent malicious attacks. However, by using Web Services the same software packages are sharing some data items with third party organizations, such as credit card clearing houses or delivery companies. When considering consumer data privacy, a second, more dangerous, source of data is available. Every activity or interaction on the web leaves clearly detectable traces. By collecting and analyzing these traces the user's behavioural

patterns can be easily drawn. For years, Amazon, for example, has provided an enhanced shopping experience by collecting not only sales information, but browsing behaviour as well. A returning customer is presented with the list of items they browsed in previous visits. This is done by integrating the data stored in the cookie with additional data stored on Amazon's systems. The main concern and threat caused by this type of personalization and integration is the loss of anonymity [Chellappa and Sin, 2005]. The naïve consumer browses the web assuming their anonymity is maintained; however by using data stored in the cookies and sessions' logs the web applications easily reveal the user identity [Srivastava et al., 2000]. These new (dangerous) capabilities were rapidly exploited. Originally, the cookies mechanism was used for targeted advertising based on keywords found during browsing. The next stage, of data integration, provides a much better success rate since it augments current browsing with previous behaviour patterns. As such, recommender systems may suggest relevant products that are not directly related only to the current browsing session. The main reason behind the development of such recommender systems is the understanding that these systems provide added value for the retailers. Unfortunately, these benefits, in many cases, are at the expense of sacrificing consumer privacy. More critical examples may involve the selling of private information related to patients' medical conditions. Such examples are not new as stated by the *Washington Post* in an article dating back to 1998, about CVS (The largest pharmacy drugstore chain in the US) sharing prescription records with a direct mail and pharmaceutical company [O'Harrow, 1998]. With the new Web Services technologies, sharing consumer information, including private facts is very easy, and it unfortunately supports the famous saying attributed to Scott McNealy, CEO of Sun Microsystems, who said in 1999: "You have zero privacy anyway. Get over it".

6. The Right for Privacy

Most Western cultures and civilizations are built on principles of freedom and individual rights, including the right for security and privacy. Unfortunately recent events undermine the two. On one hand the increased terror threats require a higher degree of security that is sometimes achieved at the expense of privacy, as was clearly demonstrated by the new imaging machines used to scan passengers at airports. On the other hand, the rapid technological advancement clashes with "the right to be let alone" as defined by U.S. Supreme Court Justice Louis Brandeis [Warren and Brandeis, 1890]. Although most people will agree that privacy has to be respected, their definition of privacy may vary. This relates not only to scholars and policy makers who are debating the proper privacy definition, but to the whole population as was clearly demonstrated by WikiLeaks, which is a non-profit organization that publishes mainly private, secret and classified information. The fact that there are various websites that publish all sorts of information, is not new, however, the enormous levels of support WikiLeaks receives from the public, as well as from news reporters, reputable magazines, organizations and even governments is overwhelming. This support is even more troubling considering the fact that many articles relate to specific identified persons whose privacy and sometimes even personal security was harmed without a second thought. Ignoring online users' privacy is not a new trend. It started with the first electronic mail systems that used to analyze mail content and display targeted advertisements. Later the method was used by various search engines, which scanned search keywords and used some recommender system for focused advertisements. Marketing efforts, however did not stop at displaying

advertisements, but moved to a more intrusive method of sending unsolicited (junk) mails trying to convince the users to buy something. This junk mail is often sent as "spam" – a single message that is broadcast to many unknown recipients. In many cases the mail is anonymous and the sender address does not exist, so no reply is possible. According to a report released in May 2009 by the security vendor Symantec, spam mails account for 90.4% of all emails. Spam emails have become a major concern and were addressed by many researchers. Currently most email systems include some mechanism for filtering these annoying mails. The information overload demonstrated by many spam messages and advertisements is not limited to the Internet. Targeted marketing uses other technologies as well, for example cellular networks. Many companies offer LBS (Location Based Services) that are no more than an advertisement sent to the consumer based on their location as received from the consumer's cellular device [Adams et al., 2003]. This once again represents an intrusion to a person's privacy conflicting U.S. Supreme Court Justice Louis Brandeis' "right to be let alone" [Brandeis and Warren, 1890].

Although most companies have some privacy policies, it seems that in the hunt for knowledge discovery, basic consumers' rights were disregarded. It is not just the matter of unsolicited mails sent by a small company struggling to get some user attention. Even large corporations are ignoring their users' basic rights. A well-known example is related to Google the largest search engine on the Internet. In an attempt to improve its offerings and increase its customer base, Google released a worldwide web mapping service. Google even provides an API (Application Programming Interface) that through Web Services makes the maps available for many third party application developers to integrate into their products. When additional similar products became available, and in order to increase the Google service value, Google went to the next stage and offered Google Street View. This is a new service integrated into Google maps that provides a real street view. When combined with mobile devices, this service is of high value in navigation and getting driving instructions. To establish the new service, Goggle needed to collect the data by filming streets, ignoring the privacy issues of innocent people that were passing by. Furthermore, the images were uploaded to the web and thus not only was privacy harmed, it became publicly available worldwide. This led to many articles concerning privacy issues being ignored and the fact that the new service may breach some laws [Bodoni, 2010]. As a result Google, and other companies offering street views, started to blur faces and vehicle license plates [Moncrieff et al., 2009]. However, during 2010, after many additional allegations, Google admitted to 'mistakenly' collecting sensitive private data sent over Wi-Fi (Wireless Fidelity) networks while filming the streets. This of course led to a wide range of investigations by many European and state governmental authorities, with several court orders blaming Google for violation of data protection laws. One can only wonder how many additional 'mistaken' collections of sensitive and private data are being performed by other Internet companies. On 15 January 2011 Facebook announced it would allow third-party developers to access the home addresses and phone numbers of its users. This was an expected move, since Facebook CEO Mark Zuckerberg has said that his company's mission is to "make the world more open and connected". However, due to the many concerns and criticism expressed by users and security organizations, Facebook decided to suspend the new feature. The Google Street View and Facebook's attempt to share private data are just some examples of the new trends expressed by large organizations in response to some marketing forces that look for better decision

support processes, which unfortunately depend on data collected from users [Sitton, 2006]. Unfortunately, these large organizations, which possess the information, are willing to provide it, ignoring the privacy issues involved. Over 20 years ago, James Moor [1985] defined the "policy vacuum" as the main reason for ethical misconduct. This policy vacuum exists when there is no standard policy to govern a computer-related given situation. He referred to the computer technology uniqueness that allows changing the algorithms and creating new solutions for which no policy exists or has even been considered. Unfortunately, over the years, as technology advances, computer processing power increases while the costs decrease. This leads to new possibilities, such as data mining, data matching and integration and "click trails" recording [Tavani, 1999]. Combining these new capabilities with the ever growing organizations' need for new knowledge the policy vacuum is still widening, instead of narrowing, and at an increasing pace.

7.   Generation Y and Privacy Issues

In spite of the efforts by law makers and regulation agencies regarding privacy issues, Generation Y, which represents one of the major groups to use social networking, has different views regarding information sharing and privacy. Like other generations, these views were developed and shaped by events in their past. While for previous generations, communication with friends meant meeting face-to-face or talking on the telephone, for the current society, communication has many meanings. IM, email, text and video messages, blogs, online communication boards and social networking provide the urge for communication. As a result, the world has become a smaller village, in which geographic distance is no longer a barrier and the flow of information is instantaneous. However, more troubling is the fact that Generation Y members treat their virtual friends as if they were real ones and disclose a great deal of personal information without paying any attention to the fact that the information, in many cases is publicly available for whoever is looking for it. This concern was intensified by conclusions of a recent survey conducted by the Pew Research Center's Internet and American Life Project and Elon University's Imagining the Internet Center [Anderson and Rainie, 2010]. According to the survey, the Millennials will continue sharing personal information and most of them will make it a lifelong habit. The survey revealed that many Millennials believe that disclosing personal information to online friends holds many social benefits as people open up to others, creating new friendships, joining communities, seeking help and satisfying the need to belong and be accepted. Millennials, who were the first to utilize the social networks, were already exposed to the benefits, which are the main reason behind their continued pattern of usage, including personal data disclosure. Facebook CEO Mark Zuckerberg addressed this issue at the 2009 Crunchies Award and declared that current web users have become more accepting of information sharing and that privacy has become less of a "social norm". When compared to previous generations, for Millennials privacy has a very different meaning. This meaning was shaped following a shift in human identity and activities as part of communities. These social changes are further fuelled by the rapid technological developments and especially the new enhanced capabilities achieved by the usage of mobile devices. The always connected paradigm is exploited by Millennials not only to improve information sharing, but also to provide it instantly while disclosure events are happening. The new advanced capabilities provided by the social networks can sometimes be

exploited and misused. For example, re-establishing connections with old friends and virtually meeting new ones, which is a cornerstone in any social network may be responsible for creating jealousy and suspicion in romantic relationships [Muise et al., 2009] and has been blamed for an increase in the number of marital breakdowns [The Telegraph, 2009].

8. The Real Problem

Social networks and the digital economy are two of the many modern trends that coexist. However, the combination of social networks, or the public information stored on them and the digital economy holds a real threat to privacy. One of the main forces behind the digital economy is using ICT for coordination, innovation, selection and learning [Gärdin, 2002]. ICT provide essential knowledge for creating new and novel business models. Organizations use and develop ICT-based tools and methodologies to gather accurate and reliable user information. This information sheds light on the users' perspectives and requirements and provides the necessary knowledge for designing new, more effective and competitive products and services. Many technologies were developed to support the process of information retrieval, and all involve mining mechanisms and a wealth of theories for calculating and estimating the information value and accuracy. However, considering the richness and the easy accessibility of the information available as part of the social networks, many organizations' data mining efforts were directed towards social networks. The Internet in general and social networks in particular play an increased role in research and investigation related to due diligence, background, employment and skip tracing investigations, as well as, reputation research and even surveillance for legal and insurance matters [Thompson, 2007]. Numerous studies analyze the many types of information found on social networks [Gross and Acquisti, 2005; Muise et al., 2009] and how this information can be exploited. More interesting, however, are various correlations performed on the information, for example mining comments entered by teens for collecting information on their other family members. This information can be just background data, employment-related and even as a basis for insurance claims denial. In a paper by Latanya Sweeney [2000], gender, birth date and ZIP code are sufficient to identify 87% of the U.S population. Mining these three items and correlating them with other data from different sources can be used for sophisticated processes of decision making. It is not clear how much information is obtained from social networks data mining, or by whom, however, in a *Wall Street Journal* article by Laura Saunders [2009], the author describes cases in which state revenue agents and authorities have been mining information posted on social network websites. In a different *USA Today* article, Kevin Johnson [2010] states that "law enforcement agencies are digging deep into the social media accounts of applicants, requesting that candidates sign waivers allowing investigators access to their Facebook, MySpace, YouTube, Twitter and other personal spaces". Another example is an article by John Oates [2008] about 13 Virgin Atlantic employees who were fired for their comments on Facebook. These types of practices are so widely used by many industries that in August 2010 a draft law that bans Facebook research for hiring decisions was approved in Germany. Employers will be allowed to look for information regarding the applicant, using various search engines and social networks, but are not allowed to look at their Facebook profile. This German law represents a new way of thinking. It not only examines traditional law in the new environment, but tries to define new

laws needed to deal with the situations and problems that technology has created. Using technological tools, new sophisticated cyber-crimes, in which hackers target social networks for planning malicious attacks and stealing user identities, have become very common. The new law does not address these criminal acts in a new setting; it tries to address a common and ordinary practice of using the widely available public data for better and legitimate decision making processes. However, since social networking sites have become a well-known source of information, many lawyers, private investigators, law enforcement agencies, employers and organizations are using these new capabilities. The new law is the first step in the right direction; however, it addresses only potential employers. The notion that every individual is responsible for protecting their personal information may have been valid for prior generations. Millennials, who record their lives, almost in real time, falsely believe that the information is shared only by "real" friends, have to be better protected, especially, since every piece of information, even if deleted, will last for a very long time.

9. A Concluding Remark

Technology is moving forward at an increasing pace and it will continue advancing in the foreseeable future; Millennials will continue to expose their lives, ignoring potential negative implications and undermining the "old" privacy norms. These two combined trends lead to large and fast growing volumes of public information. Utilizing already available data mining tools provides a wealth of benefits for an increasing number of organizations and commercial companies. The new knowledge obtained, will create new demands for additional, more sophisticated tools for mining and correlating information from various sources. What is missing and increasingly required are the proper definitions of limits and boundaries. Unfortunately, Millennials do not pay any attention and continue posting growing pieces of their lives, actions that cannot be undone. Usually, people know it is forbidden to use a credit card even if it was found on the street. However, using other and sometimes much more sensitive personal information obtained on the web is considered to be legitimate. Laws that regulate conflicting interests should play a more active role balancing "the right to be left alone" and "the right to know". It is time for some new laws addressing the policy vacuum that continues to widen quickly, or else, current innocent social networks' status updates may become future evidence.

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