# Humans versus (translation) technologies: the evolution of scientific discourses from 1980 to the present

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**Abstract**

This paper presents a diachronic analysis of scientific discourses on the relationship between humans and translation technologies as evidenced in three scientific articles published in 1980, 1992 and 2011. Each article is assessed in its own historical, notional and technological context, with the technological and political evolutions in the three periods affecting the relative status of translation tools and their related technologies and human beings. The power and potential of current communication and information technologies is contrasted with their shortcomings, the most significant of which is the inherent vulnerability of the electronic infrastructures—specifically the Internet—upon which communication, information and translation technologies increasingly depend.

**Keywords:** translation technologies, dignity, human control, technological security, technological vulnerability

## Introduction

Over the past three decades, technological devices and processes have fundamentally transformed not only our economies and societies but also human patterns of social communication and interactions, making way for thriving and profitable new industries. The impact technology has on human beings and culture, their adaptation to or rejection of various information and communication technologies, along with the wider implications these have on people's lives, is the subject of a growing body of research. There is also evidence that professional translators today feel increasingly compelled to resort to technological tools in their practice. Surveys conducted by professional organizations, such as Québec's OTTIAQ, note a near tripling of the rate of translators surveyed who use translation memories between the 2002 and 2010 surveys (Gauthier 2010: 11).

Rather than add my voice to those researching from a synchronic perspective the specific issues and phenomena concerning human beings' (and more specifically translators') relationships with technology today, in this paper I propose to discuss the diachronic dimension of the evolution of scientific discourses, orientations and concerns in relation to translation technologies since the publication of Martin Kay's article "The Proper Place of Men and Machines in Language Translation" (1980) some three decades ago, at a time preceding the appearance and influence of the Internet and other electronic communication devices, which along with translation technologies were still very much in their infancy.

I propose to analyze the changing discourses by looking at two further scientific articles, Claude Bédard's "La prétraduction automatique : outil de productivité et d'évolution professionnelle" (1992) and Anthony Pym's "What technology does to translation" (2011). In particular, I hope to highlight what these discourses, their contexts and evolutions reveal about the changing roles and impacts of technologies on human beings and what reasons there may be for revisiting the concerns formulated by Kay over 30 years ago. Given the rapid evolution of technology in the period covered by this inquiry, as well as the many ways in which specific translation tools, communication devices and the Internet can reinforce one another (e.g. a translation memory may be supplemented with data available on the Internet and can then be shared in a collaborative spirit via social media devices), my analysis does not restrict itself to observing one specific technological translation tool and its evolution over time; instead I have opted for a more comprehensive overview of translation technologies as one aspect of the proliferating world of technology.

All three articles were penned by Western translation studies scholars (North American and Western European) and concern the relationships between various translation and communication technologies and their human users. With a nod to critical discourse analysis and its underlying assumption that language is a social practice with significant repercussions on the representation and perception of realities, I propose to reflect on the three texts at hand with a view to their linguistic, notional and contextual features, including their place and time of generation as well as geopolitical

and historical considerations. More simply put, language and texts play a major role in constructing specific realities or perceptions of the way "things are."

I would like to show how each of the three texts, within its particular context, presents, discusses and resolves its core problematic. It should be noted that in view of its age and the still early evolutionary stage of translation technologies at the time of its writing, Kay's text is—comparatively speaking—the most idealist and predictive of all three, projecting his ideas onto a future not yet known, beyond the (already somewhat post-idealist) premise that pure machine translation (MT) is an unlikely trajectory. In view of the various technological revolutions still to come after 1980, for the sake of this paper, Kay's text will be considered here as belonging to an "idealist" phase. Bédard, on the other hand, who writes twelve years later, when technology has made further advances, presents a detailed discussion of one particular aspect of translation technology, namely machine pre-translation (MPT), its roles, uses, advantages and short-comings vis-à-vis human translators, including pronouncements and predictions about the further developments necessary in translation technology. His text represents a pragmatic stage. And finally, Pym's article, by virtue of its contemporary nature, represents the most current discussion and differs from the previous two texts in that it does not restrict itself to what technologies can or might in future do for human translators but includes an analysis of what such technologies have done, are doing and are likely to do to translation and to translators. This third text thus can be seen to represent a postmodern stage.

**"Idealist" stage**

As the title of Kay's article indicates, his concern is to define a "proper place" for men and for machines in translation, seeing them both as separate entities with separate needs, roles and purposes. He nevertheless makes humans the central entity in this relationship, specifying that technologies must bring palpable benefits in order to improve the lot of translators. His discourse has a clearly philosophical dimension that places the interest of humans squarely at the centre. Whereas advocates of translation technologies are often focused on the productivity- and efficiency-enhancing scope of various translation aids, Kay emphasizes the importance of the "products of the human

spirit," "the dignity of human labour" and human freedom as core concerns for the well-being of humans (Kay 1980: 3). His human-centric rationale extends to the relationship between humans and translation technology, which he refers to as a "partnership of equals" that must assess the functioning of translation systems including its human components (Kay 1980: 11). He thus projects a rationale that calls for technology to be rational and to have quasi-human virtuous characteristics, such as "modesty," "responsibility," "reliability" and "good taste." This expression of strong humanist ideals cannot be accidental.

At the time of writing in 1980, the Cold War was still very much the pre-eminent determinant of the international world order. This might explain the philosophical-idealist flavours in Kay's discourse, as his identification with Western (political) ideals would also serve to advertise the humanistic-democratic superiority of the free world over the communist world. This might also help explain his rejection of sweeping single-system translation tools, such as MT, the earliest prototypes of which were developed in the Soviet Union. Their monolithic and inflexible nature, along with the misleading, exaggerated enthusiasm their creators pronounce in terms of their abilities are seen by Kay as misleading fictions built on the less than modest notion that science has all the answers. The same irresponsible patterns of hyperbole among the creators of technology appear to exist in our own time. The positive spin offered by the creators of Duolingo, for example, a technological innovation that seeks to combine crowd-sourced translations on a massive scale with foreign language learning is denounced in traditional language pedagogy circles as "simplistic to the extreme" (Claypole 2012).

The translation tools Kay proposes are not described in terms of their specific abilities; instead, he highlights the need for translators to maintain a range of choices and variety over how they use any tools. In addition to this degree of freedom, Kay stipulates the importance that translators retain full control when using any translation tools, so as to "increase [his] productivity and not to supplant [him]" (Kay 1980: 20). Kay thus accords the translator a pre-eminent position of control in using such tools as well as in deciding the direction in which a translation tool's evolution should advance in the future. As such, both the utility and the further evolution of technology tools are a matter first and foremost for the translator to decide.

**Pragmatic stage**

Bédard's article discusses machine pre-translation (MPT) from the vantage of its cost-effectiveness. This represents a departure from Kay's purely humanist-oriented approach and thus speaks not only to translators but also to representatives of translation-focused industries with an interest in producing higher output at a lower cost. Conceding the need for a translator's ultimate control over the translation process, Bédard somewhat relaxes the human-favoured master-servant relationship advocated by Kay and instead identifies the strengths and weaknesses of both technology and human beings in order to see where one component of the relationship might be better suited for specific tasks for which the other component shows an intrinsic disadvantage. One such human weakness, for example, is the questionable terminological consistency when dealing with repetitive texts. While a human translator's short-term memory tends to dull down in these situations, MPT offers the consistency and reliability of a machine, albeit only with text elements and processes which are essentially quite simple (Bédard 1992: 739).

Interestingly enough, as translators engage in more complicated processes, such as reformulations, compensations or proofing, which MPT cannot perform to very high standards, the final 10% of any translation can consume as much as 50% of the translator's overall efforts (Bédard 1992: 741). This seems to vindicate the pre-eminence of human translators, even when the angle of inquiry is cost-effectiveness. However, the efficiency and effectiveness of translation systems, which are often expressed in accuracy percentages, can give misleading impressions of supposed efficiency levels. An error rate of three orthographical mistakes per line of 60 characters, for example, converts to an accuracy rate of 95%, a very attractive-seeming performance, whereas that number of errors in actual practice will require a great deal of extra revision work for the translator (Bédard 1992: 742). By virtue of the impressive-seeming but often just superficially successful text manipulations MPT is capable of, the human translator is left to treat all the "deeper," more time-consuming aspects of the text. Bédard states that "machine translation does not render the tasks at hand any simpler" (Bédard 1992: 743). This is an important reminder of the limitations of technological tools and thus serves to

redress the sometimes unrealistic expectations engendered by the misleading claims of system creators who can easily skew and inflate actual performance levels.

Nevertheless the less than perfect capacities of machine tools can also function as advantages when under the control of human translators. For example the merely partial, selective (unambiguous) vocabulary choices MPT is capable of serve to preserve the syntactical structure of the source text, thus allowing translators to discern an intact textual linearity. As such, they suffer no disruptions to their usual reading and perception of the source text: "le moindre changement risquerait de déstabiliser la lecture par le traducteur" (Bédard 1992: 746). This point is significant, as it acknowledges the importance of textual linearity in translators' cognitive processes, guarding against any major disruptions in the reading flow that could lengthen and complicate the human translator's comprehension and further treatment of the text and so erase any time efficiency gains realized by the MPT tool. Furthermore, whereas the presence of translation technology in itself may be perceived as an imposition on the human translator's work rhythms and dignity, Bédard points out that the predictable, closed text elements tackled by MPT in technical texts for example, not only lightens the burden of repetition on human translators but effectively frees up translators' time and energy for more creative aspects of translation work. These tools can therefore also be seen as devices that enhance human abilities as well as the dignity of the translator's work (Bédard 1992: 755).

Bédard further specifies that MPT is meant less as an actual language tool but as a pragmatic aid, focusing on specific unambiguous terminological items rather than more complicated language elements. The service it thus provides to the human translator does not constitute a language tool but an efficiency device that can strengthen work methodologies and enhance the ease with which a human translator works through a text (Bédard 1992: 752).

Ease and comfort factors are significant humanizing aspects of MPT. But there is also a trade-off. While a human translator can gain a comfort advantage by having to type less, especially repetitive elements in a text already handled by MPT, he or she must also be alert to and tolerant of any errors produced by the MPT tool. This adds to the human translator's tasks as a "fixer" or reviser rather than a creator of translated

texts, indicating that the added benefits in one area of a translator's work will demand compromises in other areas.

MPT can improve a translator's working methods, but rather than simply enable him or her to work faster, the true objective of MPT technology is not time efficiency per se but enhanced overall quality (Bédard 1992: 759). The focus on the human translator's comfort as well as efficiency thus stresses the symbiotic relationship between humans and machines. Citing Kenneth Church's desiderata for machine translation, namely that translation systems "should exploit the strengths of the machine and not compete with the strengths of the human" (Bédard 1992: 756), this symbiosis avoids any competition between human and machine, but also highlights the centrality of the human translator who remains vigilant of the shortcomings of machine tools while handpicking the benefits of MPT where these can complement his or her own strengths.

**Postmodern stage**

In his article "What technology does to translation," Anthony Pym reminds us that technology is meant to be at the service of humans and their abilities. However, earlier human-centred perspectives are now reversed, allowing Pym to explore the effects technologies have on translation and on human translators, and how technological forces and powers influence human activity and human characteristics. As such, the collaborationist human-technology model advocated by Kay and by Bédard, along with the stipulation that technologies remain at the service of humankind, has undergone an extension. Translation and communication technologies have risen to become active forces and agents of change in their own right. Today, they wield influence over humans to the point where they may be causing fundamental cognitive and behavioural changes.

Whereas earlier paradigms of the human-technology relationship evident in the discourses of the 1980s and 1990s revolved around issues of greater efficiency and productivity—with technologies under the paramount control of their human users—Pym's discourse effectively highlights the clout translation tools and communication technologies now have over human beings. In other words, he acknowledges that humans have begun to cede their controlling subject position to technologies and today

are therefore increasingly in the role of the object of the forces exerted by technology. Whereas the old paradigm foresaw humans exploiting technologies, we are apparently moving into an era in which technologies are not only exerting control over our activities but may also be influencing humanity's further evolutionary pathways.

Pym's discourse employs the plural pronoun 'we', making us—researchers, translators, humans—the collective focus and audience of this discourse. In this regard, he both personalizes and collectivizes—perhaps even humanizes—his discussion by addressing a plurality of agents. This concurs with his assertion that the broadened opportunity horizons and larger collaborationist dimensions offered by technology, especially its communicative/Internet components, are announcing the end of translation as an individual practice, making way instead for pluralist, collaborationist models that render translation no longer a compact process in which technology and one human interact but one that engages a plurality of human actors. This premise is echoed by Maria Tymoczko, who in charting future research trajectories in translation identifies technological innovation, the forces of globalization as well as the need to transcend narrowly Western concepts of translation as important impulses that are expected to make translation an increasingly collective undertaking (Tymoczko 2005).

Humans are experiencing changes in their cognitive processes, most significantly, according to Pym, by virtue of the fact that the memory trove from which we increasingly draw is an external memory housed within communication technologies and accessible via the Internet. We thus have at our fingertips large, readily accessible volumes of knowledge that offer the translator a wide range of choices. However, this increased quantity, which serves to enhance available choices—thereby fulfilling a key humanizing factor in Bédard's vision for symbiotic human-technology systems—also risks complicating and slowing down decision-making processes (which continue to be the purview of humans), and therefore produces setbacks for human translators and for the much vaunted efficiency objectives provided by technologies. Reliance on external memories may, however, not only affect overall translation speed and efficiency but also suppress intuition—leaving conventional but richly productive internalized human abilities sidelined. This seems to conflict with a key desiderata pronounced by Kenneth Church and quoted by Bédard, namely that "[translation technologies] should exploit the

strengths of the machine and not compete with the strengths of the human" (Bédard 1992: 756). Furthermore, this state of affairs signals a departure from Bédard's stipulation that whenever resorting to technological aids, human translators should always retain a choice of working styles, while retaining control over the utility of translation tools, especially with a view to preserving in MPT the source text patterns, style and flow that correspond to the established text patterns humans are familiar and comfortable with.

Along similar lines, one fundamental structural shift brought about by translation tools concerns the disruption of textual linearity. Pym illustrates this by showing how linearity gives over to intrusions from axes of selection (such as online glossaries, terminology banks, etc.), which not only interrupt the flow of text creation and translation but also affect conventional structural and cognitive patterns of texts as constituted of a beginning, middle and end. Such disruptions thus undermine familiar and comfortable text patterns, and furthermore, according to Pym, can undercut the very communicative purposes of texts:

> These days…our work is determined by Internet searches, glossaries, spell checkers, grammar checkers, translation memory and machine-translation databases…the more technology, the less easy it is to make decisions in terms of linearity, and the less we tend to see translation as communicating between people (Pym 2011: 4).

The combined effects of external memory tools, diminished recourse to intuition and ruptured textual linearity give rise to paradigmatic patterns in the reception as well as the creation (translation) of texts (Pym 2011: 3). Are these forces not at odds with such essentially human qualities and abilities as creativity, ideas, and story-telling? If our cognitive patterns are changing so dramatically under the influence of technological devices, and if our behaviours and communication patterns are no longer just guided by each other but by technology itself, who is to say our sense of human kinship and fellowship will not also be affected? This calls into question the notion of human centrality that only three decades ago was a key stipulation in Martin Kay's stance on technology.

While Pym's discourse resorts to the plural pronoun 'we'—thereby addressing a pluralist readership, a human community—he also presents technology-enhanced translation as a forceful phenomenon and process in which humans now march to the tunes piped out by technology. This objectification of the human translator potentially invokes a measure of disempowerment in terms of the human translator's pre-eminence: "Power shifts from those who know translation to those who know and control the technologies" (Pym 2011: 5).

It would be hard to argue against Pym's assertion that technology is here to stay, especially in view of its firmly entrenched presence in various walks of life, including professional translators', based on the many uses and advantages (speed, efficiency, etc.) it unquestionably offers. However, the embrace of technology need not amount to a fatalistic acceptance of all its powerful effects, nor should its growing ubiquity oblige us to resort to its use. While much enthusiasm is devoted to the scope and utility of technologies—thus rendering them a welcome addition to present-day economic and human activities—comparatively little ink is spilled on questioning whether our rapidly increasing reliance on technologies offers a safe and sound alternative to the tools and processes they have replaced and are replacing.

Pym's example of a successful crowd-sourced translation project undertaken by the social media company Facebook suggests that communication technologies offer greater opportunities for collaboration, bringing large numbers of people together and thereby actively enhancing democratic processes and dialogue.

True enough, communication technologies, especially the various social media tools in widespread use today, can help groups of people quickly and easily rally around a cause or crisis. Roseanne Skirble reports on the relief efforts in the aftermath of the Haiti earthquake in 2010, when translators resurrected French/Creole linguistic data from a defunct project, machine-translated useful key phrases for use in disaster relief and disseminated them via social media tools and the Internet among the crisis-affected population (Skirble 2010). Social media and electronic communication tools also proved invaluable in the context of the post-earthquake situation in Japan in 2011, when other conventional means of communication, including the Internet, were disrupted, and individual media devices helped locate disaster-stricken individuals more quickly (Sato

et al. 2012). And there is even evidence that in addition to empowering individuals and allowing them to join forces in a shared cause, communication technologies can galvanize democratic processes. This was evidently the case in the course of the popular uprisings across several regions in northern Africa in early 2011, when the organization, coordination and information dissemination required for large assemblies—or the manifestation of democratic people power—were essentially rendered possible by such social media and technology tools. In the Tunisian context, for example, technologies undoubtedly helped assemble formidable crowds and galvanize popular power, leading to the overthrow of the nation's unpopular regime and making way for elections and democratic change. Elsewhere, however—notably in the cases of Egypt and Libya—where the Internet and social media were likewise being used to organize and rally for democratic changes, the governments of the day were quick to scupper and even completely shut down access to the Internet as a way to quash any further democratic empowerment (Cohen 2011). While the shutdown failed to prevent the popular forces in Egypt from attaining the peaceful overthrow of the country's old regime, the situation in Libya escalated into a protracted civil war, along with bloody and costly military interventions by foreign powers.

While other factors certainly also affect the threading of social mobilization and empowerment, the rapidity and totality with which it was possible for the Libyan government to paralyze the Internet points not only to the dangers posed by despotic governments and their ability to deactivate communication infrastructures at the push of a button but also lays bare the essential vulnerability of the electronic infrastructures underlying the operation of technology tools. No democratic guarantees exist to safeguard the open availability of such infrastructures, including in countries assumed to be mature democracies in Europe and North America. Instead, private enterprise interests play a key role in controlling the maintenance and access to these communication infrastructures.

In view of the increasing consolidation of media conglomerates and the decline of traditional low-technology media—such as newspapers—across most of the world, just a few hands increasingly control the security and availability of technological tools and infrastructures. And this is not to accuse sitting governments or private enterprise of

having an agenda to thwart democratic impulses or universal access to the Internet. Nevertheless, mistakes, such as systems failures, can and do happen, as do natural disasters. Call to mind the powerlessness of technology to prevent the 2011 post-tsunami meltdown of the Fukushima nuclear reactors in Japan, for example. Subversive human-made disasters are a further concern: concerted computer virus attacks, for example, or acts of terrorism, or, perhaps even more alarmingly, the intrinsic volatility of electronic communication devices, including the Internet, to altered magnetic radiation fields which result from the explosion of a nuclear device in the atmosphere, leading to the paralysis of all communications relying on electronic systems. Mick Jackson's BBC documentary drama "Threads" provides a still very relevant and chilling example of just how serious, destructive and prolonged a post-nuclear communications breakdown would be.

The days of the Cold War may be over; however, established nuclear powers continue to train atomic warheads on each other, and current tensions focused around apparently aspiring nuclear powers on the Korean peninsula and in the Middle East, remind us that the threat of nuclear destruction is still a very real security factor for all of humanity. Given these at best shaky underpinnings of control and security, any "democratic" gains made by the advances of technology must be questioned most seriously, for what is the use of even the most efficient, effective, empowering and popular technological or communication device, if it is beholden to a vulnerable infrastructure? It would take just one or two adverse global events, just the push of a button to render much of our communication and information technologies null and void in one fell swoop. And as we, humans and translators, run for the nuclear shelters, those of us sensible enough to still own paper glossaries, dictionaries, and pencils and paper—and granted we are physically able to carry them—will suddenly find ourselves thrown back in time. Not back to the stone age, but back to roughly 1980, Martin Kay's time, when translation professionals were apparently still in fuller possession of their minds, were not yet tethered to the perceived need to adopt and incorporate ever more technological applications for the sake of greater speed and efficiency, could still aim for autonomous translation quality, could make the most of their own well-informed

professional decisions, and there was still time to tell and listen to the stories of life's great narratives without the clanking interruptions and disruptions of clever machines.

**Conclusion**

The time period covered by the three articles, albeit comparatively brief, is immensely rich in terms of the changes and upheavals communication technologies have brought to translation. All three texts discuss human concerns and interests in relation to translation technologies. Not only have advances and developments improved earlier prototype technologies and tools so they can better live up to their intended purposes, but their growing presence and sophistication has taken their influence and reach beyond the purposes foreseen by Kay in 1980.

Since technology has made major inroads in all walks of life, especially the many communication tools and devices that can be used in conjunction with the Internet, it is not always readily discernable by what factors and to what extent translation tools are advanced purely within a translation framework or as the result of the more generalized technology push our age is experiencing. Other translation scholars have commented on this shift in the domain of translation technologies. Ignacio Garcia, for example, notes the recent shift from computer-based to web-based technology systems in the translation industry with wide-reaching repercussions on individual translators' autonomy, choice of tool, and privacy (Garcia 203). As such, this is a further sign that power over translation technologies is shifting away from individual professionals and towards big industries, while making professional translation activity, like many walks of life generally, ever more beholden to the Internet.

Martin Kay brought a humanity-centric attitude to his vision of translation technologies, namely that of a "kinder and more rational world," marked by a partnership for the benefit of human translators. If the actual presence of technologies in our lives has overshot these humanist goals to the point where the various technology tools available to translators today are redefining not only the contours of the translation process but the very cognitive structures that determine how humans perceive, receive and create texts, then both the perceptions and functions of translation technologies have

evolved from a human-centred conception to a force that increasingly influences, and perhaps even enhances human practices.

In "What technology does to translating" Pym sees these influences and the trajectories they open as opportunities for the further evolution of humankind. He points to technology-enabled possibilities for extending the social sphere, linking individual humans through interactive and communicative tools to one another and thereby giving rise to a more engaged and interconnected humanity based on a new paradigm of community and collaboration. While it is questionable whether such a paradigm will in fact strengthen the reality and experience of democracy, as Pym seems to suggest, there is evidence that human beings are wired for sociability, and that after decades of technological advances that have ruptured old social patterns and connections, technologies may now be able to foster fruitful and satisfying collaborations, both among professional translators and anyone else with a natural interest and talent for translation and may thereby indeed live up to the imperative for maintaining humans' freedom advanced by Kay.

That said, however, any democratic system requires a clear definition and demarcation of rights, privileges and responsibilities, checks and balances. Given the trends we have seen in recent times—not only a push towards an increasing reliance on the Internet as the "carrier" of translation technologies but also the increasing concentration of power and control over the Internet in ever fewer hands, not to mention the often cited problems with "policing" the Internet across international borders—it is clear that without a more serious debate about how to collectively safeguard and control the availability and stability of the Internet, translators as well as humans in general will potentially find themselves on very thin ice.

If translation technologies, along with the forces of convergence made necessary by globalization, are increasingly rendering the autonomy of the individual translator obsolete—and thereby obliterating long-cherished Western notions of an individual-centred humanism—these same forces are also making it possible for new shared-interest communities to emerge and grow and welcome individuals in ways not dictated by or confined to Western ideas and norms. Recent studies have shown that human beings are increasingly at odds with the disjointed nature of work and personal lives as

the result of proliferating technologies (Randstad Workmonitor 2012). As such, there is an apparent need and desire to delineate and consolidate new spaces of production and collaboration that allow for enhanced contact between human beings.

The technology-enabled enhanced social spheres Pym describes can offer translators an opportunity to transcend isolation, join forces with others and belong to a group of fellow humans. And while this may not concur with the version of a human-focused relationship to technology Kay foresaw, neither does it contradict it. The bringing together of people from all corners of the world so they may engage in dialogue and build committed, productive, collaborationist, and purpose-oriented communities without a doubt amounts to a positive force and vehicle for nurturing human aspirations, endeavours, and cultures across the planet. With regard to enhanced democracy, people empowerment and human security, these topics cannot be dissociated from questions of the resilience, safety and democratic controls over the infrastructures that underlie the communication technologies human cultures increasingly depend on. A vigorous debate is needed on these fronts so that the at times perhaps too rose-coloured enthusiasm for the speed, efficiency and low cost advantages associated with the technological revolution can be framed in a more sober assessment of the risks and perils that accompany the growing presence and power of technologies as well as the Internet.

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